AUTUMN 2010

TREE TIPS

TREE & SHRUB CARE FROM BARTLETT TREE EXPERTS

Gardening for Autumn Color

Autumn produces some of the most vibrant colors of the gardening year. An understanding of what causes these colors and a knowledge of plants that perform best at this time can help make the most of this fabulous season.

How does a spectacular autumn happen?

Deciduous trees and shrubs show leaf color changes in autumn when day length becomes shorter and temperatures begin to become colder. Under these conditions, chlorophyll, the green pigment in leaves, starts to break down and other colored pigments show through to give yellows, oranges, reds and purples. High light levels help to build up sugars within the leaves creating the intense foliage colors of autumn. Overcast weather or shady growing conditions will not produce brilliant foliage colors. Ideal conditions for autumn color require sunny days followed by crisp cold nights.

If you're selecting plants for autumn foliage make your choice when plants are showing their autumn foliage, thus ensuring good color and avoiding disappointment.

Geographical origin and parentage are critical factors for good foliage. Plants selected from areas recognized for autumn color continue to show exceptional color when grown elsewhere.

Genetic selection also broadens the range of these plants available. Propagating such selections from cuttings ensures that autumn colors are kept.

photo credit: Forest & Kim Starr, U.S. Geological Survey, Bugwood.org

Bartlett Helps Protect Hemlocks in Rare Ecosystem

Hemlock Bluffs Park in Cary, North Carolina is a state nature preserve in the Piedmont region that has a rare ecosystem. A naturally occurring group of Canadian hemlocks is a unique feature of the park. They represent a remnant, disjunct population of hemlocks that have survived since the last ice age.

This population is at least 100 miles from (and at an elevation considerably below) what is considered to be its natural range. These hemlocks are concentrated within two distinct groups on a steep north-facing slope above Swift Creek. This unusual microenvironment has undoubtedly contributed to the survival of this species on site.

In June 2010, a team of arborists using Bartlett Inventory Solutions performed an inventory to determine the number, location and condition of the hemlocks and to develop recommendations for their continued survival while maintaining the natural character of the site. Two hundred thirty five living hemlocks were identified within the park, ranging in age from seedlings to mature dominant trees. A major, disturbing discovery revealed by the inventory was a hemlock woolly adelgid infestation of eleven trees. If left untreated, this insect has the potential to eliminate all the hemlocks within the park within the next 10 years.

A team of experts from Bartlett, NC State University and NC Forestry and Parks met with Cary town officials to discuss options to protect the hemlocks from loss due to the adelgid while maintaining the integrity of the nature preserve. The consensus of the group of experts and town officials is to attempt to eradicate the adelgid from the park using a program of careful treatment with insecticide and continuing surveillance. Treatment will be difficult due to the steep slopes in the preserve.

This will require workers to repel into certain sections in order to gain access to trees to apply treatments. This program will be coupled with a public education program alerting area citizens to the threat from hemlock woolly adelgid. It is likely the insect was introduced into the area from landscape hemlocks that were transplanted from infested areas.

If you are interested in tracking the progress of the program or learning more about the work being done at Hemlock Bluffs Park please visit www.townofcary.org or contact larry.dempsey@townofcary.org

Hemlock woolly adelgid can kill trees.

HWA photo credit: John A. Weidhass, Virginia Polytechnic Institute and State University, Bugwood.org

In the News

Tree Planting to Begin at the World Trade Center Memorial

Bartlett installed an elaborate irrigation system for the trees complete with underground soil moisture sensors.

Approximately 500 trees designated for the World Trade Center Memorial are thriving under Bartlett's care

It's been three years now since the trees designated for the 9/11 Memorial took up their temporary residence on a 12-acre site in Monmouth County, New Jersey.

We're pleased to report everything is going as well as anyone could have hoped. Since the trees were brought to the site and then installed into above-ground boxes, we've installed an elaborate irrigation system complete with underground soil moisture sensors, inspected each and every tree (there are almost 500 of them!) on a weekly basis for any insect or disease problems, and periodically added soil amendments to correct deficiencies and encourage growth. We've also been through several pruning cycles to encourage a straight stem, raise the lower branches so there's plenty of height clearance, and we reduced the lateral branches to encourage a uniform pyramidal shape to the crowns. Last, but certainly not least, we've done some corrective root pruning to eliminate girdling roots as well as removing some adventitious roots which formed many years ago when the trees were much smaller.

The trees are growing exceptionally well. Only one tree was lost to a lightning strike in 2008. All the others are looking great. When they first arrived their trunk caliper was approximately 6.5-7.0 inches. Now some of the stems approach 10" in diameter! They've grown upwards of 1.5-2.0' per year, so the trees that were 22-23' when they first arrived are now approaching 30' in height! And the leaf color is fantastic too: a rich, dark green. All of the growth and vitality data as well as treatment records have been carefully recorded over the years and are stored and periodically analyzed on a sophisticated web based computer program. This information is used by representatives from the landscape architect, the 9/11 Memorial Organization and the principal contractor responsible for the trees, Environmental Design.

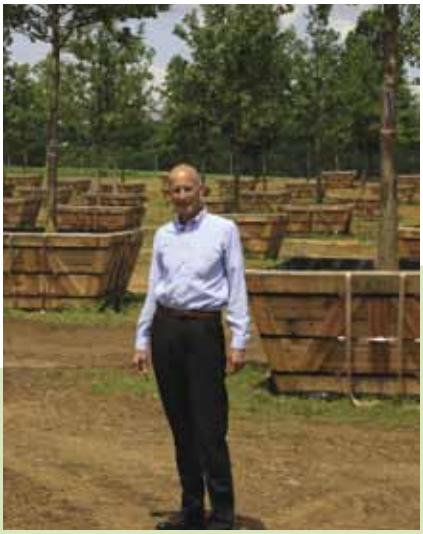
Growing the trees in above-ground boxes, with rich soil and a sophisticated irrigation system has created ideal conditions for rapid growth. The boxes will also help minimize transplant shock when the trees are installed at the World Trade Center Memorial.

In the coming months some of the trees will be transported from the holding facility to their permanent homes in lower Manhattan. We've treated every tree to protect them from wood boring insects and mite attacks. We've added fertilizer to the root system of each and every box so that they're all as vigorous as they can possibly be when they make the move up the highway to the memorial site.

Everyone associated with this project from Bartlett is excited and honored to be a part of it. We are acutely aware of the importance of these trees to the families, friends, and co-workers of the victims of the terrorist attacks. We are proud to be associated with a project that we hope will bring peace and tranquility to visitors of the site. These trees (Swamp White Oak and Sweet Gum) are sturdy natives and should perform well for many, many years. During the first two years at the Memorial, Bartlett Arborists and Technicians will continue to monitor and care for the trees according to the specifications developed by representatives for the 9/11 Memorial.

Growing the trees in above-ground boxes allowed for rapid growth and will ease the shock when they are planted at the World Trade Center Memorial.

Bartlett's Frank Heisinger in 2007 after the trees' arrival.



Mulch is GOOD for new plantings, right?

Those of us in the tree care industry have been singing the praises of mulch for years. We sometimes wonder if anyone is listening. Now, leading researchers are questioning the value of placing mulch on top of the rootballs of new plantings. **What?** You read it right. Should we be mulching the root balls of newly planted trees? We have published articles in the past indicating the problems with improperly applied mulch (stem girdling roots, diseases, insects), so the best way to avoid problems with mulch misapplication is to avoid mulch all together. However, the trade off is that you don't receive the benefits that we have praised for so long.

If you compare the risk versus reward of mulching the rootball, some industry leaders are now promoting a zero risk approach by only mulching outside the rootball of new transplants. The benefits of mulch are minimized when establishing a new plant if we follow our horticultural instincts and mulch completely. See the following list of benefits and horticultural countermeasures.

Mulch benefit	Horticultural countermeasure
Water retention	Manage soil moisture closely as should be done with new plantings anyway
Weed suppression	Pull/spray weeds competing in the new planting area
Organic matter deposition	Amend the planting hole soil with organic matter

Stem girdling roots resulting from over mulching of the root collar should be removed.

The mindset is that you can easily provide the benefits mulch offers by getting back to horticultural basics, while avoiding the potential negatives that can occur with improperly applied mulch. The aesthetics will change, but can be overcome with a slight dusting of mulch over the soil just for visual continuity.

Now, keep in mind, no one is discouraging the use of mulch, just perhaps we need to rethink the risk versus rewards when it comes to mulching the rootballs of new transplants.

A newly planted tree with original rootball left bare of mulch cover.

"Volcano" mulching can have long-term negative consequences.

Get Electronic *Tree Tips* – Plant a Tree!

When you go to **www.bartlett.com/newsletter** and enroll to receive *Tree Tips* electronically, we'll plant a tree in your name as part of the Arbor Day Foundation's reforestation project. It's easy to do! Find your client code in the yellow box on the reply card included with *Tree Tips*. Then, go to the registration link and sign up. You can always return to mail service if you prefer a printed copy of *Tree Tips*. Find out more about reforestation at: **www.arborday.org/replanting**

Ask Dr. Bruce

Can you please advise a safe distance to plant a willow tree from electric transformers and sewage lines?

You should never plant any tree where the branches could come within 10 meters of an overhead utility line. Trees can become energized if branches touch the line or even come close. That is the reason utilities prune branches away from overhead lines. Tree roots will not interfere with underground sewer lines, unless there is a fault such as a crack, which causes the line to leak. In those instances, trees such as willow that have aggressive root systems can invade the line and cause blockage and further damage. Tree roots can extend as much as three times the height of the tree away from the stem.

- Dr. Bruce Fraedrich

Can many years of accumulation of black oil sunflower seed hulls under a bird feeder hung on an old maple tree cause the top of the tree and some lower branches to die?

This is an interesting and debatable question. There are numerous references in the literature regarding alleolpathic effects of sunflower (alleopathy refers to the production of biochemicals by an organism that influences the growth, survival, and reproduction of other organisms). While it is likely that other factors are causing the decline of the maple, heavy accumulation of sunflower seeds within the root zone cannot be totally ruled out as one potential stress-inducing agent that is contributing to the poor health of the tree. I recommend contacting a certified arborist to evaluate the tree and possible causes of the decline.

- Dr. Bruce Fraedrich

This Giant Saguaro Cactus grows in Saguaro National Park, Tucson, Arizona

Pest Watch

Scale Insects

Scales insects are unusual. They look and behave very differently from most insect pests found on trees. Scale adults are small, immobile insects that live beneath a hard or soft waxy shell that is secreted by the insect. They have no visible legs, wings or antennae. Scales feed on plant sap by inserting a straw-like stylet into plant cells and removing the contents. Heavy scale infestations can stunt growth, reduce vitality and lead to branch dieback and decline. There are hundreds of species of scales that damage landscape plants.

This year many Bartlett offices have reported that scale insects are “everywhere” and in “higher numbers than ever seen before”. In particular, the cottony scales such as cottony maple scale and cottony taxus scale are undergoing population explosions. Since these are species with only one generation per year, high numbers now indicate unusually high survival of last year’s crawlers.

Although many clients have been asking why these pests are so common this year, we can only speculate as to the causes. Studies of past cottony scale outbreaks have indicated that temperature and relative humidity were key factors.

Weather during the winter and spring of 2009 was affected by La Niña’s cool Pacific surface temperatures. Conditions in eastern North America during the crawler stage were cooler, wetter and more humid than normal. For example, in June, 2009, the average temperature in New York City was 67.5° F. It tied as the eighth coolest June on record. Cooler conditions means less biological control and more adult scales the following year. Wet conditions favor crawler survival, since this stage is often subject to desiccation.

The cottony scales are generally kept in check by biological control. In particular, ladybird beetles are an important predator. Both the adults and larvae of this lady beetle prey on scales. Tiny wasps, generally classified as chalcids, are also important parasites.

Weather conditions in 2009 led to an increase of cottony scale this year.

A. Steven Munson, USDA Forest Service, Bugwood.org

Photo credit: United States National Collection of Scale Insects Photographs Archive, USDA Agricultural Research Service

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