

Tree Clinic Quarterly

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Message from the President

By Jerry Pulley, Registered Consulting Arborist

Every day or two someone calls saying, “My tree looks sick, can you come fertilize it?” I explain that we do fertilize trees, but perhaps we should first determine the cause of the sickly condition and fertilize only if appropriate. It seems that many people think fertilization is the single treatment for ailing trees.

This persistent “fertilizer fervor” was born with the 1887 Hatch Act, which established agricultural (Ag) experiment stations in conjunction with the state land-grant colleges – like Texas A&M. Early work from these Ag research colleges revealed the importance of fertilizer supplements to producing consistently abundant crops.

Ag extension branches of these colleges did an excellent job of disseminating their findings. Ultimately, all those engaged in the business of producing vegetables, fruits, forages and lumber recognized the correlation between fertilizer and abundant harvests. It was not until the latter half of the 20th-century that these research stations started working specifically on landscape tree problems. Still, the initial research focused on disease and insect intervention along the same lines as pest management in production crops.

Historically, and presently to some extent, industry often overlooked the dichotomy of production crops and landscape plants – particularly landscape trees. The purpose and use of food crops are fundamentally different than those of plants and trees grown exclusively for their ornamental or aesthetic value.

Food crops are largely annuals. They are planted in the spring, grown fast and large, harvested in the fall and then planted anew the following spring. Even with production fruit trees, the emphasis is on the annual crop rather than on the aesthetic quality of the tree. Once it is no longer productive, it is abandoned or replaced.

Landscape trees can be made to grow at a similar rate as production fruit trees. One can simply apply agricultural rates of fertilizers, but (there is always a ‘but’) there is a correlation between rate of growth and longevity. High rates of fertilizer will stimulate tree growth; however, they concurrently stimulate the growth of parasites. Landscape tree management emphasizes the avoidance of parasite establishment and rapid suppression once an infestation or infection occurs. This expectation of longevity is a quality unique to landscape trees.

In production crops, parasitic organisms are suppressed by administering a couple of chemical applications prior to harvesting the produce and by starting over the next season with an entirely new plant. Similarly, one can simply prune the damaged or non-productive portion of the fruit trees without regard to its affect on their appearance. (cont.)

President’s Letter continued

In addition, urban trees generally exist in a confined space with a limited root area. Fertilizer rates must be carefully calculated to accommodate the space. Reduced rates and more frequent applications are preferred over high rates occasionally applied. Supplemental fertilizers are essential to the life of an urban tree, but application rates must be properly calculated.

So yes, fertilizers are utilized to maintain tree health, but if the tree already appears sick, fertilizer alone does not often solve the problem.

Tree Tips for October through December

By Jim Houser and Clarence Bidy, Certified Arborists

Fall is the time of year to act if you want to keep your trees healthy and prepare them for winter and the next growing season. Pruning to reduce weight on overloaded branches of pecan, elm, and oak trees should be done while the leaves are still on the trees. The same holds true for pruning to clear roofs, sidewalks, yards and driveways.

After leaves have dropped from deciduous trees, mistletoe and ball moss become more apparent. Ball moss can be sprayed to kill it. Mistletoe must be pruned. If the branch that supports the mistletoe is pruned, it will be completely gone. If the branch must stay, then the mistletoe itself should be cut at the base. This is a temporary fix, as the roots are still in the limb and will grow back.

Autumn is the time to take stock of the year's occurrences and plan for next year. This holds true for tree care as well as life in general:

- ✓ Programmed release fertilizers will continually supply nutrients to your trees for 10 to 12 months. Apply now and the major and minor elements will be in place for a rapid start to next spring's growth.
- ✓ Fungicides for root and crown rot should be applied to over-irrigated areas, wet soils, and poorly drained areas contiguous to trees. This is especially important for susceptible species like post oak and black jack oak.
- ✓ Systemically applied insecticides should be applied to stressed or damaged trees to keep opportunistic pests, such as borers, aphids, and other insects, from damaging trees all of next year.
- ✓ Antibiotics applied to Spanish oaks and sycamores with bacterial leaf scorch, now and again in the spring, will suppress symptoms for several years.

Proactive is always better than reactive when it comes to health. Take action now to insure the growth and vigor of your trees next year.

Fertilizer Basics

By Jerry Pulley, Registered Consulting Arborist

You have seen the commercial on TV... the happy man buys the brightly colored bag of fertilizer from Home Depot and effortlessly spreads it on his lawn. Suddenly, his entire yard – grass, trees, flowers - is the envy of the neighborhood. It's rarely that simple.

Fertilization can be a complex process, as it requires a thorough knowledge of how all of the elements in a plant's life combine to produce results. In order to determine the type and amount of fertilizer to use, one needs to know the type and condition of the plant, the soil, and the environment. An applicator might consider some basic tests to help him to gather that information.

Soil analysis can indicate the amount of nutrients in soil, but it doesn't indicate the nutrient levels absorbed by the plant. Soil conditions – like moisture content, temperature, and pH – affect nutrient content. Due to its transient nature in soils, nitrogen is usually not included in a standard soil analysis. Additionally, the current standards to which the test soil levels are compared are derived from agriculture and may not be appropriate for woody plants. With experience, however, an applicator can use soil analysis to assist him in determining plant needs.

Foliar analysis may be useful, as it can help an applicator estimate how much of the soil nutrients are actually being absorbed by the tree. But, as with soil analysis, the results are only as good as the sampling technique.

A site analysis should include other factors, when appropriate, that may affect plant growth and the results of a fertilizer application. Important to consider are: textural analysis, bulk density, percolation, soluble salts and physical limitations to shoot and root growth.

But...in the end, it is the experience of the applicator in a given environmental and geographic area that trumps all of this information. Unfortunately, there is no 'magic bullet' test to give us a complete answer. Effective fertilization is as much an *art* as it is a *science*. Tests are great for acquiring information, but the most experienced and accomplished applicators trust their judgment more than any test when making the final decision of type and application of fertilizers.

Reference: Arbor Age 9/03
Roger Funk, PhD
The Davey Institute

The How and Why of Fall Color

By Libby Pulley

Autumn is upon us, and one of the features of the season is watching the leaves change from green to vivid gold, orange and maroon. Folklore and legends have explained this magical phenomenon since ancient times, but nowadays we are able to logically explain the “how and why” of fall color. This explanation involves geographic distribution and growth habits of trees, physics of light and color, plant pigments, physiology and anatomy of leaves, and the influence of weather conditions as the seasons change.

The eastern United States and southeastern Canada have weather conditions and tree species favorable for brilliant fall color. A few places scattered in western North America, especially in the mountains, have bright fall color, too. The introduction of exotic tree species to urban landscapes in areas where the trees are well adapted, as well as the development of cultivars noted for fall coloration have increased the opportunities to see one of nature's most awesome color presentations.

The various leaf colors we see are caused by the physics of light striking chemical pigments in the leaves. Many different pigments are found in plant matter, but for an explanation of fall color, four broad categories are responsible: chlorophylls, carotenoids, anthocyanins and tannins. During spring and summer, leaves serve as the principal site for photosynthesis, the process in which carbon dioxide and water are transformed into carbohydrates. This food-making takes place in cells containing the pigment chlorophyll, which gives leaves their green color. As the days get shorter and temperatures get cooler in the fall, less chlorophyll is manufactured by the tree. As a result, the green color goes away and photosynthesis slows down. The tree becomes frugal and pulls nutrients, such as nitrogen and phosphorus, into twigs and branches to be stored for the winter, which contributes to an even greater loss of chlorophyll.

Carotenoids (yellow pigments), anthocyanins (red pigments) and tannins (brown pigments) are present in leaves during the summer, but are masked by chlorophyll. As the chlorophyll content decreases in fall, these other colors are unmasked and can be seen. The unmasking of carotenoid is responsible for the bright yellows of sycamore, elm, birch, hickory, ash and many other species. Unmasking anthocyanins reveals the pink, red and purple leaves of sugar maples, sumac, white oak and others. A mixture of carotenoids and anthocyanins produce the vivid orange seen in some species of maple. (continued next page)

The How and Why of Fall Color continued

Good soil fertility during the growing season can also increase the intensity of fall color in tree leaves. Bright light favors red color, so leaves that are shaded may not turn as red as those at the top of the canopy exposed directly to sunlight.

Some years, autumn color is more pronounced than others. Yellows and browns always appear, but brilliant reds and purples mixed with yellow are the palette that results in breathtaking beauty in landscapes. Fall weather conditions favoring formation of bright red autumn color are warm sunny days followed by cool, but not freezing, temperatures (ideally 45° F). Rainy or cloudy days without much sunlight near the time of peak coloration will actually decrease the intensity of color.

In central Texas we can't expect the brilliant fall color of New England, but we can expect that nature will provide a mighty colorful treat come late October and November.

Welcome Lori

The pleasant and professional new voice that you may have heard when calling our office is that of Lori Nyquist, newest member of our Tree Clinic Team. Lori began in August working with Libby Pulley as office manager and administrative assistant. Besides keeping our office running smoothly and efficiently, she participates in overall company management, and graciously tutors the rest of us in using office technology.

Lori was raised in North Dakota and has lived in Austin since 1992. She spent seven years in the Army, working as an analyst in military intelligence. She received an A.A. in Government from ACC in 1994. This May, Lori completed her B.A. in History and Geography at UT Austin. Before returning to school in 2001, Lori worked as an Underwriting Analyst and Office Manager for a commercial real estate firm. In just one month at Tree Clinic, Lori has motivated us with her positive energy, and we've implemented several of her ideas to improve company operations. We're delighted she's joined our team.

