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I’m sorry that we didn’t take the time to talk together more about our work.

I’m sorry that I didn’t review the jobs with you for the day and make sure you had a thorough understanding of what needed to happen.

I’m sorry that we didn’t take the time to check the gear before we left today to make sure everything was in functional order.

I’m sorry that we didn’t take the time to have the safety briefing before we got started on this job.

I’m sorry that we didn’t take the time to check the tree visually for hazards.

I’m sorry that we didn’t take the time to do more physical checks on the tree.

I’m sorry that we didn’t use the information available to the industry to review procedures we should have followed.

I’m sorry that we were rushing today to up the productivity rate.

I’m sorry that you won’t be showing up tomorrow to help us with the next jobs.

I’m sorry for all the tears that your colleagues, friends and family are shedding.

I’m sorry that our community won’t have the benefit of your talent anymore.

I’m sorry that we built a culture around “safety costs.”

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I’m sorry that this was all about time…and now we don’t have any more.

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TCI's mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the nonprofit National Arborist Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.
This limb, which caused a fatality, was about 10 inches in diameter, 25 feet long, and weighed between 200 and 400 pounds. The fatality occurred while the owner watched from the tree he was in.

Norm Hall of The Care of Trees prepares to conduct an employee training class on rope safety.

Trouble with Trees: ‘Autumn’
By Dr. Cheryl Smith
What to watch out for when summer ebbs and winter approaches.

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By Howard L. Eckel
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Over the past 50 years, an accelerated tendency to remove trees rather than to save trees has been the focus of efforts of many arborists throughout the United States and more recently in Europe. It is hoped that the information contained herein pertaining to structural pruning will turn this tide and bring us back to an understanding of pruning procedures that have been carried out for more than 1,000 years and are now being lost in the field of arboriculture. It is hoped that this information will stimulate a more thoughtful approach to the benefits of structural pruning and the preservation of old and valuable shade trees.

Structural pruning is the removal of live terminal growth from a shade tree to ensure its safety, healthy growth, and attractive appearance. This method of pruning mature shade trees is not "topping," nor is it pollarding. It is, however, a procedure that is used to adjust the unnatural shade tree to the unnatural environment created by man for his pleasure and the long life of his manmade shade tree.

The shade tree is a creature of man for his aesthetic and cultural pleasure. When one walks through a virgin forest or climax forest stand, one readily recognizes the competition that is going on between various species of trees and individual trees within the same species. These forest trees attempt to develop a single leader within a specific stand of trees. This is the character and habit of growth that most shade trees lived within for over 12,000 years. When we remove a forest tree from its competing neighbors, we change its habit of growth due to sunlight now available to most sides of the tree and even the lower branches. The competing single leader forest tree now spreads out and develops many leaders in a wide habit of growth that is unnatural and, many times, unsafe. This habit of growth is maintained by removal of younger and more competitive species from the sides of the tree and

These photos are of a London plane tree that was planted in April 1919. It was structurally pruned to develop a central leader in 1926, 1935 and again in 1955. Pruning was then stopped until 1996 when the tree was skinned out. Note the minimal structure to support foliage on the left and the spindly growth.
with the introduction of lawns or fields. A tree growing in this
unnatural manner is vulnerable to heavy loads of ice or snow,
or being tipped out of the ground by wind. Here is where struc-
tural pruning enters into preserving this unnatural tree.
The need to structurally prune is only carried out when it is
recognized that a shade tree is developing a growth that is dan-
gerous or may be a threat to its own existence. The tree may
also be developing a shape that is unattractive for the pleasure
of those who wish to enjoy the tree whether for shade, shape,
or protection. This structural pruning should start in the nurs-
ery and then be carried out every five to 10 years for the first
20 years of its life as a shade tree. After that time, the pruning
should be done every 15 to 20 years, depending on species, for
the remainder of the life of the tree.

Structural pruning, a
thousand-year-old procedure

The bonsai tree is a classic example of structural pruning. In
countries of the Orient, due to the lack of the opportunity to
own a large tree, cultural and religious practices have been
carried out over 1,000 years to introduce a small tree into a
private and closely held environment. These trees are nurtured
and pruned in a manner that allows them to live with limited
size, both of root and crown, for hundreds of years. This prac-
tice is basically artistic, however, it is also highly sophisticated
regarding the science of maintaining the balance between soil,
root structure, light, air, crown and foliage. This careful bal-
ance is the key to preserving a bonsai for many hundreds of
years. The basic principal used within this culture is the basis
of structural pruning of shade trees in a limited, man-made
environment.

The procedure of structural pruning has also been used
throughout Central Europe for hundreds of years. Individual
trees could be preserved within a castle or monastery walls, on
streets where soil is limited, and in gardens by limiting the
size of the living crown. Today, when carrying out structural
pruning on mature trees, this subtle balance of growth values
must be recognized by the person pruning
a tree with a bucket truck or climbing
within the interior of the tree – just
as the person trimming a bonsai
with a small pair of scissors will
carry out the same scientific
principles.

The history of structural
pruning in Europe dates back
from the 14th to early 18th
centuries. Its popularity con-
tinued in more impoverished
areas of Europe into the early
20th century. Today they are
referring to veteran trees as
ancient trees that need to be
preserved. These trees are re-
ally what one may categorize
as fuel trees. Historically,
these are trees from which
peasants obtained branches
and limbs to heat their small
cottages and houses. These
trees have been cut back for hundreds of years to a height of 20 to 30 feet. Peasants made small simple cuts with their hatchets rather than fell a very large tree and have to cut and split it into small pieces to acquire the wood fuel necessary to cook and heat their small cottages. This need was readily recognized during this period when coal was not available for heating or cooking purposes to most people in an agricultural community. Sometimes these trees were attacked for fuel when they were young by people crawling up into the tops of the trees, reaching out with a hatchet and chopping off the ends of the limbs. These fallen limbs were picked up by family members and quickly carried to the seclusion of their cottages for protection. Over time, landowners discovered that this procedure actually made some trees more attractive. A truce between landowners and peasants developed that led to the birth of pollarding of shade trees as we recognize it today.

Burning the forest to open up the land – both for protection against invaders and the growth of agriculture – resulted in available tree growth becoming extremely limited throughout Europe. Starting in the 15th century, especially in South Central Europe, a person who cut down or removed a tree to provide fuel for his own benefit was publicly hanged or thrown off the estate by the landlord, even in the middle of winter.

Pollarding became quite popular in Europe during the 16th and 17th centuries as a tool to provide fuel but also to manage trees in a way that would preserve them as valuable assets to cities and estates. It was soon realized that this procedure extended the life of a tree far beyond other trees that were of the same variety of species and growing close to the pollarded tree. Here’s where the owner of the estate and the people obtaining fuel saw the parallel between pollarding and bonsai pruning and thus recognized the value of this pruning as far as preserving the tree far beyond its normal span of life. Thus was born the practice of structural pruning.

How structural pruning began in the U.S.

Dr. Charles Sprague of the Arnold Arboretum in Boston, Mass., and others traveling to both Europe and Asia during the late 1800s and early 1900s saw the value of this structural pruning and brought it back as a procedure to preserve shade trees. Books on pruning were produced in an attempt to educate arborists and horticulturists in the United States as to the values of this method of pruning, which they referred to as structural pruning. Results of this method of pruning were, of course, more expensive and limited only to those who could afford such pruning on private estates and in prominent parks. Structural pruning was also carried out to preserve old valuable shade trees of an historic interest.

There has been a basic conflict between the pruning procedures carried out by most arborists in the United States today and the principals and practice of structural pruning as introduced in Europe and Asia. One must recognize that the background and values of arboriculture are greatly different when historically evaluated in Europe and then compared to pruning in the United States. Over the past 300 years, until the early 1930s, trees were considered by Native Americans, Spanish settlers or English puritans settling in the Americas as enemies of the human family.

The field of arboriculture in Europe was born out of productive agriculture when it was recognized that most trees had been removed from Central Europe and Britain prior to the 1600s. This was done mainly for the military advantage or for protection from invading armies; secondly to provide the only source of fuel for cooking and heating; and thirdly to open the land for productive agricultural seasonal crops. With the sensitivity to the unique value of individual trees, their preservation was considered more important, and indeed, there was almost a reverence that developed around cer-
tain small forests and individual trees both in Europe and Japan, which greatly increased their chances of preservation throughout these areas.

Settlers in the United States, especially those coming from Europe, were being overwhelmed with forest growth compared to what they had experienced in their homeland. They recognized the importance of clearing the land first for agriculture and second for their protection. These settlers noticed that burning was the method used by Native Americans, which was a typical solution to reducing forest growth for thousands of years in Europe. Thus, this war against the tree was initiated in America. Most settlers found their greatest enemy to be a large tree. It required great physical effort to remove to open up the forest canopy so that sunlight would warm the soil for growth of crops. The destruction and removal of these trees took a great deal of time and effort. As a result, there was very little concern or interest in the preservation of individual trees until the large estates and wealthy Americans began to mimic the estates of Europe and try to position themselves within the community as important, wealthy individuals who had many of the trappings of the successful Europeans.

In this way the arborists such as Martin Davey and the Davey Tree Expert Company were introduced early as a valuable asset to the preservation of trees. However, these individuals had very little background and experience in the methods of large tree preservation as compared to the climax forest tree. These "nurse trees" need to be limited in their side growth to help them develop a central leader in the main trunk and stem and to give them more strength than they would have without this pruning.

When reviewing a mature shade tree to determine whether it is necessary to carry out structural pruning, the following considerations must be made:

1. What is the basic health and value of this tree as it relates to the cost necessary to carry out the pruning?
2. Is there sufficient water, soil and nutrients available to the tree for an extended period of time so that the structural pruning, when it is carried out to suppress wide growth and force nourishment and new growth into a central leader rather than into many multiple v-crotched leaders.

Shade trees planted from nurseries that are in most cases short term "nurse trees," such as ash, maple, elm, willow, birch, poplar, and others, are short lived compared to the climax forest tree. These "nurse trees" need to be limited in their side growth to help them develop a central leader in the main trunk and stem and to give them more strength than they would have without this pruning.

The natural and unnatural tree

Before one starts structural pruning, it is important to recognize the true natural shape of a particular species or variety of species as it grows in the forest environment. Proper structural pruning and readjustment of the tree allows it to support and maintain itself and be preserved for many years regardless of its age. It should first be recognized that the single leader is the safest and most effective way of preserving any maturing shade tree. These practices are carried out to suppress wide growth and force nourishment and new growth into a central leader rather than into many multiple v-crotched leaders.

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1. What is the basic health and value of this tree as it relates to the cost necessary to carry out the pruning?
2. Is there sufficient water, soil and nutrients available to the tree for an extended period of time so that the structural pruning, when it is carried
out, will be successful for the long-
term health and appearance of the tree?

3. Will the tree be a pleasing shape as a shade tree?

Structural pruning traps available nourishment in a limited framework after pruning. This restriction of growth needs to be addressed because of the extreme damage being caused by the environmental factors mentioned earlier; it may not be possible to carry out just structural pruning unless the total needs of the tree (fertilizing, soil compaction and other factors) are considered as part of the pruning project.

How structural pruning is carried out

When first reviewing a tree to determine whether structural pruning should be carried out, the following areas should be considered:

1. Determine the safety of the tree.

2. What environmental or parasitic problems are influencing the long-term health of the tree.

3. Can the pruning procedure complement the natural characteristics and growth habit of the normal tree?

Making cuts within the canopy of a shade tree requires the discipline to make as few cuts as possible. Leave the tree appearing natural in its shape while still making the tree safe and balanced in consideration of rot and disease or other mechanical weaknesses.

Start the reduction of the crown using drop crotch pruning cuts, first in the area that is most out of balance with the structure of a central leader. Then prune and shape the remaining part of the tree to a natural form and balanced structure. However, do not overprune.

When carrying out structural pruning today using a bucket truck, it is preferred that a small chain saw be the only tool to make 4- or 5-inch cuts in most trees, and up to 10- to 12-inch cuts in very large trees. Sometimes a tree with a trunk diameter of 6 feet will require only 10 or 12 10-inch chain saw cuts in the first structural pruning procedure. However, a pole sheer may be necessary to drop crotch another 10 or 12 leaders that nutrients might race out to and cause excessive and abnormal growth beyond the desired shape that the tree is being trained to develop. Interior removal of suckers and other growth should not be considered except where they are crossing or other undesirable growth for the long-term health of the tree may be found. In most over-mature shade trees,
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interior rot is the first consideration. Therefore, structural pruning must be carried out in relation to the degree of rot or weak structure within the central portion of the tree to reduce leverage and strain on these weakened sections.

When making strategic cuts with a chain saw to reduce the crown of the tree, it is important to preserve small interior branches. If these branches are not preserved, the next season the tree will simply develop many more unattractive suckers around the large terminal cuts that will place strain on the rotten center of the old tree.

It has been found that trees such as tulip poplar, white oak, red oak and American elm can be structurally pruned once every 20 to 30 years and be preserved far longer than the neighboring tree of the same variety and species that is not structurally pruned. Structural pruning does not need to be carried out every few years. Proper procedures - when done in a balanced fashion and in consideration of all the values mentioned above - can, in some cases, be carried out only once in the lifetime of a tree, if it is done approximately one-third of the way through the normal lifespan of the unnatural shade tree.

Recognizing that each tree is different - first because of its species and second because of its environment - there is no hard-and-fast rule as to how much an individual tree’s growth can be cut back. As an example, an over-mature Norway maple may only be reduced through structural pruning about 20 percent before damage is caused by sun scorch and excessive suckering develops in the interior of the tree, destroying its health and appearance. On the other hand, an old white oak can be reduced 40 percent in mass, width and height to reduce strain on a weakened main trunk. The tree will appear attractive and healthy for many years to come.

Conifers can be successfully drop crotched and shaped, as has been proven for hundreds of years. However, the degree of crown reduction varies greatly within a particular group of conifers. As an example, a Cryptomeria, when pruned by reducing the height 10 percent to 15 percent, can kill the tree. However, the white pine can be reduced in height as much as 30 percent and still remain healthy and develop an attractive structure when pruned at the proper time of the year. This variance in degree of pruning can be found throughout many species and varieties of conifers. Generally, a conifer cannot be structurally pruned as severely as a deciduous tree.

### Misinformation about pollarding and structural pruning

When visiting municipalities, cities or old estates throughout Italy, France, Germany and England, it is often heard that we are no longer carrying out pollarding or so-called structural pruning, as it has not been recommended by influential American arborists visiting Europe because these procedures are damaging to the health of the trees.

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increasing standard of living being recognized in Europe sees that the elimination of these labor-intensive pruning procedures will reduce the cost of maintaining trees, especially in large cities and public parks. When American arborists discourage structural pruning, the Europeans tend to agree, since it will save them money. Unfortunately this destructive information is now being recognized as the reason many old trees and lovely avenues are being lost, especially in France. It is well documented that during a severe storm that went through France just a few years ago, trees that had been properly pollarded or structurally pruned survived in most cases. Those that had not were destroyed. This is simple proof that one cannot suddenly adjust a method and procedure that has been carried out on a specific tree for many years and expect the tree to adjust its character of growth in a manner that preserves it and prevents storm damage. With a better understanding of structural pruning, most particularly as it pertains to what we commonly refer to as topping, it is hoped this misinformation being spread throughout Europe will be stopped and academia, most particularly in the United States, will recognize their errors and respect the values that have been appreciated for centuries throughout Central and Southern Europe.

Let's save the tree – not cut it down

Prior to approximately 50 years ago, it was less expensive to save a tree than take it down. This was especially true in the case of a large, mature shade tree that had to be cut with crosscuts and split by dynamite or rolled onto trucks with block and tackle. Thus, when a person was presented with a cost for removal as compared with procedures carried out over a period of years to save the tree that included structural pruning, bracing, cabling and other procedures, it would be more economical to attempt to save the tree. When one reads recent articles in various arboricultural publications, there seems today to be more emphasis on how to remove a tree safely than how you may save it safely. Reference particularly herein an article regarding a split Norway spruce that, after being struck by lightning, had to be tied together before it was removed. Fifty years ago the use of screw rods, structural pruning, bracing, cabling and other procedures may have been preferred over removal. It is hoped that this presentation in regard to structural pruning will focus the arborists’ attention toward saving rather than removing trees.

It is readily appreciated that when an arborist reviews a dangerous old tree and has a bucket truck, crane, chippers, and chain saws in his yard, he appreciates that he can make more money immediately by removing the tree than by carrying out various procedures over a period of years. In this way his equipment is put to work and a return on his investment is realized immediately. This greed
of capitalism is prevalent in all of our society, but hopefully it is not significant in the field of arboriculture. It is hoped that the emphasis may be shifted back to preservation rather than destruction, especially when using structural pruning and preservation of old trees.

Structural pruning and topping

The value of structural pruning is being lost as a valuable tool by arborists in the United States. It is also being confused in articles with regard to topping. This lack of knowledge, understanding and experience needs to be adjusted in a manner so that individuals being taught in the field of arboriculture will not confuse these various procedures. Topping is clearly destructive to trees and is not what has been referred to in this paper as structural pruning. A simple method to differentiate between topping and structural pruning is the use of one's basic intelligence and appreciation for the tree's normal and attractive habit of growth.

When proper structural pruning is carried out, a red oak is reduced almost 40 percent, meaning that 40 percent of the live dormant limbs are on the ground under the tree when the pruning is done. This will result in the remaining tree being attractive and pleasing to the average citizen. Topping, when done even with one cut, can destroy the appearance of the tree and the long-term value of a particular tree. Topping has been borne out of the human need for protection or safety, whether it be preventing the loss of electricity due to the destruction of power lines or a large tree falling through a roof. The simple procedure has been to cut the top of the tree off to reduce the leverage. In many cases this is done because it is too expensive to cut the whole tree down. This narrow and ignorant approach to proper pruning of trees has been expanding with the birth of chain saws as tools used by arborists. It is hoped that through individuals taking courses in structural pruning that another solution may be found for the safety, preservation, and attractive appearance of shade trees.

Henry Davis has worked in the field of arboriculture for over 50 years. He was president of Lowden, Inc. from 1957 to 1979. He helped write legislation and establish the first pesticide boards in the United States in Massachusetts and New Hampshire as president of the Massachusetts Arborists Association. He was the second chairman of the Examining Board for the Massachusetts Certified Arborists, the first certification board in the United States. He has studied structural pruning throughout Europe and the United States over the past 50 years. He is presently a landscape consultant working in the immediate Boston area and Long Island, N.Y. He teaches structural pruning at the University of Massachusetts at Amherst.

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TREE CARE INDUSTRY - SEPTEMBER 2002
Changes in CDL Program

Federal Motor Carrier Safety Administration recently amended its federal commercial driver’s license (CDL) rules to ensure "only safe drivers" operate commercial motor vehicles (CMVs). The rule amends 49 CFR parts 350, 383, 384, and 390 and will be effective in October. The amendments were mandated by the Motor Carrier Safety Improvement Act of 1999.

The CDL Program and the Commercial Driver’s License Information System were established under the Commercial Motor Vehicle Safety Act of 1986 to serve as a clearinghouse and repository of commercial driver licensing and conviction data. The two programs require states to prohibit drivers convicted of certain serious traffic violations from operating CMVs.

States that are not in compliance with sections of the amended regulations may have Motor Carrier Safety Assistance Program grant funds withheld, according to the final rule.

The FMCSA also said that compliance with a proposed 10-day conviction reporting requirement raised the greatest concern among commenters because state agencies facing the potential loss of funds - particularly law enforcement - have no direct control over compliance by other agencies within the state - particularly the courts.

Driver disqualification offenses

The final rule’s revisions include reasons for which a driver can be disqualified from holding a CDL. They include drivers who have been convicted of traffic offenses while operating a non-commercial motor vehicle that results in their license being canceled, revoked or suspended.

Two new offenses resulting in "disqualification" have been added:
• Driving a commercial motor vehicle after the driver’s CDL was revoked, suspended, or canceled for violations while operating a CMV;
• Causing a fatality through the negligent or criminal operation of a CMV.

In addition, three new offenses are being added to the list of serious traffic violations for which a driver can be disqualified if convicted two or more times within a three-year period. They are:
• Driving a CMV without obtaining a CDL;
• Driving a CMV without having the license in the driver’s possession;
• Driving a CMV without having met minimum testing standards for the specific class of vehicle being operated or for type of cargo being transported on the vehicle.

To ensure that states obtain a complete driver’s record, another amendment requires applicants for an initial CDL, or those transferring or renewing a license, to provide the state with the name of all the states where they have been licensed to drive any type of motor vehicle.

Drivers must hold CDLs if they operate in interstate, intrastate, or foreign commerce and drive a vehicle:
• with a Gross Vehicle Weight Rating (GVWR) or Gross Vehicle Weight (GVW) of at least 26,001 pounds, whichever is greater; or
• with a gross combination weight rating of 26,001 pounds or more inclusive of a towed unit with a gross vehicle weight rating of more than 10,000 pounds; or
• transporting a quantity of hazardous materials requiring placarding, regardless of the vehicle weight.

Because the CDL is a state-issued license, you should check with appropriate state officials regarding particular license classes and specific exemptions. Your state’s minimum vehicle weight requirements may be lower than the federal requirements above.

Peter Gerstenberger is vice president of business management, safety and education for the National Arborist Association. TCI
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<th>Model</th>
<th>Year</th>
<th>Engine</th>
<th>Transmission</th>
<th>GVW</th>
<th>Crane Type</th>
<th>Hook Height</th>
<th>Equipment Details</th>
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<td>CAT 300hp, 8 spd +Lo +Lo/Lo, 58,000 lb GVW, with 21 ton NATIONAL 900C crane, 133 ft hook ht, 18 ft steel flatbed</td>
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<td>95 FORD LNT8000: 8.3L Cummins, 275 hp, 8 spd +Lo +Lo/Lo, 73,280 lb GVW, with 10 ton CORMACH 1900E crane, 33.2' max side reach</td>
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<td>5360 3123 Bethlehem Pike • Hatfield, PA 19440 • Phone 215-721-4444 • Fax 215-721-4350 • <a href="http://www.opdykes.com">www.opdykes.com</a> Please circle 46 on Reader Service Card</td>
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Each spring, SavATree kicks off the season with a team-building day for our branch and corporate managers, usually involving an outdoor activity such as hiking or orienteering. This year it seemed more appropriate to perform a community service project. We were honored to take on the tree recovery aspects of the restoration work at St. Paul’s Chapel in New York City, the church that became the spiritual center of the rescue and rebuilding efforts at Ground Zero. It was our honor to volunteer our historic tree restoration expertise to assist in the reclamation of the grounds and ancient cemetery surrounding St. Paul’s. Like many companies, we had been searching for a way to contribute our talents to the cleanup efforts.

SavATree’s president, Daniel Van Starrenburg, reviewed the objectives, responsibilities and crew assignments for the day. Equipment was checked and rechecked, particularly since some of the project’s “climbers” were managers who hadn’t been up in a tree in years. But the challenge of the task, together with a groundswell of patriotism, combined to energize our team into tackling some very tricky climbs, and converted some of our “corporate types” into hard-working ground assistants.

As mourners and tourists viewed the wrought-iron fence where hundreds of cards, signs, posters and pieces of clothing were hung as a shrine, our crews began the complicated task of restoring the health of the beautiful sycamore, elm, oak, crabapple and dogwood trees that had survived the explosions and fires that engulfed most of the area. The first step was to remove the debris from the canopies and perform maintenance pruning. We realized immediately that we were observing something that we couldn’t explain; how did these trees remain standing, virtually free of wind damage, with tiny branches still intact, when brick buildings farther away from the blast were severely damaged?

Aluminum blinds were just the beginning of the debris that was tangled in these specimen trees. We wrestled out imbedded glass, clothing, draperies, fiberglass insulation, pieces of heating ducts, rubber window moldings and other unidentifiable materials – some of which was so hopelessly tangled in branches that it had to be pruned out. The debris was carefully laid in a pile at the request of the FBI, who would pick it up later in the day and add it to the mountain of evidence being collected.

Although this grounds restoration project was without precedent, we marshaled our historic property experience to develop strategies to protect the church itself, which dates back to 1766; the wrought iron fence with the many remembrances still attached; and ancient tombstones in a small graveyard that were undergoing a restoration project of their own. As with any delicate property, planning, preparation and communication among the crews were critical to protecting the outdoor integrity of the church grounds. In addition, pedestrian safety was a challenge since groups of travelers were continually emerging from the adjacent subway station, and crowds had to be respectfully redirected as limbs were carefully lowered onto the sidewalks.

Spurred on by the encouragement of the onlookers waiting patiently in line for the viewing platform, our team worked throughout the day climbing, detangling, pruning and cleaning up the trees that used to provide shade for the park benches beneath, a favorite lunch spot for locals before the attacks.

The volunteers who were serving meals to the rescue workers came out of the church to share their stories with us.
One young woman, who had come up from South Carolina on Sept. 12 and decided to stay to become the head volunteer coordinator, thanked us for our efforts. She said, "Seeing the debris in the branches every day was a visual reminder of the attacks. Now when we come out into the courtyard, we will look for the spring blooms and leaves that we so desperately need this year. Having our trees back is life affirming for us. Thank you."

As we were cleaning up our equipment, I spotted one of our veteran arborists carefully picking up a child's drawing of the American Flag and placing it back on the fence from where it had fallen. We were humbled by the experience, in awe of the patriotism surrounding the site, and very, very proud to be a part of the cleanup. It was a project that none of us will soon forget.

Luann O'Brien is SavATree's vice president of marketing & sales development.

Commercial drapery is wrestled out of a sycamore.

A window frame from one of the towers?
**Limb Shear Attachment**

The Gradall Company has introduced a unique tree limb shear attachment designed to be used with Gradall excavators to trim and remove tree limbs. The attachment's jaws are powered by the excavator's tool cylinder and controlled by joysticks in the operator's cab. The attachment can be positioned at different cutting angles to trim large branches generally up to 10 or 12 inches diameter. The attachment can also be used to pick up and pile trimmed branches at roadside. For more information, contact The Gradall Co, at (330) 339-2211.

**Turbo 10**

Wright Manufacturing has added the Turbo 10 to its family of Grass Gobbler professional-quality catchers. The Turbo 10 is a high-capacity system designed to fit all Wright Stander and Sentar models. The Turbo 10 has three intake venturis and perforated steel panels that function as a simple venturi system, lifting grass away from the walls. This helps increase velocity to produce a tighter packing of the grass. The curved front directs grass to the back of the catcher, keeping it from clogging the mower. The front section, which has a capacity of 4.8 cubic feet, can be used by itself for small jobs or with the 6-cubic-foot rear section. For more information, contact Write Manufacturing, 4600 Wedgewood Blvd., Frederick MD 21703; call (310) 360-9810; or fax: (301) 360-9820.

**Yaktrax**

Yaktrax, a Washington State company, has begun distributing its Yaktrax shoe traction devices. This safety device stretches over the soles of shoes or boots and contains small metal coils (not spikes) on the bottom that provide traction on compact snow and ice surfaces. Yaktrax has a double-diamond design, and opposing coil systems are designed to keep the user from sliding side to side and front to back. For more information, contact Yaktrax at (360) 479-5934 or visit www.yaktrax.com.

**Cambistat 2SC**

Rainbow Treecare Scientific Advancements has introduced a new product called Cambistat 2SC for arborists. Cambistat is a soil-applied plant growth regulator that reduces tree growth and provides therapy for trees in stressful sites. A single application provides these benefits for multiple years depending on growth and use. Cambistat is absorbed by the roots and transported to the growing points where it inhibits the formation of gibberellic acid, the plant hormone responsible for cell elongation. The tree response to inhibition of gibberellic acid also includes a higher root-to-crown ratio, enhanced chlorophyll production, greater tolerance to drought, and energy reallocation to storage, fruit and flower development, root system growth, and defense. For more information, contact Rainbow Treecare Scientific Advancements, 2239 Edgewood Ave. S., Minneapolis, MN 55426-2822; call (952) 922-3810; or fax (952) 252-4720.

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Trelan Mfg. Model 8000
Trelan Mfg. has introduced the first of its new brush chipper models, the Model 8000. Designed with the same features as Trelan’s large models, the 8000 is designed to handle material with a maximum diameter of 18 inches. The chipper has a forward-angled chipper disc that utilizes the inertia of the cutter wheel by drawing wood toward the center of the disc, resulting in fuel conservation and less stopping of the feed system. Standard features include a 2-inch-by-8-inch tubular steel frame, hydraulic front and rear stabilizers, automatic feed system, planetary torque hub drive for the top feed wheel, torsion axles with electric brakes, crank-type discharge rotation and live hydraulics. For more information, contact Trelan Mfg., 498 Eight Mile Road, Remus, Mich., 49340; call (989) 561-2280; e-mail tralan@trelan.com or visit www.trelan.com.

Stainless Steel Salt and Sand Spreader
Hiniker Company’s expanded snow and ice control product line now includes two stainless steel salt and sand spreaders. The 6½-foot Model 620 is powered by an 8 hp engine and is designed to fit full-size short-box pickups. The 8-foot Model 820 utilizes a 10.5 hp industrial/commercial engine and fits standard box trucks. Corrosion-resistant stainless steel is used to form the hopper, hood, engine plate and spinner chute, disc and deflectors. Standard hopper capacities are 1.45 cubic yards for the 6½-foot unit and 1.78 cubic yards for the 8-foot Model 820. Adjustable baffles and deflectors on the discharge chute allow customized spread patterns up to 25 feet wide. An in-cab control console operates the electric starter, clutch and throttle. An extended-length spinner is available for flatbed or dump box applications. For more information, contact Hiniker Company, 58766 40th St., P.O. Box 3407, Mankato, MN 56002-3407; call (507) 625-6621; fax (507) 625-5883; or visit www.hiniker.com.

Got Cutting Edge News You Want to Share? Send it to: Cutting Edge, TCI Magazine, 3 Perimeter Road, Unit 1, Manchester NH 03103 Or e-mail: Ziminsky@natlarb.com
John Hendricksen:

There is always a level of complexity in dealing with OSHA, since the agency operates on a national as well as a state level. Through my experiences with OSHA — including a couple OSHA inspections — I have gained a certain philosophical knowledge of how OSHA works. I would like to pass on some of that knowledge, stressing that I am an arborist and not an expert on safety or OSHA.

Safety is a moral imperative, and we have a responsibility to our workers to send them home the end of the day. I have devised three major reasons why you need a safety program:

1. We have a responsibility to upgrade the profession. When we have accidents, it is a failure for us as an individual, company and industry. We have a responsibility to promote a safe workplace.

2. It is simply good business to have a safety program. It is easier to recruit employees and retain them when you aim to keep them safe. You actually make money with safety! Safety pays.

3. It's the law. Focusing your energies on fighting enforcement is a backward approach. Start from the top down and devise a safety program that can be explained and defended easily and will also protect workers from bodily harm. Though the likelihood of receiving a citation is fairly small, your best defense in the event of an inspection is to have a solid safety program in place. It is too late when OSHA is knocking on your door.

Here is what you can expect in your dealings with OSHA:

♦ Twenty-four percent of all OSHA inspections are prompted by an accident. You have eight hours to get in touch with OSHA following a fatality or serious accident where more than three people are sent to the hospital. After a serious accident or a fatality is not the time to come up with a safety program to present to OSHA.

♦ Thirty-one percent of all OSHA inspections come from employee complaints. OSHA officials decide whether or not a complaint is serious. They follow up with a letter letting you know that they have received a complaint, and, if they think the issue is serious, set up an inspection. It is important that you maintain good relationships with your employees so they let you know of any unsafe or potentially unsafe practices at the company first. Remember that employees have the opportunity to complain to OSHA if they feel that their safety is being compromised in any way.
Twenty-three percent of all OSHA inspections are referrals, which ties into the accident issue. Frequently, the first people on the job site after an accident are local police. If they call OSHA, it is considered a referral. This can happen even if a police officer comes by and notices something he or she thinks is unsafe. Out comes an inspector.

Twenty-two percent are other forms of OSHA inspections. OSHA has targeted our industry because of the high number of accidents. As part of this initiative, they have been sending out mandatory questionnaires that you are required to send back. The questionnaire asks what accidents have been occurring and the number of man-hours you and your workers are putting in. The results of the questionnaire will help OSHA decide whether you meet the criteria for an inspection. You can go to the OSHA Web site and find out if you are on this high-priority list.

OSHA is focusing its energy on high-accident industries and high-accident companies. Our company had an inspection as a result of our questionnaire.

This diagram depicts how a tree trimmer died from a fall. In this instance, the lanyard was attached to a tree branch that failed. This tree trimmer was 28 years old, had little experience and had only been working for this particular employer for five months. The employer had 17 years experience – 11 of those years in his own business – and had no written safety program in place.
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The process of the inspection

In our experience, the OSHA inspector called and told us we were scheduled for an inspection. He gave us a list of things we needed and told us some of the things they would look for. He told us they wanted to see our OSHA logs and our safety program. OSHA officials will want to see the specifics around any recent accidents and will want to interview employees who were on the job site during the accident.

That is the informal beginning of the inspection process. In our case, OSHA officials gave us enough warning about what day and time they would arrive. We had time to prepare.

The most significant part of the inspection process, aside from looking at all the paperwork (particularly if it is around an accident), is the interviews with employees involved in an accident. Such interviews, by law, are private, and company owners are not allowed to be present. OSHA officials will ask employees about the accident and your safety program, as well as what exactly goes on in the company. If what they find out in the interview is totally different from what you have been telling them, you will have a reconciliation issue. Employee statements are considered more credible than your paperwork, your files, or what you tell them as the manager. If everything lines up, you're in good shape. If it doesn’t line up, then you will have some explaining to do.

Next, OSHA officials will come up with a list of issues for a closing conference. At this point they will tell you what they found, what course of action they recommend for you, and what potential citations you face. You have an opportunity to respond at this time and they will tell you what your rights are. I would recommend that if you are facing an OSHA inspection, get some outside help in the form of an OSHA consultant. Most of our safety programs are focused on preventing accidents within arboriculture, but OSHA inspectors check for a wide array of things that aren’t specific to tree care, such as grounded three-way prongs. An outside consultant will know what else the inspector focuses on.

OSHA and some states have consultation services. In my opinion, if you regularly call your local OSHA office and have signed up for the consultation service, OSHA will back off from an inspection, figuring that if they have somebody on site working with you, then you are showing a good-faith effort to have a safe workplace. You can get free consultation from either the federal government or from the state department of labor. We chose to hire a private consultant to come in and do a self-audit.

Fines

The fines get serious when someone’s health is immediately at risk – up to $7,000. A non-serious fine is about $1,500. A willful violation fine, which means you have been cited previously and did nothing to correct the problem, is even higher and can result in jail time for the owner/manager. There are some fairly serious consequences to these citations.

In Illinois, where our company is located, there was an OSHA violation that had dire consequences and can serve as a lesson for us all. A film reprocessing plant was using cyanide as part of their process and, as a result, had a fatality with one of their workers who only spoke Polish. This
Successful companies have effective safety programs.

Does yours?

Your company's safety program is vital to its profitability, professionalism and success. Whether your company has an existing safety program or is trying to develop and implement one, the National Arborist Association (NAA) Model Company Safety Program can help you establish the most comprehensive and effective safety program possible.

A program developed with the aid of the NAA Model Company Safety Program will:

- Prevent injuries, vehicle accidents and property damage
- Lower insurance costs
- Satisfy contractor/commercial client bidder requirements
- Boost productivity
- Ensure OSHA compliance
- Produce better motivated employees
- Improve ability to finish jobs on time and within budget
- Enhance your company's reputation

The NAA Model Company Safety Program represents the best practices of some of the foremost companies in the industry. It contains instructions to guide you through implementation, as well as sample company policy language and useful forms for program implementation in print and on CD.

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worker could not read English and the company could not come up with any documentation that proved this worker had been trained to deal with the hazards of the job. The state attorney filed murder charges against the company’s president and general manager. There are certainly thousands of people working in our industry who don’t speak English well. What sort of documented training have you provided to them?

As our industry hires more and more workers who are not native English speakers, it is important we go the extra mile to make sure they comprehend their company’s safe work practices and safety programs. Following an accident or during an OSHA inspection, workers communicate to OSHA about whether they understand your safety program.

If you are cited and fined, you will have the opportunity to sit down with OSHA and negotiate the fines. At that point, you should have legal counsel help you out.

Most violations involve hazard communication, and that is where you should have your MSDS forms available so you can show them to the OSHA inspector. This indicates that your job sites have these materials available to your employees and also that the workers have been oriented to the job site and the hazard communication program. Having said that, it is interesting to note that the largest hazardous chemical we have and the greatest risk we have is the gasoline that goes into our vehicles. This accounts for the No. 1 OSHA citation in our industry.

The No. 2 OSHA citation in our industry is the General Duty Clause, or Section 5(a)(1), where they can pull out our industry’s safety standard, ANSI Z133. Personal protective equipment, safety belts, lanyards, proper containers, working near wires, electrocutions, eye and

This photo depicts a tree in which a tree trimmer was electrocuted. The 22-year-old tree trimmer had been in the business for seven years, working for the past three years for the same employer. He was working 3 feet from the power lines in drizzling rain to remove the dead 45-foot tree. He had on full equipment plus rain gear, and was working with a groundsman. The job had been assessed by the company owner, and workers had noted the power lines between the branches. The tree climber climbed with a chain saw, tied himself to the tree, and planned to trim branches on the side of the tree near the power lines before felling the tree. He was electrocuted when he contacted a single-phase secondary power line with 220 volts. There was no sound from the saw or buzzing from the wires. The company he was working for had no safety or health program.

This limb, which caused a fatality, was about 10 inches in diameter, 25 feet long, and weighed between 200 and 400 pounds. The fatality occurred while the owner watched from the tree he was in.
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The nationwide combined number of fatalities, hospitalizations and serious injuries in the tree trimming industry from Jan. 1, 1980, to Oct. 15, 1998. Of those numbers, 62 percent were fatalities, 15 percent required hospitalization, 3 percent were non-hospitalization injuries, and 19.5 percent were not specified.


Assessing accidents

We all need to make sure we train our people. If you train your people, they will know that personal protective equipment is important. Hearing, eye and head protection are all-important, but to me, the most important aspect of worker safety is training people how to do the job correctly.

In New Jersey, we have a training/educational group called the New Jersey Committee for the Advancement of Arboriculture. It was started in 1990 when several people who are members of tree related organizations got together and started doing tree trimming and worker safety training. The Committee for the Advancement of Arboriculture is a non-profit organization comprised of all the major tree organizations in New Jersey. They include the Department of Parks

Steve Chisholm:

My dealings with OSHA have been more of an investigator or educator. When OSHA was established in 1970, it was concerned with fatalities and injuries on the job. At that time, among small businesses, the majority of owners and employees viewed the government as an opponent rather than a partner in the pursuit of the American dream. This has changed slightly. Now, OSHA is more interested in preventing injuries than writing citations. OSHA feels that if you have a company safety policy and you are training your people, then it is worth their while to work with you instead of just levying fines.

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A breakdown of fatalities and injuries in the tree trimming industry from Jan. 1, 1980, to Oct. 15, 1998, shows that struck-by's, electrical shock, and falls were the leading causes of fatalities and serious injuries for that time period. Source: OSHA's Integrated Management Information System and Bureau of Labor Statistics.

FACE

The committee has been working with the NJ Health and Senior Services Fatality Assessment and Control Evaluation (FACE) program, which is an injury research project to prevent occupational injuries. FACE identifies all New Jersey work-related fatal injuries, investigates specific sites where injuries occur, and develops and distributes educational information. FACE started working with us at the Committee for the Advancement of Arboriculture to understand what we do and how we do it. The New Jersey FACE project is currently focused on machine-related fatal injuries, youth fatalities, highway work zones and tree trimming because of the numerous fatalities in these sectors.

Federal OSHA will invite FACE officials out to fatality sites. They come out and question the people involved about what happened on the job site. They try to put together what they think happened, which can sometimes be difficult since they are not "tree people."

An example of an accident report might read something like this:

"Tree trimmer electrocuted while trimming a tree. He was 22 years old and employed with the company doing this job three years, but had been in the tree business seven years. The tree was 3 feet from the power lines in drizzling rain..."
conditions. The company had no safety or health program in place. He was trying to remove a dead 45-foot tree at a job that had been assessed by the company owner. Workers noted power lines between the branches of the tree. He wore full equipment plus rain gear. He was working with a grounds man. He tied himself into the tree and planned to trim the branches on the side of the tree near the power line and then fell the tree. There was no sound from the saw. There was buzzing from the wires. He contacted a single-phase secondary power line with 220 volts. There could have been a second electrocution. The chipper operator saw the victim holding the power line with his two hands. He called for help, tied a rope around his waist and climbed the tree. He jumped from a fence to a branch. Luckily, the police arrived before he could use the rope to lower the climber.”

In another investigation, a grounds man was killed by a falling tree section. He hadn’t taken part in any written safety program and had received no formal training. We see this over and over again when investigating. After he had taken the top out of the tree, the bucket operator started to chunk the pieces off. The grounds man walked back under the tree and was struck and killed.

Expansion for the New Jersey FACE project includes continuing on-site evaluations and the injury prevention advisory group that includes the Committee for the Advancement of Arboriculture, as well as expanding educational focus. Everything is geared toward more education—hopefully prior to injuries and fatalities.

There have been a number of recent fatalities in New Jersey. In the past year, there were eight fatalities in just one OSHA region. There are four OSHA regions in New Jersey. In my opinion, the key to safety is having a safety program in place. In 26 years of business, our company has had no serious operational injuries. We had a cut finger, a torn ear and a broken foot. That’s about all in the past 26 years!

All the protective gear now available helps employees minimize injuries, but the culture of safety is imperative. For example, you may wear your seat belt when you drive your car and you might have an airbag, but how do you drive your car? Seat belts and air bags help save lives, but the way you operate your vehicle is more important. We need to combine the right safety equipment with proper, well-trained, safe working attitudes.

Play it safe, and institute a culture of safety at your company. If you belong to a professional association such as the National Arborist Association, you can obtain safety-related information and have the opportunity to instruct your employees so you can keep them—and yourself—out of harm’s way. This is the best way for you to send your workers home every day in tip-top shape, and at the same time ensure that your company will stay on OSHA’s A-list.

This article was adapted from a presentation at TCI EXPO 2001 in Columbus, Ohio.
The work order for the morning calls for pruning a 70-foot tall red oak. This tree has never been maintained, so the inside of the crown is full of dead limbs that are a lot like barbed wire to climb through. During the pre-climb inspection, a limb off to the side of the crown is spotted that would make a really nice tie-in. This tie-in will eliminate working up through the mess and can get the climber to the top in short order. A line is set after several tosses and a lot of work getting the tie-in limb isolated. After attaching ascenders to the doubled rope, the climber starts up. On the way into the tree, the climber meets his worst nightmare: hornets! The climber is trapped and must attempt to change over to a descent system while the hornets are expressing their frustration with the intruder. This time, the climber is able to escape with only stings from the attack.

There are systems for entering the crown of the tree that are quicker to set up and also have an escape system (or back door) built into them. Single rope technique (SRT) is a system that cavers have developed for long, free-hanging entries and exits. As usual, in arboriculture, the technique has been adapted and modified to fit our unique place in the vertical rope world. SRT is a system that requires a few new tools. The ease of setup and quick canopy access will offset any of the gear expenses. There are many other advantages to using SRT that will make the system efficient and safe for arborists.

History of SRT

Current practice in arboriculture is to use a throwline to set a climbing line into a high limb and ascend to the tie-in position. In order to use this tie-in point, the climber needs to spend time isolating the limb by using the stick trick or by eliminating interfering limbs by attaching a throwbag onto both ends of the throwline and manipulating the bags. This takes a lot of time and can be quite frustrating when the tree has many limbs in the crown. Cavers, search-and-rescue personnel and other vertical rope workers have developed the SRT to enter and exit long drops. By using less energy to ascend the rope, more energy is left to climb and work.

For many years, arborists have used a technique where a rope is draped over a limb and both ends of the rope are climbed. This system has been referred to as double rope technique, but this term is not accurate. True double rope technique (DRT) is popular with rock climbers in Europe. The climber is attached to two separate ropes and uses two separate belay systems. If one rope fails, there is redundancy. A more accurate name for the arborist system would be to call it a doubled rope technique (DdRT), since one rope has been doubled over a limb. If one leg of the rope fails in this system, the whole system could fail. This is an important point and needs to be remembered in order to differentiate between SRT and DRT.

Like any new climbing technique, SRT needs to be learned and practiced “low and slow.” Find a tree with an access limb that is about 12 feet off the ground. Working close to the ground keeps the whole system visible. The climber can make adjustments and fine-tune all the components while on the ground. Once the climber is completely familiar with the system, it’s time to set the ropes in the canopy of the tree.

Inspection

As usual, the climber needs to do a thorough pre-climb inspection of the equipment, tree and work site. A top-to-bottom inspection of the tree and surrounding area should bring any hazards to the climber’s attention. While completing the canopy inspection, look for limbs that could be used for setting the rope to access the tree. Sometimes the access limb isn’t the limb that will be used as a final tie-in for working in the tree. By finding a limb that is away from the center of the canopy, the climber may have an access path free of brush and interfering limbs.
Rope choices

The basis for SRT is the rope. Arborist rope can be used for SRT, but is not the best choice. Since arborist ropes are labeled half-inch diameter but most are actually larger, they aren't compatible with many ascending and descending tools that have been developed for other rope disciplines. Another consideration is the amount of stretch built into arborist ropes. If the rope stretches during ascent, the climber loses efficiency. Rather than all of the climber's energy being used to move up the rope, some is wasted by bouncing on the rope. Static lines have much less stretch. Smaller diameter static lines can be used as access lines because they are stronger than arborist ropes. A typical 7/16-inch diameter static line will have a breaking strength of over 8,000 pounds. Using a bright-colored access line keeps the line visible and the climber can easily differentiate between the access line and a working line.

ANSI Z133.1-2000 states that: “Arborist climbing lines shall have a minimum diameter of 1/2-inch (12.5 mm) and be constructed of a synthetic fiber, with a minimum nominal breaking strength of 5,400 pounds (24kn) when new. Maximum working elongation shall not exceed 7 percent at a load of 540 pounds (2.4kn). Arborist climbing lines shall be identified by the manufacturer as suitable for tree climbing.

“EXCEPTION: In arboricultural operations not subject to regulations that supersede Z133.1, a line of less than 1/2 inch diameter (12.5 mm) may be used, provided the employer can demonstrate it does not create a safety hazard for the arborist and they have been instructed in its use. The strength and elongation ratings of the line selected shall meet or exceed that of 1/2-inch arborist climbing line.” (3.5)

Installation

The time to choose the best location for the access line is before you set a throwline in the tree. If the climber chooses to isolate the access limb, the limb must be very sturdy. Since the climber will be doubling the load on the limb after the standing end of the rope is secured, the limb will be subjected to larger loads than with DdRT or in traditional climbing systems. If the climber bounces on the rope during ascent, the load will increase in the same way as slam dunk rigging, or dynamic loading. Bouncing on the ascent line also increases the chance of hanging limbs or dead branches falling. With SRT it’s no longer necessary to isolate the limb. If the throwline runs through several limbs before coming to the ground, it is acceptable with a few considerations. As Mark Chisholm wrote in his April 2000 TCI Magazine article, “by rigging through multiple crotches, we can change the loads on individual limbs if the rope runs through the limbs at increasing angles.” The length of the rope chosen for SRT must be three times the distance from the ground to the access limb. The reason for this is that if the climber needs to be lowered out of the tree on the access line, the line needs to go from the ground to the access limb and back to the belay device. There must be enough line left
to lower the climber back to the ground. A 200-foot piece of 7/16-inch diameter static line will allow the climber access to limbs about 65 feet in the tree. As a comparison, the 200 feet of 7/16-inch line will have the same volume as about 100 feet of ½-inch climbing line. If the access limb is above 65 feet, two ropes can be tied together using a double fisherman’s knot. The knot must be kept on the climber’s side of the access limb to allow the rope to be lowered in case of an emergency.

Anchor

Now that the rope is set in the tree, it’s time to set up the anchor. The access line can be anchored to the same tree or another tree nearby. By running the access line through a belay device, the climber can be lowered out of the tree from the ground in an emergency. The Gri Gri is an excellent tool to be used in this situation. The Gri Gri is a very good belay tool, but the rope must be threaded in the correct path on the Gri Gri. By following the icons on the tool and testing the rope before ascent, the climber can be assured of a safe climb. Before starting the ascent, lock off the Gri Gri using a half hitch on a bight or a mule knot. Find the end of the ascent line and tie a figure 8 stopper knot about 10 feet from the end. This will prevent the end from passing through the belay device.

Ascent

Now it’s time to climb! Many climbers ascend with only one ascender. Most manufacturers and rope technicians recommend some kind of backup. This can be accomplished by several means. Using another mechanical ascender or an ascender hitch tied with suitable accessory cord works. Closed-shell ascenders like the Micro Cender or Gibbs are better choices than handled ascenders. The environment that tree climbers work in is much different than in caves or on rock. Our work area is full of twigs, leaves and limbs that can accidentally jam the ascender’s cam, which could lead to a fall.

(There are three earlier articles on ascenders, The TreeWorker, January and February 2002; and TCI Magazine, June 2002. These articles discuss in some detail the application and limitation of some mechanical ascenders.)

Occasionally, when ascending, there are branches in the ascent path. Getting in the habit of using a flipline before doing any pruning is the best practice. If there isn’t a branch nearby to safety to, be sure to tie a lock off or stopper knot below the ascender. Do not allow the ascender to be pushed against any part of the tree. Letting the ascender touch the tree could get a bark flake or twig jammed in the camming mechanism. The climber can push off from the tree to clear any interfering limbs.

Multiple uses

Besides being a quick and safe means of entering the canopy of the tree, there are several other uses for an access line. After the climber has changed over to his or her working line, the line can also be used by a second climber to gain entry to the canopy. If the climber is unable to ascend, he or she can be lowered by someone on the ground. This would be very important if the climber were to tangle with bees or hornets. Once the climber has ascended and tied into the working rope, the access line can be used to haul tools and supplies into the tree. Sometimes trees need to be re-entered when the climber comes out for breaks or lunch. If the access line is repositioned before the climber leaves the crown, it will be set to work on the next portion of the tree. In the case of an aerial
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rescue, the access line is already set for the rescue. After the tree is pruned, the access line is the last line to be cleared from the tree. In case there was something missed in the tree, the climber can easily re-enter.

Descent

The access line can be used for descending as well. The choice of descending technique is left to the climber's preference. When choosing a descent system, it's best to have one that holds when the climber lets go of the descender. Since we work in climbing systems that stop our descent when we let go, that protocol should follow in the descent system. If a figure 8, rack or similar tool is chosen, the climber MUST have a backup that automatically catches when the climber lets go of the tool. The decision to install a rappel backup above or below the descent device has arguments in favor of both sides. The backup must not interfere with the descent device. There are several rappel tools that have a "panic mode" so that the release arm will lock off if the climber lets go or squeezes the handle. There is a "sweet spot" in the middle of the range that allows the climber to control the speed of his or her descent. (See the end of this article for references containing information on SRT, some of which have more detailed descriptions of back-ups.)

Choosing to use SRT will pay off for the progressive climber in a short time. There are some trade-offs that must be considered, though. SRT does require a few new pieces of equipment. But that is generally considered a "good" thing! SRT is quicker to install in the tree and requires less time spent with the throwline isolating the "perfect" access branch. There can be more load on the access limb but, if the line is set through a number of limbs through the crown, the load could be decreased. Probably the most important reason to consider using SRT is the safety and efficiency of the climber during ascent.

Rescuing an ascending climber with an SRT system without putting a second climber in the tree can decrease the time involved to (10 the rescue. Having a secure access line available to a rescuer, in case of a rescue needed after the climber has changed lines, will also save critical time.

Tom Dunlap is the owner of Canopy Tree Care in Robbinsdale, Minn.

For more information on SRT...

High Angle Rescue Techniques, by Tom Vines and Steve Hudson; Mosby-Year Book; January 1999.
The Tree Climber’s Companion, by Jeff Jepson.
Rappelling Safety, http://web.ukonline.co.uk/Members/nca/abseil.htm

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The new Fairlead Equipment Storage Pouch (Model 45703P1) from Buckingham Manufacturing features an easy-to-use Fairlead Closure System than can be opened and closed with one hand. A positive locking "pop lock" clip keeps expensive items such as cameras, cell phones and pagers securely stored while working aloft. Three attachments straps and steel D-ring make it combustable with any climbing saddle. It measures 9 inches long, 10 inches high and 3 inches wide. For more information, visit Booth #1034.

Racine Hydraulic Tools
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PHC Expands Arbor Line
Plant Health Care Inc. has expanded its portfolio of microbe-based soil fertility/plant nutrition products with the addition of PHC for Trees 27-9-9 and PHC for Trees 11-22-22. Both products are based on a unique new soil fertility and plant nutrition program designed to supply and sustain adequate amounts of mineral nutrients for growth, vigor and health in trees. PHC for Trees formulations combine a standard fertilizer with a complete micronutrient package, a microbe-based renewable biofertilizer system, and a proprietary soil surfactant specifically selected to promote uniform distribution, improve solubility, and reduce leaching of applied mineral nutrients. PHC for Trees is less abrasive to injection equipment and requires less tank agitation. For more information, visit Booth #1103.

Mitts & Merrill Brush Chipper
Karl Kuemmerling has introduced a simple, uncomplicated, low-maintenance, fast-cutting drum-style chipper with 220 swivel chute. This new style has larger air fans for greater air flow and a solid steel (700 lbs.) 16 inch diameter by 12 inches wide cutter head (drum). It has a short, staggered knife pattern for smooth cutting and to keep the brush from jerking out of the operator's hands. Nine short knives produce small chips ideal for mulch. It takes 1 inch to 8 inch diameter wood and is available with either a diesel or gas engine. For more information, visit Booth #100.
Pricing Plowing Services for Maximum Profits

By John Allin

When tree care companies, landscape contractors and lawn care companies consider adding snow and ice management services to fill out their year, one of the most often asked questions regarding getting started is, "How do I price the work?" Additionally, in discussions with contractors who are already providing snow removal services and think that it is a pain the neck or a service they are forced by their customers to provide, pricing is usually a hot topic. Many companies feel that snow removal services are a drain on their companies instead of treating it as the highly profitable revenue source that it can be.

While you must have a viable system for addressing the mechanics of operating a profitable snow business (a full-length article in itself), pricing the services properly for your market should be a high priority. Experience in talking with successful plowing contractors from all over the United States and Canada indicate gross profit margins for snow removal in excess of 60 percent are normal, and gross profit margins for ice control services in excess of 70 percent are achievable. Those contractors who view snow removal as a "profit center" regularly report that snow is the most profitable part of their business. These views are expressed by contractors in all parts of the country. Contractors who project five snow events per season in a great winter, to those who project 35 snow events in a mild winter all report gross profits at, or in excess of, those reported above. Snowplowing is profitable - if priced and managed properly.

No matter what method is used to generate revenue for services rendered in winter, pricing should be one of the last areas used for comparison of potential vendors by viable customers. Unfortunately, too many contractors and customers use pricing as the motivating factor in selecting a snowplowing and ice control contractor. However, pricing our services must be dealt with in a manner that is consistent with our profit goals and the needs of our customers.

Customers who call requesting hourly rates for snow removal may not be asking the question the right way, or do not realize what information they seek. For example, if a potential customer calls requesting an hourly rate, one possible answer is $165 per hour. Since this seems like a lot, you might instead reply, "How about $25 per hour?" The customer will probably like that. When you are then asked how you will do the work, you might reply, "At $165 per hour, I'll send a payloader with a 14-foot containment plow and do the job in 15 minutes. At $25 per hour, I'll send 15 guys with shovels and they will do the job in three hours." Now ask yourself, "What does the customer really want to know?" They want to know how much it takes to clear their particular lot. Henceforth the customer wants to know a price to do their plowing, not necessarily what the hourly rate is for your equipment.

And, what difference should it make to the customer as long as the job is done right and the price is fair? Part of the pricing question is to properly ascertain what the customer seeks. Of course, sometimes a request for pricing comes in written form and the potential customer knows exactly what he or she wants. Unfortunately, at that point, we must learn to deal with all the methods of pricing our services to the customer.

Four basic ways of pricing

There are four basic ways to price snowplowing services: per push, per hour and per truck, per season, or per inch of accumulation. Most small- to medium-sized accounts will fall within the first three methods, however a review of all four will allow for an adequate comparison.

Plowing on a per-inch basis is usually (but not always) reserved for very large accounts that are in areas of the country where snowfall totals can vary from nothing one year to 65-plus inches the next. Universities, airports, and extremely large sites are prime examples of where per-inch contracts are normally used - if the work is subcontracted to an independent plowing company. Quoting such accounts requires a tremendous amount of knowledge on a variety of issues. These include accurate production times for all pieces of equipment and manpower that might be utilized, first-hand knowledge of the type of snowfalls that might occur at the site, probable moisture content of the accumulated snowfalls, and prevailing wind direction of the probable snow event. The customer should also be able to tell the contractor about his or her particular idiosyncrasies regarding performance...
characteristics of the successful contractor.

Pricing snow removal on a per-inch basis requires considerable expertise and knowledge of the intricacies of performance. My experience is that customers who usually request such types of pricing normally have snow removal budgets in excess of $500,000, and often figure on spending several million dollars on snow and ice management in a given winter season. This is normally not for the inexperienced plowing contractor with only a few pieces of equipment. These types of customers often require liquidated damages if the required equipment is not available during any given snow event. If you do not know your business inside and out, this type of pricing can put you out of business fast.

For contractors in most markets that anticipate snow revenues of less than $1 million in a season, pricing structures normally fall in the per push, per hour per truck, or per season categories. A mixture of these three types is good as the contractor can then take advantage of the best of all worlds and limit the downside of a mild winter. If a contractor can project what revenues he or she needs to survive a mild winter (and contractors should know these numbers if they are doing their cost accounting properly), then securing enough per-season work allows the responsible contractor to guarantee adequate cash flow in winter. This allows the contractor to recover overhead costs associated with the reduced workload that winters normally bring.

Per-season pricing contracts are usually tied into other services, such as landscape maintenance, parking lot sweeping, or a complete grounds maintenance service agreement. This allows for a year-round contract that is all inclusive of the summer and winter maintenance services. If you know the average number of times that you plow in a given season, you can project how many times you will have to bring out the equipment during the winter season. Taking on this type of work for only one-season-long contract can be disastrous.

Someone almost always loses with a one-year contract. With a three-year contract, both the contractor and the customer can assume that the law of averages will make it all come out even in the end. In those years when there is little snowfall, the contractor knows how much income will be derived through the monthly payments made by the customer. In those years when there are average snowfall totals, the contractor might lose money on this particular account. If the other types of pricing snow services are also used (on other accounts), however, then the shortfall is generally made up due to the dramatically increased revenues generated by per-push and per-hour-per-truck pricing strategies.

Per-push plowing contracts should be the most profitable. Pricing plowing sites on a per-push basis requires considerable expertise as you must know what your equipment (or subcontractors) production capabilities are in order to properly project revenue that will be generated on a particular site. Four-to-one and five-to-one ratios are common when figuring what to expect a site to produce in revenues as compared to costs. And, an experienced contractor can project accurate per-push costs on sites up to 150 acres of paved surface to maintain. Pricing projects per push also allows customers to know exactly what to expect to pay when it snows. It should be noted that all responsible contractors have a clause in their per-push contracts that allow for additional charges in the event that the snow accumulation exceeds a certain amount.

Additionally, if the contractor has to plow a particular site three or four times during the snow event, then he also gener-
ates revenues for each visit to the site. In these cases it is recommended that the contract with the customer allow the contractor to make the decision as to when to plow. There should also be a clause that advises customers “that plowing and/or salting may not reduce the lot to ‘bare pavement’ and that snow or ice accumulations are ‘naturally occurring events’ that the contractor should not be held responsible for” (another subject for a full-length article).

Pricing per hour, per truck is the easiest way to avoid learning about snowplowing as a business. Such methods of pricing allow anyone to get into the plowing business. Little, if any, expertise is required. Errors in judgment are the fault of the customer, and not the contractor. Anyone can get into the plowing business by pricing in this fashion. The margins are generally much, much lower as contractors have a tendency to price to compete with “the other guy” who is pricing by the hour. Growth patterns are accelerated (although at decidedly lower profit margins that can be obtained by alternative pricing methods) because there isn’t the need to visit every site that is quoted prior to adding it to your customer list.

There also needs to be a tremendous element of trust between the customer and the contractor who prices all of his work by the hour. Most contractors are honest and fair, however some unscrupulous contractors can add “ghosts” to a job site in order to increase revenues. This is because the unsuspecting customer is not usually at the site at 3 a.m. These contractors get caught eventually, which makes it that much harder for the honest contractor to generate a trusting relationship with the customer. Many national accounts require per truck, per hour pricing because it is easier for bidding purposes—and in those cases, it is often easier to take the account than to attempt to re-educate the customer.

If all the plowing contractors business is priced per push or per hour, per truck, and there is a mild winter, revenues drop below anticipated levels and cash flow problems can become prevalent. Adding a mix of per season customers can avoid such pitfalls.

There are other methods of pricing snowplowing. Most are variables of the above described methods. Some contractors utilize a non-refundable retainage factor or minimum billing method of securing revenue prior to the start of the winter season. Customers are then billed against retainage for services rendered. This is an efficient way of projecting cash flow. If the retainage is exceeded (because of above-average snowfalls), the customer is invoiced for the additional services rendered at an agreed upon rate.

No matter what method (or combination of methods) you select, be aware that snowplowing is a viable profit center no matter how little or how much snow your geographical area receives. Making a profit at snow, and related snow services, is a mindset. If you believe it is unprofitable and a pain in the neck—it will be. As long as it is thought of as a profit center—like landscape installation, landscape maintenance, chemical lawn care, excavation or power sweeping—money (good money!) can be made from snow and ice management services.

John Allin is president of Snow Management Group and is one of the foremost snow and ice industry consultants in the country today. He has been involved in the snowplowing industry for 30 years and is a Founding Charter Member of the Snow & Ice Management Association. He is author of Managing Snow & Ice, a new, comprehensive guide to the business of snow and ice removal. He can be reached via email at John@allinco.com.
“Fearless leader” is what Karolyn Shea’s crew at Broccolo Tree & Lawn Care in Rochester, N.Y., affectionately call the friendly, just-over-5-foot-tall arborist. She earned the nickname because of her ability to overcome obstacles, but she’s leading more than just her own team. She is one of about a thousand women leading the way in the tree care industry.

Women at work

Shea’s boss, Laurie Broccolo, owns Broccolo Tree and Lawn Care and is a member of the National Arborist Association and past president and founder of the New York State Lawn Care Association. Broccolo looked first at a career in conservation, but recognized the greater opportunity in arboriculture. She employs about 40 men and women in a company that specializes in integrated pest management, landscaping and pruning. She aims to comprise half of her field staff with women — no small feat.

She’s found that the few women who are in the industry, like Shea, take their job very seriously. “They’re not just here collecting a paycheck,” stresses Broccolo. They focus on a goal or degree, then achieve that status. Those workers’ goal-oriented mindset inspires other employees in her company who might otherwise be complacent. “All of a sudden there is an interest in improving skills,” Broccolo explains.

Shea calls arboriculture a “cake-walk” compared to a former stint as a thoroughbred horse breeder, but says that being a woman in any non-traditional role has its challenges — like being taken seriously, for instance.

Nancy Duncan, owner of Heartland Consulting Arborists, Inc., an NAA member in Winterset, Iowa, has experienced that problem at trade shows. Whether out of habit or disbelief, vendors insist on directing their attention to her husband, who accompanies her to the shows but works in a different industry. Duncan’s husband must constantly tell vendors trying to sell him equipment, “Talk to her.”

“Women’s lib has come a long way, but not far enough,” agrees Deborah Lamb, an NAA member who owns and runs the Kenneth E. Lamb Tree Co. in Fredericksburg, Va. When it comes to dealing with clients, banks and vendors, “they always want to talk to Ken,” her husband, who works in the field. It takes some persuading to convince them that she is the one who can help them, says Lamb.

She recalls a frustrating experience in which she applied for a company loan. The bank insisted her husband sign the paperwork. “It took a lot of educating to finally convince the loan officers that I was the only one who needed to sign,” recalls Lamb. (The fact that her company is named after her husband only complicated matters.)

Talking the talk

Being scrutinized does have its advantages, however. “Once you prove yourself,” Broccolo notes, “your reputation keeps snowballing.” The result is a great reputation within the community and industry that beats any marketing plan hands-down.

It’s this reputation that has allowed Broccolo to form partnerships with other tree care company owners. Rather than feel pressured to expand her services to include climbing, Broccolo is comfortable referring that work to industry partners, since she knows she will get diagnostic referrals in return. “The industry is way too competitive for all the tree-work that’s
comes to Companies that offer Front Venus, who, with her husband, co-owns Tall Springs, Colorado. She interviews many female job applicants, "but they have no climbing experience," a show-stopper for the field positions. The experience that most women applicants have was usually in a bucket. While there are women out there who do climb, they are the exception, not the rule.

That may soon become a problem of the past. It's getting easier for anyone to get up in a tree due to advances in climbing equipment. It's not so much a matter of brute strength now as it is agility.

For Duncan, climbing has never been an issue. She came to arboriculture after college work in entomology and several years in forest service. Once a friend and trimmer taught her how to climb, she says, "there's been no looking back."

Duncan laments the fact that climbing competitions have been split into separate men's and women's categories. She does not think men and women should be measured by different standards. "If you want to play with the 'big boys,' you do what they do," she says, a belief she takes seriously.

A mother of two, Duncan recalls climbing while she was seven months pregnant. That's when her boss asked her to stop climbing because it was making him nervous. "I was the fittest pregnant woman around!" she laughs.

Deborah and Ken Lamb of Kenneth E. Lamb Tree Company in Fredericksburg, Va.

**Staying power**

Although Duncan still meets resistance from some older arborists, and some resistance is regional, most people are accepting of her role. Her secret to overcoming resistance is simply to make sure she is as trained – if not more trained and educated – as her competition. "Once people find I'm educated and competent, I don't hit many brick walls."

But one can't help but ask: Why work in any industry that holds such challenges?

For starters, Lamb points out there is no other industry where she can come close to making half a million dollars each year.

**Walking the walk**

Broccolo expects both the men and women on her staff to be able to get the job done. "All of our supervisors are working supervisors," she reports, which means each can perform all of the services he or she sells. That's something that often impresses clients.

But that's easier said than done when it comes to companies that offer a wider range of tree care services. "I would love to hire more women to work in the field," laments Debi Carpenter, an NAA member who, with her husband, co-owns Tall Timbers Tree & Shrub Service in Colorado Springs, Colo. She interviews many female job applicants, "but they have no climbing experience," a show-stopper for the field positions. The experience that most women applicants have was usually in a bucket. While there are women out there who do climb, they are the exception, not the rule.

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Deborah and Ken Lamb of Kenneth E. Lamb Tree Company in Fredericksburg, Va.
She takes pride in the fact that her company keeps up with and educates others about the latest industry technology, techniques and safety standards.

It does come at some expense though. “Every day, it’s a challenge to put my marriage first,” she says. She spends many long days making her company successful, and it’s impossible for any business owner to also cook and maintain the home. But, she says, “It’s never, ever, boring.”

**Women’s organizations**

Friends and family of women in arboriculture are often a woman’s biggest fans. No national support organization for women in tree care exists, comparable to those that support women in other male-dominated industries.

The construction industry, for example, where women make up only 10 percent of a workforce nine million or so strong, can look to the National Association of Women in Construction (NAWIC) for support.

Glenda Thompson, director of marketing for the national NAWIC office in Fort Worth, Texas, says “organizations like NAWIC are absolutely necessary to enhance the success of women in non-traditional roles through networking, support and individual affiliations.” Thompson argues that while women can certainly be successful on their own, women’s organizations can only make that experience better.

**Calling all women!**

Little is being done specifically to attract more women to the field. Broccolo says that organizations unwittingly play a role in perpetuating the male-only arborist image. Some women in her company were interested in communication and diagnostics classes offered at a recent conference, but shied away from it, believing the conference would be too male-oriented based on the male climber shown on the brochure cover. “There is a need to recognize that arboriculture is not just tree climbing,” recommends Broccolo. “It’s also tree diagnosis, ornamental pruning,” and more.

Lamb believes counselors at the high school and college levels need to be more proactive at making young women aware of the opportunities. “How many arborists show up at career day?” she asks.

Additional press coverage in women’s magazines would also help get the word out that opportunity abounds.

Despite the low number of women in the industry, most agree that more would be welcomed. The so-called “glass ceiling” that keeps women from senior management positions in other industries doesn’t seem to exist in arboriculture, Carpenter says. “I don’t see anything that would hold a woman back,” she explains. “With a proper education and developed skills, she can do just as much as any gentleman can do.”

Shea, for one, agrees: “The sky is the limit.”

*Jacqueline Gately is a freelance writer from Massachusetts.*
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Southern Exposure: SPB Battlefront

By Lana Robinson

Adult southern pine beetle.

An example of the cut-and-leave eradication strategy.

Southern pine beetle galleries and larvae.

The South rises again! This time around, the army is a voracious bunch - Southern pine beetles. By far the most injurious forest insect pests in the Southeast, these beetles have devastated thousands of acres of pine forests from Texas to Virginia in years past. More recently, populations have set up camp as far north as New Jersey.

“They range anywhere there is loblolly pine, but they are usually more severe in the Gulf Coast region," reports Dr. Ron Billings of College Station, Texas, principal entomologist for the Texas Forestry Service and one of the nation’s leading SPB experts. "In Texas, our worst infestation of record was in 1985. We had another serious outbreak in the early ’90s. Then they began to decline and populations have been low since then. Not a single infestation has been reported this year.

"Populations go in cycles - boom and bust cycles," Billings continues. "Every six to 10 years, populations reach a peak and then decline. They’re out there, but at very low levels. Then we have another six to 10 years. Right now in Texas, we’re in the low period of the cycle. Georgia, Alabama and South Carolina have been getting it, so it’s kind of a roller coaster. Infestations seem to be developing in Mississippi and Eastern Louisiana, so they may be headed back this way."

Tennessee experienced its worst outbreak in a quarter of a century in 1999, with epidemic levels of beetles reported in 17 counties across the state. The insects also wreaked havoc throughout southern and eastern Kentucky in 2000 and 2001. In December 2001, a private consulting forester in New Jersey detected SPB during a pine harvest and alerted the New Jersey Forest Service. Subsequent reconnaissance of the surrounding area by air and ground revealed additional SPB hotspots, particularly in the Belleplain State Forest.

While the Southern pine beetles prefer loblolly, shortleaf and Virginia pines to other kinds, pitch, tablemountain, longleaf and slash pines are also subject to attack. Normally, the beetles establish strongholds deep in the forest, but ornamental pine trees inside the city limits are not "out of the woods" when it comes to vulnerability. Increasingly, beetles are migrating across forest boundaries onto urban and suburban lots and yards. Embattled arborists and foresters say this fierce army takes no prisoners. It kills every pine in its path.

Gainesville battles beetles

In 1994, when legions of Southern pine beetle populations exploded in Alachua County, Fla., Gainesville became the first municipality on record to come under siege from this army of pests that had previously assailed only rural landowners. About 1,700 pines within the city limits became infested, and homeowners spent some $225,000 on removals. Gainesville city government spent $162,000 on suppression, recouped $85,000 from grants and the cost-share, leaving a net cost of $77,000 for the program. According to Meg Niederhofer, city of Gainesville arborist, if the 1994-96 infestation been allowed to run its natural course, costs could have run as high as $4.5 million.

“‘When the outbreak abated in ’96, we thought we’d seen the end of it. Last spring we learned that what we had thought was an isolated incident is actually a recurring problem, one affecting many Florida cities. The results include huge tree removal costs for property owners, safety threats from thousands of dead trees, and workloads that outstrip the capacity of utility and municipal tree crews," says Niederhofer.

Niederhofer says that letting the infestation run its course in urban areas results in widespread pine mortality and all the problems associated with numerous large dead trees in neighborhoods. By the time the epidemic ends, half the vulnerable pines will have been killed.

“If the regenerating urban forest is managed to encourage a diverse community of hardwoods and longleaf or spruce pines, then another SPB epidemic may not recur. Unfortunately, most clearings within urban areas are left to regenerate naturally. Loblolly is called ‘Old Field Pine' because

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in cleared areas, it comes up thick as hairs on a dog’s back, and results in an unmanaged forest ripe for exploding SPB populations. When an infestation appears within an urban area, suppressive action must happen quickly to be effective,” she says.

Suppression efforts in Gainesville, have stirred up a storm of controversy. Three aspects of the SPB Suppression Programs enacted by the city and county commissions were contentious:

1. The program modified requirements for tree removal permits for SPB infestation sites;
2. The program established a cost-share program;
3. Mandatory compliance actions to compel property owners to remove infested trees were considered.

In the Gainesville area, the only economically feasible way for residents with 100 or more infested pines to have them removed is to call in a logger and work out a monetary arrangement for the resulting timber. However, logging SPB sites in close proximity to homes in urban areas presents numerous problems, and may be more trouble than the revenues generated are worth, Niederhofer notes.

“Most logging operations use big equipment, so understory shrubs and trees are damaged, no matter how carefully the work is planned and executed,” she says, which is why efforts to minimize the damage are always mandated in the conditions tied to permit approval.

The city of Gainesville contract pays $110 to cut down and spray each infested pine. The tree is taken down, and the trunk cut into pieces 5 to 7 feet long and sprayed with the insecticide chlorpyrifos, commonly known as Dursban. Treatment of the felled logs with insecticide stops the spread of infestation. Removing the trunk pieces, crown and stump is the homeowner/landowner’s responsibility, which has some Gainesville residents upset. Like it or not, says Niederhofer, the permit is consistent with the cost-share program’s purpose, which is to stop the infestation and provide a base price against which tree companies offering more complete service must compete.

“Prior to the cost-share option, prices for removing infested pines were skyrocketing. One caller reported a bid of $2,400 to remove two 24-inch diameter infested trees! The cost-share assures no one will pay more than $110 to render a pine incapable of spreading the epidemic,” the Gainesville arborist reports. “Many tree services include debris removal at a competitive price, as was intended when we designed the program. For $110, the government contractor takes down the tree, cuts the logs into 6-foot sections, and applies insecticide. Insect larvae die inside the bark, and emerging adults pick up the poison and do not live to reproduce. These actions quickly stop SPB spread.”

Although the cost of $110 per tree may seem to leave no room for the self-employed commercial arborist to have a hand in pine tree removal, Bill Gaston, president of President of Gaston’s Tree Service and Wood Resource Recovery in Gainesville,
said the municipal program has actually helped his company.  

"We have had a continuing battle with the southern pine beetle (in this area)," he explains, indicating that there are so many infested trees, there is plenty of work to go around for everyone.  

Although at first the city's proposed cost-plan appeared to be a threat to his bottom line, Gaston soon realized it was beneficial to have the plan in place. For one thing, it raised general awareness about the issue and prompted Gaston's current customers to come to him with their concerns. And secondly, it worked toward the same common goal of trying to control the southern pine beetle. 

Several years and two beetle infestations later, Gaston says the city's approach is "better all around."

Likewise, the city has helped Gaston by referring homeowners to him after city officials have taken down infected pines and left the chopped-up, sprayed trees on the homeowner's lawn, as agreed upon in the contract. City officials urge homeowners to call Gaston, who will retrieve the pine and then processes it for a profit.

Although Gaston doesn't know if pine take-downs alone will stop the infestation, he lauds the city's efforts. "I think the county has the right idea in mind ... and their heart is in the right place," he says.

Niederhofer believes the pre-emptive strike to curtail an SPB outbreak in the urban forest makes sense economically, is socially responsible, and is environmentally wise. She cites the following reasons in her defense of the program:

"The city and county commissions' decisions to suppress the SPB epidemic mean fewer trees will die. Less public and private money will be spent. Less insecticide will enter the environment. And accidental tree falls - with all the dangers they entail - will be minimized. To me, along with the many other experts and professionals working on this problem, this is responsible government action and wise management of the urban forest."

### About the SPB

The Southern pine beetle (*Dendroctonus frontalis* Zimmerman) goes through four life stages - egg, larva, pupa and adult - in the inner bark of its host pine tree. During the maturing process, larvae feed on the cambium layer, creating tunnels. In large numbers, this activity effectively girdles the tree, quickly sapping its strength and contributing to its death. Within four weeks, starting in April through September, an egg becomes an adult. Females are capable of generating 100 new insects. Adults are about the size of a small grain of rice and reddish brown or black in color with wings. Once they kill their tree of origin, the beetles fly to another living pine to commence another life cycle. The beetles are also carriers of a blue-stain fungus, which hastens the tree's demise. Southern pine beetles can kill a pine tree within a few days.

Moreover, an SPB army is often aided by battalions of Ips engraver beetles and black turpentine beetles, each concentrating on different sections of the tree.

Generally speaking, trees larger than 10 inches in diameter are most prone to attack during an outbreak. Old, unhealthy or weakened trees are particularly easy targets. A healthy pine has the advantage of abundant pitch, and will typically coat the attacking beetle in the resin and then force it back out through its entry hole, forming "pitch tubes." The pitch tubes, which look like wads of chewing gum on the outside of the tree, are a sign that the tree is attempting to fight off the beetles. But once the bugs have built up a large population, even the strongest and healthiest pines cannot defend against them. All it takes is one ailing pine in a neighborhood for the beetles to get a foothold. Then all nearby trees, regardless of their health, are at risk.

### Suppression techniques

As early as the 18th century, Germans attempted to control bark beetles using methods similar to those used in modern forestry, including felling and burning to limit beetle migration. Early 20th century efforts in the United States were aimed at eradication by treating all infestations, but the current control strategy focuses on those infestations likely to expand and cause the greatest tree losses.

Today, accepted techniques for suppression of the Southern pine beetle in rural forests include:

1. **The cut-and-remove method**, which involves felling and removal of infested trees, along with an adequate number of adjacent, uninfested green trees to form a buffer strip;

2. **the cut-and-leave method** - a practice of felling infested trees, including a buffer strip of green trees toward the center of the spot to disrupt the beetles' life cycle; and

### SPB Resources

Virginia Tech's Southern pine beetle Internet Control Center: http://whizlab.isis.vt.edu/servlet/servlet/SPBIC/  

USDA booklet on the Southern pine beetle: www.na.fs.fed.us/spfo/pubs/fidlis/so_pine_beetle/so_pine.htm  

University of Georgia Cooperative Extension Service booklet on the Southern pine beetle: www.utexextension.utk.edu/spfiles/SP482.pdf

To learn more about the "Ecology, Biology and Management of Bark Beetles and Invasive Forest Insects of Southern Conifers," visit: www.srs.fs.fed.us/4501/  

Some other informative Web sites include:

www.bugwood.org  
www.barkbeetles.org  
www.treealive.org
EMERALD ASH BORER

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3. Pile-and-burn method—a “last resort” method that requires felling, piling and burning infested trees to destroy beetle broods before they emerge. Where tree removal is not practical, infested stems can also be cut down, bucked and hand-sprayed with an approved insecticide.

Preventative strategies for the urban setting, according to Ron Billings, include:

1. Planting resistant species such as longleaf pine and slash pine instead of loblolly pine;
2. Thinning too-dense stands of pines to 80 square feet per acre or less;
3. Maintaining a distance of at least 25 feet between mature pines in urban settings;
4. Removing damaged pines;
5. Promoting tree diversity in the landscape;
6. Maintaining tree health and vigor by supplemental watering during extended dry periods;
7. Minimizing construction damage to pines and avoiding soil compaction during operations;
8. Minimizing changes in soil and water levels around pines;
9. Using approved insecticide applications on high-value trees when the threat of SPB attack is imminent, if economically feasible; and
10. Avoiding pruning and other activities that produce terpenes that attract dispersing beetles during an outbreak.

If trees close by are infested, applications of insecticide may help protect uninfested trees. Two currently registered insecticides are 1 percent chlorpyrifos (Dursban), which provides two to four months of protection, and 0.5 percent lindane, which provides three to six months of protection. For best results, apply the insecticide to dry bark, to the point of runoff, from the base of the crown all the way down to the ground line. The upper stem and larger branches should also be treated if Ips beetles are present in large numbers.

Billings, however, thinks insecticides should be used sparingly, noting that the SPB has a lot of natural enemies, including parasites, woodpeckers and the most common enemy, the clerid beetle (Clerus fromicarius), or checkered beetle.

“It is attracted to the same pheromone, and feeds on the Southern pine beetle and engraver beetles. When populations for one are low, it shifts to the other. There has been some work with augmenting populations by rearing artificially and releasing the checkered beetles. The best thing we’ve done in the South was stop using toxic chemicals. For years, insecticides were used to try to control the SPB. It wiped out all the beetle’s natural enemies. Now, we use more environmentally friendly control methods, including mechanical methods, which don’t kill the beneficial bugs. That helps keep populations down,” says Billings, reporting that recent trap surveys in 15 Texas counties yielded 19 checkered beetles and no Southern pine beetles.

Very low or very high temperatures also have a substantial effect upon beetle survival. When temperatures hover around 0 degrees Fahrenheit for several days, brood mortality is high. Likewise, continuous daily temperatures above 95 degrees Fahrenheit tend to kill broods in the Gulf States.

New SPB control developments

Research continues to focus on the efficacy of SPB behavioral chemicals. In recent tests in several southern states, the beetle-produced inhibitor verbenone has been effectively used to halt spot growth without need for felling uninfested trees. Phero Tech (U.S.), Inc. received a registration for their end-use product, Verbenone on Dec. 6, 1999.

“Now we are going through the state level registration process,” says Steve Burke, Phero Tech general manager for 20 years. “This year, we registered in North Carolina, South Carolina, Georgia and Alabama, and we’re now in discussions with Florida, Mississippi, Tennessee and Kentucky.”
According to Burke, verbenone is an anti-aggregation pheromone, which falls under the softer category of biochemical pesticides. The derived active ingredients come from the insects themselves. Pouches of the naturally occurring repellent are deployed in advance of the infestation's moving front. The verbenone pouch can be used on its own or in combination with “fell and leave” strategies.

“If you have a big infestation outside of town, you have to look at what strategies it takes to knock those numbers down. Verbenone is not a silver bullet, but as part of an integrated control strategy, it can help in fortifying trees that are water stressed, and subject to attack,” he says.

Here's how it works: When introduced into the environment, verbenone sends a signal to the bugs that the tree is too crowded, and the bugs go elsewhere.

“It’s a density regulator,” Burke explains. “The bugs will move on because they don’t want to over populate and endanger their progeny.”

Burke admits the product has some disadvantages, including the cost — about $7 per pouch. Phero Tech is working to bring the cost down, he says.

“Also, the sheer number of devices you have to put in a given area is impractical. Placing these things on trees takes time. It is not sprayable from the air, but that is actually another positive, because it is contained and does not contaminate waterways and campgrounds. It has no deleterious consequences. These are discreet packages stapled on trees,” he notes.

Burke says “push-pull” strategies (where an attractant pheromone is used to bring the beetles to a certain location, and a repellant pheromone, like verbenone, awaits them to enhance the effects and reduce insects) are being explored.

“A number of approaches or collaborations are possible,” he says.

Burke says the verbenone approach is essentially playing with a biological process, which requires that those who use it understand the science behind it.

“It’s a little more subtle than a sledge hammer technique where you hit and look for a body count. We’re very careful about who will be using these products. It needs to be someone knowledgeable — those that can differentiate SPB from root compaction damage. We prefer to work with people who are long in the tooth in dealing with SPB,” he says.

At present, Phero Tech’s Verbenone Pouch is only available to federal and state forest agencies, those involved in collaborative efforts with these agencies, and forest management companies and consultants with expertise in forest pest management. In Canada, it is available only for research purposes. Phero Tech actually refers to the Verbenone Pouch as the “Billings bag,” due to the respected entomologist’s extensive field work testing the product.

“Most of the testing has been done in infestations of 25 to 100 trees,” says Billings. “We looked at infestation as a whole rather than individual tree protection. We need more research to see if the product shows efficacy in individual tree protection. The cost of verbenone for high value trees would not be prohibitive,” Billings says.

According to Billings, the tricky part is ascertaining how long protection is needed.

“The bags typically last 45 days — possibly longer — or one generation of beetles. In a protection strategy, we need to determine if 45 days is sufficient time in holding down individual infestations to force the beetles out of the area in that period. In a prevention mode, it needs to be longer lasting,” he says.

The original Billings bag includes a sponge with a chemical. A second gel formulation version has been developed, but is not yet registered with the EPA.

Burke concedes that single-tree protection is a challenge.

“We do not currently advise or recommend it. Typically, it would be used in a certain area with a minimum of 150 trees. It would comprise certain deployment strategies and densities. We do not envision it for single tree treatment, but area wide treatment may be what the doctor ordered,” he suggests. “It could be put out in a city park. Some municipalities and homeowner groups treat with this minimum in mind. You have to consider the science behind it. We’re looking at efficacy on single-tree treatment this year. There are some glimmers of hope.”

Lana Robinson is field editor in the Information and Public Relations Division of the Texas Farm Bureau, based in Waco, Texas. She regularly covers agricultural issues for Texas Agriculture. The Growing Edge, Texas Neighbors and frequently contributes horticulture features to other green industry publications.
Tree Care by any Other Name...

"Urban forestry" is a poor and misleading term for what we do, as noted in the August 2002 issue. But "municipal arboriculture" is not much better. First of all, people mispronounce it, calling it a "bore" when it surely is not. The American Heritage Dictionary calls arboriculture "the cultivation of trees for study or for timber," which doesn't mention increasing their benefits to people. Also, ACRT may have municipalities as its primary customers, but most of us small guys don't.

Managing landscape trees is done in and outside of municipalities; it happens wherever trees and people live together. ACRT may just assess resources, but arborists go beyond that, recommending and overseeing long-term management and growth of the resource.

Therefore, with all due respect to the Society of Municipal Arborists, I suggest "landscape tree management" is the best term to name what arborists do, everywhere they do it.

Guy Meilleur, Consulting Arborist Better Tree Care Associates Apex, N.C.

NAA Must Keep Leading the Way

Your comments at the beginning of the August 2002 issue of Tree Care Industry were outstandingly insightful. If the tree care industry shows the rest of the green industry how to conduct ourselves every day, it will benefit the whole society. If tree care is regarded as work that requires knowledge, physical skill, and a sense of beauty in each tree that should be enhanced, not diminished, deep regard for the safety of everyone around trees, scrupulous honesty, and a desire to enhance everybody's life by fostering the planting of trees on public land, then the industry will have ample numbers of competent workers and no disparagement of the work to be done.

Fortunately, it seems that the industry is going that way, if a little tentatively. The general population needs very much to be informed about the trees around them, and the mass communication media are doing a poor job of it. I suspect that the NAA could offer articles about trees that are accurate and do not try to cover all chlorophyllous growth in three paragraphs. They could also be as good science, with citations, as Norm Helie produces for your magazine.

I get e-mail from "garden writers" who don't know Oxydendron from Clerodendron, and I am upset that such drivel gets into print.

I think that ethics need to be higher on everybody's list of standards and I think the tree care industry could be the leader in that more easily than any other group.

Your comments and those of Richard Abbott of ACRT, Inc. fit well together and are making TCI an important forum for the industry.

Barbara E. Emeneau
MNO Gardening
Winchester, Mass.
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What to watch out for in early autumn

Although autumn will soon arrive with cooler temperatures and longer nights, we still need to be watchful for diseases on trees and shrubs and consider management options for the dormant season.

Powdery mildews are usually very evident until leaf fall. The white material visible on the surface of the leaves and sometimes the stems is fungal mycelium and spores (basically, microscopic seeds of a fungus). As the weather cools and day length decreases, the powdery mildew fungi begin to produce dark, round structures called cleistothecia. These structures allow the fungus to survive the adverse conditions of winter or the dormant season. The infected plant material from this season thus serves as the source of new infections for the next growing season.

Most of the leaf spots evident earlier in the season are still visible (including apple scab, black spot and many other leaf spots) and may continue to develop as long as favorable environmental conditions exist. As with the powdery mildews, leaves infected now with the fungi that cause leaf spots, anthracnose or leaf blights provide the inoculum, or source of infection, for the new growth that will emerge next season.

Twig blights are also evident in late summer and early fall. Dead, brown or reddish shoot tips and branches are easily noticed in late August and September. Several fungi, including Botryosphaeria, Phomopsis, Cytospora and Sphaeropsis cause twig blights, cankers and dieback. These fungi are considered opportunistic fungi that often infect of trees and shrubs that are under stress, particularly following drought stress.

What about the different rusts we see in autumn? In most cases, it is too late for control measures. For rusts that have alternate hosts (such as cedar-apple rust), the spores have likely already blown to the alternate (often coniferous) host. Rusts in general don’t kill their evergreen or coniferous hosts. You may see brown galls on the conifers, but little additional injury results. On most deciduous hosts, the initial rust infections actually occur during leaf emergence in the spring and early summer.

Aside from rusts and fungi, we often get early frost in northern areas that can cause injury. Frost injury (and winter injury) is more likely if we have had a drought followed by rains towards the end of the growing season which trigger a second flush of growth. Very often that new growth flush doesn’t have time to harden off before a cold snap, possibly resulting in more frost and winter injury.
Management techniques

There are some basic general management techniques to consider as winter approaches. In northern climates, there are a couple of things you can do to protect against winter injury:

First, barriers can be erected to protect against desiccating winds. Next, consider the use of anti-desiccants on some of the broad-leaf evergreens. Pay close attention to your label directions, however, as to the proper temperatures at which those anti-desiccants should be applied. If they are applied when the temperatures are too low, the coverage will be uneven. I have seen phytotoxicity from anti-desiccants applied too thickly after application during temperatures lower than those specified on the label.

Be sure to prune out the diseased and dead plant material. In cases where there have been fire blight strikes, flag those branches and cut them off in the dormant season when there is much less concern about spreading the disease on pruning tools.

Rake leaves infected with fungi causing anthracnose, leaf spot, blight and powdery mildew in the autumn after the leaves drop (or be sure to do it before the new growth comes out in the spring). Again, there is controversy over whether or not this needs to be done. With some diseases such as tar spot, the only source of infection are those infected leaves on the ground. If you get them off the ground, you will greatly reduce the amount of infection. Studies done in a commercial apple orchard by colleagues of mine at UNH showed that using sanitation, going through with a mulching mower and grinding up leaves very small—not necessarily taking up all the leaves—can reduce the amount of apple scab by 80 percent without using fungicides. So, if you can go through and mulch leaves under a couple of crab apple trees or an ornamental planting, or even rake the leaves and get rid of them (don’t compost them), then you should reduce the potential for infection next season.

The utilization of the SANITATION techniques mentioned above should help to reduce the incidence of diseases on trees and shrubs come spring.

Dr. Cheryl A. Smith is the plant health specialist with the University of New Hampshire Cooperative Extension, and is Director of the UNH Plant Diagnostic Lab. This article was adapted from a lecture Smith presented at New England Grows 2001.
What time is it?
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I don’t have time for that.
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There are not enough hours in the day!
We are billing a profitable rate per person and crew hour, yet it isn’t reflected on the bottom line. Why?

By Howard L. Eckel

Hours are about the only constant we can be assured of. There may not be enough of them or on a rare occasion they drag. However, you can’t inflate them and you can’t compress them. We use hours in every way imaginable in our particular profession: setting a bid or sales price for a particular job estimate; establishing a sales rate; measuring performance; determining payroll; or setting our appointments. Hours are a constant in the life of an arborist. So perhaps it is time to reflect how hours can be considered as a management tool that can have a positive effect on your day, the quality of your life, the firm’s bottom line, even the direction the firm should be traveling.

I am always betting the rent on something in the articles I write. So in this article I’ll bet the rent that the majority (and I mean in excess of 85 percent of the firms in the industry) do not keep track of all billable hours on their monthly or year to date profit-and-loss statement. Further, their P&L statement will not show the actual sales dollar per production hour for the month or on a year-to-date basis. It is a rare transaction today that does not entail a firm price or a fairly accurate estimate – all based on hours. So-many-
people times so many-hours times some specified sales rate per person is always the basis for determining a contract price, bid or estimate. Yet, while this formula is the bases of all our industry’s activity, it is rarely stated on the monthly profit-and-loss state-
ment.

I cannot count the times owner/managers ask, “What is wrong?” They say they are charging $55, or even $72, per production hour but are not making a satisfactory profit—a profit that was originally built into the calculation when they were developing their sales rate per hour. In these situations, when I examine the P&L statement, I never find a total of hours billed for the month as compared to the hours paid. I’ll examine the office copy of the client invoice and nowhere on the file copy is the contract price related to the actual hours consumed on the job multiplied by the established selling rate per hour. Did the contract price run over or under the true and material extension? No invoice copy shows whether the job ran over or under the firm’s established sales rate per hour. Production or billable hours just disappear after the sale is established and written up. Even the hours paid to the staff usually does not appear on a P&L statement. Thus it is a rarity when hours paid and hours billed are reconciled on the statement.

The owner/manager is disappointed in the profit while what we should be talking about is production efficiency. Do the crews take a long time getting organized before leaving the yard in the morning? Do they stop for coffee on the way to the job? Do they send someone out for coffee mid-morning? One of the premier firms in the industry spends over $40,000 a year furnishing doughnuts and large thermoses of coffee for each crew. There is little down time and no trucks backing into cars in coffee shop parking lots!

The 15-minute mid-morning on-the-job coffee break is factored into the sales rate per hour the firm uses in pricing its jobs. This firm has a handle on non-productive hours and controls them as tightly as they control the actual production efficiency on site. They work the unavoidable unproductive hours into their selling rate. Hours and how they are accounted can make a difference.

Then there is the owner/manager who will say there are not enough hours in the day to do everything that should be accomplished. The telephone is ringing off the hook, everyone is stressed, and still the calls from prospects keep coming, further consuming management, sales and estimating time. Every hour every day is a hassle. It isn’t fun anymore.

If you as an owner/manager have run out of hours, you need to stop and think things through. What type of business are you managing: a commodity business or one in which you have a franchise? No, not a fast food type franchise, but a business patterned along the lines of one of the original definitions of the word “franchise.” The word “franchise” several centuries ago meant “freedom.” One was granted (franchised) freedom to do many things, either personal or in business. The definition of the word “commodity,” on the other hand,
centuries ago was defined as “a kind of thing that was produced for use or for sale.”

In his writings, Warren Buffet has redefined the two words to fit today’s contemporary lexicon of commerce. He develops the concept that a “franchise” means being unique, special, and somewhat unassailed of competitive prices, and “commodity” as strictly a situation of competitive pricing. These definitions may be further enhanced by the additional definitions of the word “client” and the word “customer.” The Oxford dictionary defines “customer” as “One who comes into a shop” and “client” as “under the protection of.” I associate the word “customer” in conjunction with the word “commodity” and the word “client” with “franchise.”

In the greater scope of our industry, those who are in the line clearance business are in a very price sensitive competitive market, where price has priority and competitive bidding is the prime influence in the customer’s decision process. It is a commodity business. Pricing comes first, and for the majority of the situations, carries the day rather than availability of additional services and technical support.

Unfortunately, many arborists whose market base is residential (and configured to be a franchise) place themselves in a commodity business situation. They are in a low-pricing-takes-the-job atmosphere. Hours are spent submitting bids and quotes in a market where several firms are also competing for the same job. There is nothing wrong with being in a competitive commodity market – as long as you are structured specifically to play in that arena. All too often a firm is equipped to be unique – to be a franchise able to offer special service – yet they play in the commodity arena with disappointing results.

My example of line clearance as a commodity business should also convey the fact that if a firm is structured to be in that market, it can be profitable with a minimum of hours spent in sales. The very nature of that business requires management to spend hours on production and cost control, making sure the customer is satisfied. While extreme, it could be said only several hours are spent on the actual sale. The key is that one sale can result in several hours of work for multiple crews, whereas the arborist who is equipped to render unique and special service and who enters the residential market and treats it as a commodity market is usually faced with throwing out hundreds of bids for one or two days’ work. There are never sufficient sales and management hours to engage this market. And profit is minimal.

In any market, in any area in the country, about 20 percent of the arborist companies have placed themselves and their firm in a position of being a franchise. Reputation is then a more important factor than price with the client. I won’t say they have hours to burn or that they can overcharge – they will and do achieve a greater profitability for the hours they put in. An entire marketing program that enhances profit, reduces stress and creates more free hours can be constructed from understanding the definitions of just four words: Franchise – Client; Commodity –

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Defining yourself as a franchise may be a great yet simple marketing concept, but does it answer the hours question? If you look closely, the 20 percent addresses hours and also profit. Having a reputation, a franchise, gives a firm great latitude. The firm can schedule its client’s necessary work well in advance, even within ethical parameters, leveling out the highs and lows of our seasonal industry. The firm can afford to not show up at every pre-bid meeting. To a great extent, it can pick and choose the type of business it becomes involved in.

Personally, I always operated on the premise that there were certain jobs, certain prospects, I was delighted to see my competition have while I was servicing clients and enhancing my firm’s reputation. That in turn caused my clients to recommend me to their friends. The hours expended were maximizing work that was less competitive and more profitable. Calls coming in were from prospects who were seeking us because we had been recommended. In fact, the classified listing had deliberately been reduced in size to discourage calls seeking bids. The listing was structured for people who already knew which firm they wanted. All they needed was a telephone number. The listing, while not discouraging the commodity customer, did not encourage them to seek us for competitive bidding. Because of client recommendations, my closure on prospect sales was very, very high. In most instances no one else was quoting. I was a franchise and not a commodity.

With hours freed up, the time I worked was more productive in terms of sales and clients secured. A fair profit for the investment was achieved. The production people appreciated sharing the reputation. The freedom of doing things properly and being treated as professionals by the client also went a long way in stabilizing staff retention.

I could argue the case for the commodity side of the business and did develop, at one point in my career, a very successful and effective marketing plan for it. But it definitely is a different business. Firms need to recognize the difference and make a distinct choice — otherwise they will not find sufficient hours in the day.

Howard L. Eckel is the retired executive vice president and general manager of the Davey Tree parent and Eastern Canadian Companies. He is the author of Growing and Staffing Your Business.
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Making Trees Your Business
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Contact: Steve Chisholm Sr., (732) 462-7278

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2002 Garden State Tree Conference
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...continued on page 68

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"I think I'm ready for a presence in cyberspace..."

Web sites can be powerful marketing tools. However, without an honest examination of your overall marketing objectives and financial resources, building and promoting a Web site can be both costly and disappointing. You will benefit from answering the following questions before taking the leap in building a presence on the Web.

Why do you want a Web site?

Some of the reasons may include:
- To provide more information about your tree care services and/or industry news in lieu of newspaper ads and company newsletters
- To establish a dynamic advertisement for your company and services
- To acquire additional prospects who will "discover" your company on the Web
- To post job openings and receive employment applications and resumes
- To receive e-mail requests for estimates
- To compete with others on the Web

Once you've defined your objectives, you will need to determine how simple or complex your Web site will be.

Does a presence on the Web fit in your business and marketing plan?

Like any significant business decision, creating a presence on the Web must fit into your overall business strategy. You'll need to clearly define your market, your competition, and the advantages of your tree care services over the competition before you can create an effective Web site.

Do you understand how marketing on the Internet "works?"

The Internet allows current and potential customers as well as suppliers, employees, and competitors access to your Web site. Few will find your site, and fewer still will want to spend time in it, unless it's both engaging and informative.

Evaluating the success of your Web site can be difficult. Start by tracking the number of e-mail messages you receive as well as sales attributable to your Web site. It may take several months or years for your Web site to prove itself. So be patient and don't expect immediate results!

Can you justify the costs?

Review your entire marketing budget to be sure you're not eliminating a proven marketing tool in order to "try-out" the Web. You may want to build your Web site in stages so you can learn what works without making a major financial commitment. You can add to your Web site as you learn what your prospects and customers need.

Do you have the technical expertise and resources to build, promote and maintain a site?

Some of the expenses you'll encounter and resources you'll need to develop and maintain a Web site include:
- A dedicated computer and an Internet connection (preferably high speed) so you can manage and monitor your Web site.
- Virus scanning software and a virus definition update subscription.
- Fees to set up, publish and store your Web pages.
- Fees to buy and keep a domain name unique to your business.
- Fees to copyright your Web content.
- Web site development software.
- Additional personnel for creating, maintaining and marketing your Web site.

You may want to hire a Web design firm to develop the initial design of your Web site. Maintaining your site can be done in house at a lower cost, if you or an employee has the time, training and know-how.

Alternately, you may wish to work with a cost-effective "all-in-one" Web hosting firm that offers online Web site development through the use of wizards and pre-defined templates. There are several Web hosting companies in the green industry and outside the industry that offer these services at varying prices.

If your evaluation leads to, "I'm not ready for a Web site...yet", don't despair, there are options for online marketing without a Web site. For example:
- Sign up for e-mail, and read and respond to your e-mail daily.
- List your e-mail address with all trade membership directories, in printed member books and in online listings.
- Publish your e-mail address anywhere you can: on your business card, letterhead, door hangers, proposals/contracts and invoices, Yellow Page ads, newspaper ads, newsletters, and other printed material that you give to customers.
- List your business name and e-mail address on the Web site for your local Chamber of Commerce.
- Sign up for a listing in a Yellow Pages Web directory.

Diana Cardillo is senior technical support specialist at ArborSoftWorx. She can be reached at dianac@creativeautomation.net or (410) 461-5858.
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Emerald Ash Borer Found in Michigan

In mid-July, Michigan and federal officials announced the discovery and identification of a new exotic pest from Asia — *Agrilus planipennis*, or the emerald ash borer — in five counties in southeast Michigan.

The emerald ash borer, a pest belonging to a group of insects known as metallic wood-boring beetles, is not native to Michigan or anywhere in the United States. It is active in Eastern Europe, Russia, Mongolia, China, Taiwan and Japan.

Emerald ash borer adults are dark metallic green in color, half-inch in length and 1/16-inch wide. Larvae are creamy white in color and are found under the bark. The larvae make a zigzag of tunnels under the bark in late summer and fall. The tunnels disrupt water and nutrient transport, effectively choking the tree to death.

The presence of emerald ash borer typically goes undetected until the trees show symptoms of being infested — usually the upper third of a tree will thin and die back, and a large number of shoots or branches arise below the dead portions of the trunk.

In response to the infestation, Michigan state agriculture officials have issued a quarantine on all ash trees and timber products in the five affected counties — Livingston, Macomb, Oakland, Washtenaw and Wayne.

All are encouraged to be on the lookout for this pest and report any signs of it to the state's toll-free Emerald Ash Borer Hotline at 1-866-325-0023. More information on the ash borer can be found online at www.michigan.gov/mda.

Prized Lychee Fetches Record Price

A single lychee from a tree that once produced fruit for Chinese emperors has sold for a record 555,000 yuan (about $67,500) at a recent auction in China's affluent southern province of Guangdong, state media reported.

At last year's auction, one of the brittle-shelled pieces of fruit fetched a price of 55,000 yuan, gaining entry to the Guinness Book of World Records, according to the official Xinhua news agency.

Future of Akron Ash Tree in Limbo

An attempt to save a 150-year-old American white ash in West Akron, Ohio, hit a stumbling block recently when a permanent court order aimed at preventing the city from cutting down the tree was dismissed.

Judge Patricia Cosgrove explained that although the city's mayor will make all attempts to save the tree, in an emergency, the city service director and mayor will have the right to decide if it needs to come down.

More than 600 people signed a petition to save the sidewalk tree, which the city initially wanted to cut down due to concerns over possible falling branches and in order to install a wheelchair ramp at the corner where the tree is located.

Bill Hahn, arborist for the city of Akron, pointed out the dangers of the tree — including a weak crotch — and, at one point, according to an article in the Akron Beacon Journal, compared the landmark to a terrorist who must be taken out before someone is hurt.

Farm with 4,000 Trees Created in Dallas

The Dallas Trees and Parks Foundation, Richland College and TXU recently created the largest known non-profit urban tree farm in the nation.

Several hundred volunteers and local governmental officials from across the Metroplex pitched in to plant approximately 4,000 trees on land on the southern edge of the Richland College campus in Dallas.

The trees from the farm will be made available in late 2002 for public space planting projects sponsored by municipalities, area businesses, individuals, civic groups and other organizations.

"This Urban Tree Farm will go a long way in enhancing the lifestyle of our local communities," said Mike Bradshaw, executive director of Dallas Trees and Parks Foundation.

The trees were chosen by the Dallas Trees and Parks Foundation for their resiliency and adaptability to the Texas climate. They include bald cypress, burr oak, Chinese pistachio, shumard red oak and sawtooth oak. The trees are expected to offset the 20,000 trees that are lost annually in Dallas from natural mortality and commercial development.

Dallas Trees and Parks Foundation aims to preserve, beautify and expand parks and other public natural green spaces in a six-county area surrounding the city of Dallas. TXU provides electric and natural gas services, merchant energy trading, energy marketing, energy delivery, telecommunications, and energy-related services, primarily in the United States, Europe and Australia.
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The job looked smaller when I bid it. A burly, solitary Monterey pine had to be removed from a steep grassy slope well below the house and street. A ton of sappy, unwieldy brush had to be hauled 200 feet uphill, leaving the wood on the hillside cut into firewood lengths and rounds. It was going to be a long, hot summer day even if things went well.

My partner and I joked about the last time we were on this slope, removing an acacia. We had worked our former employee so hard that by the end of that day his legs were shaking. Our amusement at this poor guy's sacrifice helped us forget that it was our lowest bid ever. Would we reach a new low today? This time we were working alone.

I dropped a few low limbs and felled the rest downhill in one piece on the wide-open slope—a rare opportunity for an urban arborist. Working steadily, we hauled out all the brush and tossed the limb wood into a pile by mid-afternoon. As we cut the two upper trunks into rounds and firewood lengths, I complimented myself on angling the fall where we agreed to put it. What had really cost us on the acacia job was agreeing to stack the wood. Halfway through the job, we learned the client expected it to be stacked up by the house, and since I hadn't specified a location, I didn't argue. This time, I picked the spot in advance.

The remaining 6 feet of lower trunk, 28 inches in diameter, had lodged itself against an old concrete foundation a few inches from where it had landed. I cut as far as I could in three places with my 24-inch bar, and then tried with my partner to roll the huge log to finish the cuts. It would not roll away from the wall. The best we could do was wobble it. However, we were causing it to slide downhill. Recognizing that we could make the log clear the wall this way, we kept wobbling the log until its top end cleared the bottom of the wall.

But we hadn't properly sized up the situation. The log was pointed downhill at an angle, so it was also downhill in the direction we planned to roll it over. When the enormous log finally slipped past the edge of the foundation, it was a frightening sight to see it instantly go out of control, gathering speed much faster than we had anticipated. "Get the hell out of the way," my partner yelled—as if he needed to! My career flashed before my eyes as the huge log charged down the open slope, accelerating toward the neighbor's house. It mowed down a large patch of six-foot brush without even slowing down, then burst through a section of wooden fence and disappeared. We heard several thuds, then silence.

The log had come to rest against the concrete wall of an indoor pool—amazingly, without damaging it. For that we had an 9-inch apple trunk to thank. The runaway log had found the only tree on the hill between us and the neighbor's wall and used it to slow itself down. But the apple tree had paid for our sins with a long, irregular swath of stripped bark. With a sharp blade, I traced the bark, which, along with fixing the fence later, fortunately satisfied the neighbor. We had to cut the log into 16 pieces and carry them back uphill one at a time. The log had jumped neatly over the fence stringer between two posts on 8-foot centers, breaking only the boards. "You only get this lucky once," I remarked.

That evening, just as I was sure I'd dodged a large wooden bullet, my absent-minded client called to ask when I was coming back to stack all the wood—"like you did last time."

T. Gray Shaw is owner of Arbor Artist in Berkeley, Calif.
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Registration Procedure

Please photocopy and complete a separate registration for each conference attendee. Registration is REQUIRED to obtain your admission badge.

Register before the Early Bird deadline of October 4 to receive discounts on Trade Show Admission and educational seminars.

All TCI EXPO admission badges will be mailed to attendees who register prior to October 11, 2002. Individuals registering after October 11 must stop by the pre-registration desk located outside of Hall D to pick up their admission badge.
Attend TCI EXPO 2002 and make a difference in your future!

The products and services you need to achieve success with your tree care company are all under one roof.
ArborBucks!

There will be two drawings each day on the Trade Show floor for at least $200 in ARBORBUCKS. Drawings will be held on Thursday and Friday at 12 noon and 2 p.m. and Saturday at 11 a.m. and 1 p.m.

ARBORBUCKS can be used the same as cash to make purchases at the show from participating vendors. There is no cost to enter the drawing. Just complete the survey found in your pocket program.

Winners must be present to receive ARBORBUCKS cash!

ARBORBUCKS participants:

- Aerial Lift of CT
- Alexander Equipment, Co.
- Alturnamats, Inc.
- American Arborist Supplies Inc.
- Arborjet, Inc.
- ArborSoftWorx
- Arborwear LLC
- Concept Engineering Group, Inc.
- DICA Marketing Co.
- Fehr Bros. Industries, Inc.
- Fresco Arborist Supplies
- Growtech, Inc.
- Karl Kuemmerling, Inc.
- Marshall Manufacturing
- Minnesota Wanner Company
- National Arborist Association, Inc.
- Northeastern Arborist Supply
- Plant Health Care, Inc.
- Rayco Manufacturing, Inc.
- Sherrill Arborist Supply
- T-Mate-O Tree Supports
- U.S. Rigging Supply/Pelican Rope Works

and more - see final list at registration

Tree Demonstration Area

Visit the Tree Demonstration Area on the trade show floor for scheduled demonstrations of various arborist skills. Upon completion of a scheduled demonstration, ISA Certified Arborists will become eligible to receive ISA re-certification credits by filling out a demonstration attendance form.
Two Special Workshops

TCI attendees are invited to participate in either full-day workshop on Wed., Nov. 6, 2002.

Please use the TCI EXPO registration form to indicate attendance at either of these programs.

NAA will provide certificates of recognition to those individuals who attend each of the six (6) SMART MANAGER seminars during TCI EXPO, with additional recognition for those who attend the “Business Managers’ Workshop” on November 6.

New This Year!

Professional Practitioner Workshop I
Morning Session
9 am - 12 pm Room 202 A/B Midwest Express Center

Evaluating Trees for Hazard - Ed Hayes
The mission of this workshop, like the stated mission of Safetrees, is to bring to the field the best research available on tree assessment and risk management in an easy-to-understand format. Dr. Ed Hayes, co-founder of Safetrees, has over 25 years of experience with this topic. He is the author of Evaluating Tree Defects, and a veteran of numerous tree hazard assessment presentations throughout the world.

Professional Practitioner Workshop II
Afternoon Session
1 pm - 4 pm Room 202 A/B Midwest Express Center

Elements of a Hazard Tree Risk Management Program - Mark Duntemann
As arborists, consultants and urban foresters, we deal with the question of risk on a regular basis. The past 15 years has seen a marked increase in hazard tree diagnosis and management. Adding a third and final element to the discussion on hazard trees, this session focuses on risk and how we, in a profession that maintains and manages trees, can develop progressive-risk reduction strategies that are achievable, defensible and reasonable. Duntemann is president and owner of Natural Path Forestry Consultants, Inc., Montpelier, Vt. His business deals with all facets of urban forestry. His client base is primarily government agencies ranging from local cities and park departments to state, national and international agencies, located in 17 states and five countries.

Business Managers’ Workshop I
Morning Session
9 am – 12 pm Room 201 C/D Midwest Express Center

Taking Control of Your Business Financial Planning - David G. Dewsnap, CLU
For the past 20-plus years, financial planner David Dewsnap has worked with business owners on effective methods of conducting business and personal financial planning. During this time, he has helped bring special attention to the unique problems associated with business succession planning and its corollary issues: retirement income planning, estate tax reduction, and special situation planning. In addition to his presentations for NAA Business Management workshops, he has spoken before groups from Vermont to Georgia, and been guest lecturer at the University of Delaware and the Wharton School of Business. David is affiliated with Whipple & Associates in Horsham, Pa., and is a registered representative of MML Investors Services of Springfield, Massachusetts. In this session, he will be providing attendees with some of the valuable insights he has gained through his considerable experience and extensive education so that they can improve their business financial planning skills and techniques.

Business Managers’ Workshop II
Afternoon Session
1 pm - 4 pm Room 201 C/D Midwest Express Center

The 11-Step, Bulletproof, “Kick Butt” Super-Selling Process - Marty Grunder
Marty Grunder is a nationally recognized speaker, consultant and entrepreneur. His years of running a successful multi-million dollar landscaping business has prompted not only other landscapers but entrepreneurs from across the country to seek Marty’s advice. The informal requests for his secrets of success resulted in the formation of The Winner’s Circle in 1996. Today, The Winner’s Circle — a marketing, management, and motivational consulting company — works with small businesses all over the U.S. and Canada. In this session, participants will learn the exact 11-step bullet-proof selling process to instantly improve their sales, including how to handle rejection, squash price shoppers, make big sales on the first visit, get inductive prospects to make a decision, get multiple sales from the same client in a one-year period, get referrals without begging, sell while you’re asleep, get the sales even if you are the highest price, raise your prices at renewal time and still get the job, and much more.
Thursday, November 7, 2002

7:30 am  REGISTRATION OPENS

7:45 - 8:15 am  ANNUAL BUSINESS MEETING - Open to NAA members only
The business of the association will be conducted at this time including the Board of Directors election.

8:30 - 9:45 am  KEYNOTE ADDRESS: CONSEQUENCES OF PROLONGED DROUGHT ON TREES AND WHAT YOU CAN DO ABOUT IT - Dr. Philip Wargo
Two dry bands of drought straddle the nation. The first runs up the East Coast from Georgia to Maine, the second blankets the Rocky Mountain States down to the southern tip of Texas and west to California. Predictions are that drought is likely to persist or intensify. Amid water ban discussions and rising water costs, trees silently suffer, because drought is a leading cause of plant stress. Dr. Philip Wargo, Principal Plant Pathologist with the Northeastern Research Station at Hamden, Conn., focuses on the physiological effects of stress and how it predisposes trees to dieback and decline diseases. He has developed and evaluated procedures to measure tree health and to predict the onset of decline. Learn what to expect as trees begin to display the long-term effects of drought, and what you can do for your clients to mitigate the problem.

9:57 am  TRADE SHOW OPENS
Don't miss a single booth! Wear your walking shoes, because with more than 150 exhibitors, there will be a lot of ground to cover. TCI EXPO is the largest tree care trade show in the nation. If it will make your business more efficient, competitive, productive or profitable, you'll find it here. Plus, we've arranged for live demonstrations and plenty of hands-on opportunities with some of the leading names in the arborist industry. Check your show program for times and locations. To keep up with the industry, you won't want to miss a single demo.

12 Noon  ARBORBUCKS DRAWING - Tree Demonstration Area
Be sure to fill out your entry form and you could be the winner of ARBORBUCKS currency. ARBORBUCKS can be used as cash at any of the participating vendor booths. Here's your chance to win the goods and services you need!

2 pm  ARBORBUCKS DRAWING - Tree Demonstration Area
It's not too late to enter the drawing. You could be the winner!

4 pm  TRADE SHOW CLOSES

4 - 5 pm  HAVE MORE FUN AT WORK WITH MODERN ARBORCULTURAL TECHNIQUES - Tom Dunlap
Technological advancements in the past 30 years have affected many aspects of arboriculture, and they could make your days in the trees a lot more numerous and enjoyable. Tom Dunlap is the owner of Canopy Tree Care and a partner in Tree Climbing Team-USA in Robbinsdale, Minn. He teaches Arboriculture at Hennepin County Technical College and serves as the advisor to the Urban Forestry Club at the University of Minnesota.

4 - 5 pm  MANAGING AND SCHEDULING WORK CREWS - Tony Bass
Tony Bass grew the company he started (Bass Custom Landscapes) to over $2.5 million in annual sales while working in a county that has a total population of barely 100,000 people. In addition, he has worked with numerous companies as their personal consultant and has spoken to several leading industry organizations. In this session, which is geared primarily for owners/operators, team leaders, project managers, and schedulers, Tony focuses on key areas and methods of efficiently and effectively managing one crew to multiple crews, including scheduling and routing, job costing, downtime, planning in advance, motivation and people management skills.

6 pm  WELCOME RECEPTION & EXCELLENCE IN ARBORCULTURE AWARDS PRESENTATION for all Attendees and Exhibitors
- 104 C & D, Midwest Express Center
Complimentary hors d'oeuvres.
This celebrated evening recognizes and honors commercial tree care professionals and their valuable clients. Join us and enjoy an evening of fun with fellow tree care professionals.

Friday, November 8, 2002

7:30 am  REGISTRATION OPENS

8 - 9 am  WOOD BUILD-UP AND BREAKDOWN - Dr. Robert Blanchette
Dr. Blanchette will discuss what happens to trees defending themselves against microbial attacks leading to wood decay. He will discuss insights on how trees defend themselves against these attacks.

9 am  TRADE SHOW OPENS

9:30 - 10:30 am  SUPERVISOR'S SKILL-BUILDERS WORKSHOP - PRODUCIVITY AND MORALE - Lou Benson
Over the past 20 years, Lou Benson, President of Forestry Services, Inc., has conducted sessions on productivity and morale for hundreds of companies. This workshop will be a highly interactive session with plenty of hands on exercises.

10:30 am  INTERVIEWING & HIRING TALENT - Jean L. Seawright, CMC, operates a highly specialized consulting venture. Known for her unique and educational style, Jean will share practical ideas and strategies.

12 Noon  ARBORBUCKS DRAWING - Tree Demonstration Area
Be sure to fill out your entry form and you could be the winner of ARBORBUCKS currency. ARBORBUCKS can be used as cash at any of the participating vendor booths.

2 pm  ARBORBUCKS DRAWING - Tree Demonstration Area

4 pm  TRADE SHOW CLOSES

4 - 5 pm  HOW TO WRITE PRUNING SPEC'S - Tony Bass
When planning work, it is imperative that you work to the most current and accurate specifications. Jeff D. Stokes is the CEO of Pinnacle Property Management. He will show you how to successfully communicate your expectations for your clients, your managers, and your personal consultant. Expectations are pivotal in business. When you use the A3 method, you can implement immediately.

4 - 5 pm  HOW TO GET TOP DOLLAR FOR EVERY JOB - Jeff D. Stokes
Jeff D. Stokes is the CEO of Pinnacle Property Management. He will discuss how to price jobs properly so that you can effectively manage your business. Jeff D. Stokes is the CEO of Pinnacle Property Management. He will show you how to successfully communicate your expectations for your clients, your managers, and your personal consultant. Expectations are pivotal in business. When you use the A3 method, you can implement immediately.

5:15 - 6:15 pm  FREE RECEPTION & EXCELLENCE IN ARBORCULTURE AWARDS PRESENTATION for all Attendees and Exhibitors
- 104 C & D, Midwest Express Center
Complimentary hors d'oeuvres.
This celebrated evening recognizes and honors commercial tree care professionals and their valuable clients. Join us and enjoy an evening of fun with fellow tree care professionals.

In partnership with The Hartford

Acorn = ISA Certified Arborist CEUs available
Blue Star = Expert Practitioner Series
Red Star = Smart Manager Series
### Saturday, November 9, 2002

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30am</td>
<td>Registration Opens</td>
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| 8 - 9 am      | **HOW ACCIDENTS OCCUR, AND WHY: ARBORICULTURAL SAFETY IN THE U.S.** - Dr. John Ball
Learn how to reduce risk in your profession and business. Dr. Ball will present a survey of tree care companies in the U.S. on accidents over the past five years. He will cover the types of accidents as well as injuries that occurred, the industry's current safety training needs, and more. Since the survey is being conducted right now, the data will be current. |
| 8 - 9 am      | **POWER SELLING: WHAT MAKES A TOP SALESPERSON** - Hal Becker
As an internationally known expert on sales and customer service, Hal Becker will share his knowledge during this session. Becker makes more than 120 presentations a year to organizations that include IBM, Disney, Blue Cross, AT&T, Continental Airlines, U.S. Postal Service and many more companies and associations. He also provided informative and entertaining presentations at NAA's TCI EXPO in 1996 and 2001. In this session, attendees will learn that to be the best takes an easy-to-follow system. Hal uses his own experience as Xerox's No.1 salesperson, along with a 10-step common sense, back-to-basics approach to give attendees the tools they need to succeed. |
| 9 am          | Trade Show Opens                                |
| 9:30 - 10:30 am | **NEW LIFE (AND PROFITS) FROM OLD TREES** - Dr. Sam Sherrill & Steve Bratkovich
If you are like most arborists who process wood waste into chips or firewood, there is a potentially profitable wood utilization alternative right under your nose: turning urban trees into finished lumber products. Dr. Sherrill of the University of Cincinnati and Steve Bratkovich of the U.S. Forest Service will share their research, knowledge of the markets, and other information you will need to decide if this is a potential profit center for your firm. |
| 9:30 - 10:30 am | **GROWING YOUR BUSINESS WITH IMPROVED CUSTOMER SERVICE** - Kennette Reed, C.L.P.
Kennette Reed, C.L.P., is a customer service specialist marketing professional, speaker, author and interior landscape consultant. In this session, participants will learn: why every staff member must provide excellent customer service; how improvements in service quality affect customer retention; the true cost of acquiring new customers; the long-term value of retaining existing customers; how to increase profitability through increases in customer retention rates; how to be thankful for customers who complain; what tools your customer service staff needs to be successful; and how to begin the process of converting to a proactive customer service team. |
| 11 am         | Arborbucks Drawing - Tree Demonstration Area    |
It's not too late too enter the drawing. Go and win!

### TCI EXPO 2002 TRADE SHOW CLOSES!
Driving to the Midwest Express Center

From General Mitchell International Airport:
- Start out going north on S. Howell Avenue/WI-38 N towards Airport Exit by turning left.
- Turn left onto W. Grange Avenue.
- Turn slight left to take the ramp toward I-94.
- Take the WI-119 W ramp.
- Merge onto Airport Spur.
- Merge onto US-41 N.
- Take I-43 N toward Green Bay.
- Merge onto I-43 N.
- Take the Kilbourn Avenue exit (exit number 72C) towards Civic Center.
- Keep right at the fork in the ramp.
- Turn right onto N 6th Street.
- Turn left onto US-18 E/W Wells Street.
- Turn right onto N 4th Street.

From North (Sheboygan, Green Bay & points north)
- Go south on I-43 South to downtown and take "Wells Street/11th Street/Civic Center" exit.
- Follow signs for Wells Street. (left on ramp)
- Go east on Wells Street, see Midwest Express Center underpass ahead; past 6th Street.
- For parking and main entrance, continue into underpass. Parking entrance is on left inside underpass. Main entrance is at 4th Street & Wisconsin Avenue; continue through underpass and turn right; go one block.

From West (Waukesha, Madison & points west)
- Go east on I-94 East to junction with I-43 and I-794, near downtown.
- Follow signs to "James Lovell Boulevard/Civic Center" exit. Exit is an "Exit Only" lane on right, just beyond ramp marked "Chicago." (I-94 East)
- Take "James Lovell Boulevard/Civic Center" exit; go left on ramp, under freeway.
- Continue on James Lovell Boulevard three blocks to Wells Street.
- Turn right on Wells Street, see Midwest Express Center underpass just past 6th Street.
- For parking and main entrance, continue into underpass. Parking entrance is on left inside underpass. Main entrance is at 4th Street & Wisconsin Avenue; continue through underpass and turn right; go one block.

From South (Racine, Kenosha, Chicago & points south & east)
- Go north on "I-94 West" to junction with I-894 West/I-43 North.
- Follow signs to "Milwaukee Downtown" and continue on I-94 West/I-43 North to interchange with I-794 East, near downtown. Stay in middle lanes marked "I-43 North."
- Watch signs for "Kilbourn Avenue/Civic Center"; exit is on the right; just past the interchange.
- Exit at "Kilbourn Avenue/Civic Center," through a tunnel. Emerge on Kilbourn Avenue at 6th Street.
- For parking, turn right on 6th Street, go one block, and turn left on Wells Street. Parking entrance is on left inside Midwest Express Center underpass.
- For main entrance, continue ahead on Kilbourn to 4th Street and turn right. Go two blocks to entrance on 4th Street and on Wisconsin Avenue.

Flying

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US Airways has been selected as the primary air carrier.
Special discounts have been arranged on your air transportation. Plan ahead and receive an additional 5 percent discount by ticketing 60 days or more prior to departure.

US Airways also offers exclusive negotiated rates for attendees who are unable to meet the restrictions of the promotional round-trip fares.

To take advantage of this special offer, book online with usairways.com using Meeting ID: MTG000361 or call US Airways’ Group and Meeting Reservation Office toll free at 1-877-874-7687 and refer to Gold File No. 29622383. Should you require assistance with booking online, refer to the following addresses: http://usairways.com/groups/guide.htm or http://usairways.com/groups/faq.htm.

Delta Airlines
Delta Airlines is offering special rates which allow you a 5 percent discount off Delta’s published round-trip fares. By purchasing your ticket 60 days or more prior to your departure date, you can receive an additional 5 percent bonus discount. Special round-trip Zone Fares are also available for savings on mid-week travel to the meeting. Two-day minimum stay; no Saturday night stay required. Seven days advanced reservations and ticketing required. For reservations, call Delta Meeting Network Reservations at 1-800-241-6760 and reference Delta File Number 187414A.
Airport Transportation

Ground Transportation is available on the baggage claim level.

Airport Connection provides shuttle service to downtown hotels. A special rate of $16, applicable to roundtrip transfers only, has been established for TCI EXPO attendees. The Airport Connection reservation desk is located near Baggage Claim 2 or call (414)769-2444 in advance to make your reservation. Please reference the National Arborist Association/TCI EXPO when making your reservations.

Finding a hotel room

This year the host hotel for TCI EXPO 2002 is the Hilton Milwaukee City Center, directly across from the Midwest Express Center via skywalk at 509 West Wisconsin Ave. Hilton Milwaukee City Center is offering TCI EXPO 2002 attendees a rate of $117 single/double occupancy. Self-parking is available on a daily basis at a charge of $12 per day. This includes in and out privileges on a 24-hour basis. Space is limited; be sure to make your reservation early. This rate will be offered until October 6, 2002. To make your reservation, please call the Hilton Milwaukee City Center direct at (414)271-7250. Be sure to reference the National Arborist Association/TCI EXPO room block when making your reservations.

Alternative accommodations are available at the Holiday Inn Milwaukee City Centre, located across the street from the Midwest Express Center. The address for the Holiday Inn Milwaukee City Centre is 611 West Wisconsin Ave., Milwaukee, WI 53203. The Holiday Inn Milwaukee City Centre will offer TCI EXPO 2002 attendees a rate of $90 single/double/triple/quad occupancy. Valet parking is available for overnight hotel guests at a daily rate of $8. This includes in and out privileges on a 24-hour basis. Reservations must be made by October 4, 2002 in order to guarantee this preferred rate. To reserve your room, please call the hotel direct at (414)273-2950 and be sure to reference the National Arborist Association/TCI EXPO room block.

Exhibit Hall Hours

Thursday
Nov. 7, 2002
9:57 am - 4 pm

Friday
Nov. 8, 2002
9 am - 4 pm

Saturday
Nov. 9, 2002
9 am - 3 pm
TCI EXPO Online
Register online at www.natlarb.com for the world’s largest tree care show. NAA offers a secure transaction line, and confirmation of your registration will be received within minutes.

REGISTRATION
Please photocopy and complete a separate registration for each conference attendee. Register before the Early Bird Deadline of October 4 to receive discounts on Trade Show Admission and educational seminars. Registrations received after October 4, 2002, not complying with the appropriate fees, will be billed accordingly. Registration is required to obtain your admission badge. Everyone is required to wear a badge issued by the National Arborist Association to enter the exhibit hall and all seminars. Be sure to pre-register and avoid long lines at the registration area.

TCI EXPO Badges
All TCI EXPO admission badges will be mailed to attendees who register prior to October 11, 2002.

Individuals registering after October 11, 2002 must stop by the pre-registration desk located outside Exhibit Hall D to pick up their admission badge.

SEMINARS
Check the box beside each seminar you wish to attend. Be careful not to pick two seminars scheduled for the same time. Count the total number of seminar hours indicated next to the seminar titles. Record this number in the space marked TOTAL SEMINAR HOURS.

If you are attending 5 or more seminars ... BUY GOLD!

To purchase the GOLD CARD, which will give you unlimited access to all educational sessions and the Trade Show, check the appropriate box on the registration form and enter the correct amount in the TOTAL COST line.

PLEASE NOTE: Registrations will be processed but not confirmed until paid in full.

SEMINAR REGISTRATION CANCELLATIONS
All seminar registration cancellations must be received in writing at the National Arborist Association office. Cancellations received on or before October 18, 2002, will receive a full refund less a $25 administrative fee. Fees cannot be refunded after October 18, however you are welcome to send a replacement. No telephone cancellations will be accepted.
1. Registration Form

Name ____________________________
Title ______________________________
Company __________________________
Address ____________________________________________
City ___________________ State __________ Zip ________
Phone __________ Fax __________
E-mail Address __________________________

2. Source Request

How did you hear about TCI EXPO?
☐ TCI EXPO Brochure
☐ TCI Magazine
☐ Arborist News
☐ Other Industry Publication
☐ NAA Web Site
☐ Co-worker/Friend
☐ Other Trade Show
☐ Other ___________________________

3. Seminar Selections

THURSDAY, NOVEMBER 7
☐ #1 - 8:30am Consequences of Prolonged Drought on Trees ................. 1 Hour
☐ #2 - 4:00pm More Fun at Work With Modern Arboricultural Techniques ... 1 Hour
☐ #3 - 4:00pm Managing and Scheduling Work Crews ......................... 1 Hour

FRIDAY, NOVEMBER 8
☐ #4 - 8:00am Wood Build-up and Breakdown ..................................... 1 Hour
☐ #5 - 8:00am Supervisor's Skill-Building Workshop ............................... 1 Hour
☐ #6 - 9:30am Preserving Trees During Construction ............................... 1 Hour
☐ #7 - 9:30am Interviewing & Hiring Talent in the New Millennium .......... 1 Hour
☐ #8 - 4:00pm How to Write Pruning Specs Using A300 ....................... 1 Hour
☐ #9 - 4:00pm How to Get Top Dollar for Every Job .............................. 1 Hour
☐ #10 - 5:15pm How Does Your Organization's Safety Program Measure Up? 0 Hour

SATURDAY, NOVEMBER 9
☐ #11 - 8:00am How Accidents Occur, and Why? ................................. 1 Hour
☐ #12 - 8:00am Power Selling; What Makes a Top Salesperson? ............. 1 Hour
☐ #13 - 9:30am New Life (and Profits) From Old Trees ...................... 1 Hour
☐ #14 - 9:30am Growing Your Business with Improved Customer Service .... 1 Hour

TOTAL SEMINAR HOURS ___________________________

4. Registration Options

☐ Gold Card - Includes all seminar selections and admission to trade show
(Wednesday Workshops are not included in Gold Card option)

☐ Individual Seminars multiply cost by number of seminar hours _____ X $ 50 $ 60

☐ Trade Show Entrance Only - Free with paid seminars

☐ Business Managers' Workshop (lunch not included) - Wednesday, Nov. 6, 2002
$ 95 $ 95

☐ Professional Practitioner Workshop (lunch not included) - Wednesday, Nov. 6, 2002
$ 95 $ 95

TOTAL $ _______________________

5. Payment Method

☐ Check Enclosed  ☐ MasterCard/Visa/AMEX  AMOUNT $ __________
CARD NO. ____________________________ EXP. DATE __________
NAME ____________________________ SIGNATURE __________________
(as it appears on your card)

6. NAA Membership

1. Is your company an NAA Member Firm? ☐ Yes ☐ No
2. Do you wish to receive NAA Membership Info? ☐ Yes ☐ No
November 13-15, 2003

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