

Fertilization of Trees and Shrubs

Maintenance programs should be developed for trees and shrubs in both residential and commercial landscapes. This maintenance program should include making periodic applications of water, mulch, fertilizer and mycorrhizae, as well as monitoring and controlling insect and disease problems, along with their applicable preventative measures.

Tree and shrub fertilization is especially important in urban and suburban areas of Northern California where soils are heavily compacted, poorly aerated and drained, and low in organic matter. It is important to increase plant vigor and improve root and top growth, even when soils have not been affected.

How and When to Fertilize

Prior to fertilization, the plant nutrient requirements need to be determined. How much and how often you fertilize depends on your landscape goals and the nutrient status of the soil - whether you want to stimulate growth in a young tree or maintain existing growth and vigor in an older tree. Plant stress levels should be taken into account as well. Selection of the right fertilizer and application rates will aid in achieving these goals. Established trees are typically fertilized every 2 to 3 years, although arborists recommend an annual or bi-annual application of slow release nutrients. Too much fertilization can cause fast growth which in turn can cause weak limbs and topgrowth in trees and shrubs. Excessive leaf growth can cause insect infestation. Fertilization can be applied and absorbed by plants at any time during the year, especially in California.

Fertilizer Needs

A soil analysis and foliar nutrient analysis should be conducted to determine nutrient deficiency and to find out why it is deficient (See pg. 4 for article on soil testing). Visual inspection of trees and shrubs is one way to make a determination on what nutrients they need. Look for chlorotic leaf color (pale green or yellow), reduced leaf size, premature leaf drop, reduced twig and branch growth and retention, and overall reduced growth and vigor.

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Fertilizer Selections

There are a variety of fertilizer types, such as complete (N-P-K) or incomplete (those with one or more select nutrients), organic vs. inorganic, fast and slow release, dry and liquid. Time of year, type of plant, application methods and equipment costs, soil type, etc., all determine what type to use. Check with our arborists and they will help you determine what you need. -- cont. pg. 3



European Hornbeam
Carpinus Betulus "Fastigiata"

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From the President....

The *Arborwell Times* continues to receive thoughtful and positive feedback each quarter that we send it out. This latest publication has been reduced to a more manageable size to condense the articles and information for a quicker and easier read. I am glad to hear from those who take the time to read *Arborwell Times* and happy to know it is not always put in the junk mail pile.

All of our locations are busy with the new **Hewlett Packard** contract. We were pleased to be awarded a four year contract to maintain all HP sites in the bay area and Sacramento. **Stanford Shopping Center** has signed up for another year of service to provide plant health care, pruning, removal, and holiday lighting services. Arborwell was awarded the **Sand Hill Road** widening project and the first phase is complete. This is a large project that includes removal, pruning and relocation of native oak trees.

Our **Sacramento** office is off to a great start thanks to the hard work of Greg Rogers. Greg has been busy developing relationships and building his portfolio of work in the Sacramento Valley. I would like to welcome all of our newly signed customers to Arborwell and thank them for the business!

The Plant Health Care department is getting booked up as we prepare for the spring management of insects and disease. Our 100% organic fertilizer, Full Bloom, is ready for the flower and vegetable gardens. This is a wonderful, safe product that will enhance all your vegetables and annual color.

Many people ask me what is wrong with the pine trees along the highways. The dead tips and unsightly branches are the result of **Pine Pitch Canker**. Page 3 will give a brief synopsis of this troublesome disease and some recommendations. The message should be clear, do not plant Monterey Pine trees!

Thank you for reading *The Arborwell Times*, and don't forget to take care of your trees this year!

A New Account Manager For the Sacramento Valley!

Greg Rogers has joined the company as our Sacramento Manager. Greg brings over 10 years experience in the arboriculture industry to the company.

He has a BS degree in Forestry and Natural Resources from Cal Poly-San Luis Obispo with an emphasis in Environmental Management and a concentration in Botany. He has worked with Arbor Care in San Jose and then in



Sacramento, his home. Since working in the Sacramento area, Greg has been involved in a wide variety of tree projects and is a member of the American

Society of Consulting Arborists and an ISA Certified Arborist.

THE ARBORWELL TIMES

is a Publication of

ARBORWELL™
Professional Tree Management
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Featured Species: European Hornbeam, *Carpinus Betulus* "Fastigiata"

Native to Europe and Asia Minor, the "Fastigiata" variety of the European Hornbeam is a beautiful specimen tree to have in any garden. It can be used as a screen from neighbors or along walls for coverage due to its dense branching.

This dense, pyramidal tree grows to 40 feet in height and eventually as broad as it is tall. It has drooping outer branches and furrowed gray bark.

The leaves are 2 to 5 inches long, have a saw-tooth edge to them, and turn yellow to orange in the fall. Fruit bracts appear in the fall as well. Yellow catkins appear in the spring (see photo). The tree does best in

full sun but can tolerate light shade. It does well in most soils with adequate drainage - even in the San Francisco Bay area's clay soils.

Even though it is a deciduous tree it can provide leaves throughout the year, making it ideal for screens and hedges. With its columnar growth habit, it will still provide the needed coverage when planted in rows.

Though resistant to many diseases and insects, borers and scale can be a problem if it is not monitored.

European Hornbeam is somewhat sensitive to being



transplanted in the fall, and care should be taken to amend the soil, fertilize, water thoroughly, mulch adequately, and avoid winter salt spray, to enhance survival chances during the first winter.

This tree will be a nice addition to any landscape. Let us plant one for you! ~

Pine Pitch Canker

There is growing concern that the damage from a serious disease of pines spreading throughout California called Pine Pitch Canker could devastate a large number and variety of pine species. The most susceptible species to date appear to be Monterey (*Pinus radiata*) and Bishop (*Pinus muricata*) pines. Usually found in the southeastern states, this disease was detected in California in 1986 on Monterey pines in Santa Cruz County. Now detected in 13 different species in California, the concern is for containment.

Fusarium circinatum or pine pitch canker is a fungus that is transmitted by bark, cone and twig beetles whose dispersal may carry the disease to new locations. Pitch canker is now found in 17 counties from Mendocino to San Diego.

Symptoms consist mostly of browning and dieback of branch tips, wilting of new growth, and resin exuding profusely from the site of infection. Trunk cankers appear after adjacent branch death (see photo).

Current research suggest that infection is primarily through wounds caused by insects known to carry the disease. The disease can also be carried on seeds of infected trees resulting in developing seedlings that are also infected. Death of trees may result from the effects of the disease itself, from infesting insects in weakened trees, or a combination of both. No effective chemical or

biological control has yet been developed for Pitch Canker. Management of the disease is therefore limited to minimizing the spread of the disease by pruning infected limbs. This will not stop it, but slow down its spread. Management efforts that may have some effect on minimizing the spread of the disease are:

- Removal and disposal of all infected trees.
- Sterilization of all pruning tools between trees.
- Avoiding pruning or removal of trees during periods of wind/rain.

With the popularity of the Monterey and other pines as landscape trees, this disease may prove to be devastating both aesthetically and financially to commercial interests, homeowners, and parklands.

Recommendations

Begin replacement plantings of non-susceptible species. Monitor all susceptible species regularly. Plan and budget now for removal and replacement of trees should they become infected. ~



Fertilization of Trees & Shrubs, cont from pg. 1.

Application Methods

Fertilizers can be applied either directly or indirectly to trees and shrubs. When you fertilize your lawn, the surrounding plants absorb some of the fertilizer leading to indirect fertilization. Direct application such as sub-surface injection, is generally the most effective. Fertilizer should be applied over as much of the plant's root zone as possible, usually twice the area of the dripline.

Fertilizer Rates and Timing

Rates depend on the type of plant, with younger trees and shrubs receiving higher rates than mature plants. Fertilization used to be based on trunk size or caliper, but is now based on root system spread.

Rates also depend on whether the plant is growing in a restricted area such as sidewalk cuts, parking lot islands, or where roots of several plants overlap. Fertilizer should be applied when the trees and shrubs need it and when it will be the most effective. Split applications in spring and fall may be effective, applying half at each season. Water must be present to fertilize or the plants will be unable to absorb the nutrients.

Vertical fertilizing and liquid soil injection are two methods of application, one liquid, the other granular.

What is N-P-K?

When you buy fertilizer you will notice three numbers on the package such as 10-6-4. These are percentages of the following nutrients in this order: **N:** Nitrogen- stimulates root, leaf and shoot growth. **P:** Phosphorous- used for flower, fruit and seed development. **K:** Potassium- promotes root growth and water management.

Each occurs in a complete fertilizer in different percentages. Commercially, these fertilizers can be purchased in liquid form, as granules, or as a spike. Secondary elements may also be included and listed as "guaranteed analysis." ~

Employee Profile - Jonathan Cardenas



Jonathan grew up in the landscape business working for his father's company, Crystal Springs Landscape. He then worked for three years with Arbor Essence.

He became a Certified Arborist and has been working with Arborwell since 2001.

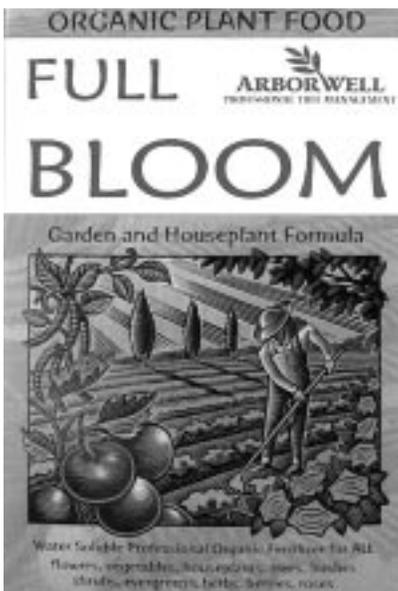
He specializes in residential customer service but maintains numerous commercial accounts as well.

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Soil Testing

Soil sampling and testing can be used as a management tool to help in decisions related to fertilizer applications for all home gardens, trees, shrubs, ornamentals, and lawns. It provides a scientific basis for maintaining optimum soil fertility levels and proper soil pH values to help attain maximum plant growth and economic yields.

Soil pH: What is it?

Soil pH or soil reaction is an indication of the acidity or alkalinity of soil and is measured in pH units.

The pH scale goes from 0 to 14 with pH 7 as the neutral point. As the amount of hydrogen

in the soil increases the soil pH decreases thus becoming more acidic. From pH 7 to 0 the soil is increasingly more acidic and from pH 7 to 14 the soil is increasingly more alkaline.

Why Worry About pH?

Fourteen of the seventeen essential plant nutrients are obtained from the soil. Before a nutrient can be used by plants it must be dissolved in the soil solution.

Most minerals and nutrients are more soluble or available in acid soils than in neutral or slightly alkaline soils. Soil pH

provides various clues about soil properties and is easily determined. The most accurate way of determining soil pH is with a pH meter.

A second method which is easy but less accurate consists of using certain indicators or dyes.

Arborwell can provide soil testing and plan a program to improve your soil and thereby your landscape.

Call us today! ~



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