Root Invigoration

Poor soil conditions are often considered the leading cause of tree decline. Soil compaction, lack of soil organic matter, and turf completion can reduce tree root growth, which, in turn, limits water and nutrient uptake.

Root Invigoration is a treatment for these soil conditions that was developed and patented by the Bartlett Tree Research Laboratories. The treatment program begins with an evaluation of the tree and its site. If the tree is thought to be capable of responding to treatment, samples may be collected to determine the exact needs of the tree. The Arborist Representative will determine the size of the treatment area and which soil amendments are needed.

When the crew arrives, they will remove any turf that remains in the treatment area and unload their supplies and soil amendments. Soil will be tilled using high pressure air via a tool called an air spade. The beauty of this tool is that it tills the soil without damaging roots. Once the area is tilled, the organic amendment including biochar and fertilizer will be applied to the soil surface. All the amendments are then stirred into the soil.

Root Invigoration can greatly improve the soil density and nutrient levels. This new environment is ideal for root growth. A change can often be seen in the crown of the tree within a few weeks. However, in some species, or if the process is done in the late summer or fall, results may not be seen until the next growing season.

Watch out for Sudden Oak Death this summer

The rains this winter in California were much needed. However, with the rain came the resurgence of diseases of trees and shrubs. While most plant diseases are favored by extended wet weather, one of the most concerning is Sudden Oak Death (SOD). SOD is caused by a fungus-like organism (Phytophthora ramorum) that is very dependent on wet weather for the spread of spores that initiate disease infections. In most cases, spores that are produced on ‘foliar hosts’, such as California bay laurel, drip down on the trunks of oaks, where infection occurs. This spring we observed significant increases in the level of infection in bay laurel canopies, leading to a significant increase in cases of the disease compared with

Soil samples are collected to determine the exact needs of a tree before the Root Invigoration Program begins.

The same tree in August one year later!

The fungus-like pathogen that causes SOD is very dependent on wet weather for the spread of its spores.
Sudden Oak Death (continued from page 1)

past years. Surveys conducted by University of California researchers in several Bay area parks have also shown increases in infection levels of bay and symptomatic oaks.

Treatment for SOD depends on regular applications of potassium phosphite, which is somewhat fungicidal, but is mainly effective in increasing the natural defenses of trees against this pathogen. Treatments are always more effective when applied preventatively than when applied to trees that are already showing signs of infections, or ‘bleeding’ cankers. In addition, research at UC Berkeley has shown that soil amendment with gypsum increases the efficacy of the potassium phosphite treatments.

Removal of bay laurel from the immediate area of oaks and mulching to the drip line are also components of an integrated approach to SOD management. Overall, if bay laurels are showing symptoms similar to those shown here, nearby oaks in the area should be treated preventatively to help preserve these valuable landscape assets.

WONDERS OF NATURE

Chemical warfare among plants

Allelopathy is a biological phenomenon by which an organism produces one or more chemicals that influence the germination, growth, survival, and reproduction of other organisms. This is a fascinating way some plants compete for survival. The word allelopathy comes from two Greek words: *allelon* (meaning of each other) and *pathos* (meaning to suffer).

Allelopathic plants compete by creating adverse conditions for other plants by releasing biochemicals into the soil or air. A well-known example is the black walnut tree—a chemical, juglone, concentrated in its buds, nut hulls, and roots inhibits other plants from growing under the tree.

Fun with trees

Leaves + paint = fun!

Using leaves as stamps is simple enough for children to do and full of enough possibilities to engage adults as well. All you’ll need are a few leaves, some paint and paper; also a brush to apply paint to the leaves, and something with which to press your leaf stamps down—an artist’s roller is great, but a piece of wood or stiff cardboard will do. Experiment with different effects, depending on how much paint you apply, how hard you press, and the two sides of the leaf! Start with white paper, or paint a colored background and let it dry first.
TREE FOCUS: California or Brazilian Peppertree
(Schinus molle or Schinus terebinthifolia)

History
Widely planted as ornamental trees, both the California peppertree and the Brazilian peppertree are non-native species that are considered invasive weeds in many areas of the United States. Bright red berries are spread by birds and small mammals and can displace native plants under certain conditions. Both species produce pinnately compound leaves, but the California peppertree leaflets are generally thinner and more pointed at the tips. The California peppertree also tends to have a more weeping overall form.

Culture
- Performs well on a range of soil types and pH
- Fairly drought tolerant
- Root collar areas should be kept exposed because this species is susceptible to root and trunk decay
- Volunteer seedling sprouts in planting beds should be pulled to avoid unchecked spread

Concerns
- Most damaging and noticeable insect pest of peppertrees is the peppertree psyllid, a small sucking insect that causes leaf distortion and defoliation
- Peppertrees are also commonly damaged by sapsucker birds
- Older specimens prone to structural root or basal trunk decay
- Overwatering can lead to decay, root disease, or over-extended weak branches that can fail and disfigure the tree’s overall form

Bartlett Management Practices
- The peppertree psyllid can be easily managed with systemic treatment options
- This species is a good candidate for plant growth regulation, particularly in areas where it receives more irrigation than needed

Both species have pinnately compound leaves, but the leaflets on the California peppertree are thinner.
The Santa Barbara Botanic Garden

The Santa Barbara Botanic Garden is a definite must-see point of interest. It is one of the country’s oldest botanic gardens focused exclusively on native plants. There are 78 acres of gardens arranged in sectional displays and easy hiking trails. The Garden features California’s native plants, from redwoods to desert plants. It fosters conservation through research and education, and serves as an example of sustainable practices.

Come view more than 1,000 families of native plants as you explore the diversity of California’s flora and vegetation. www.sbbg.org