A New Tree Biology Comes of Age

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The Crispness Cometh ...

You can feel it in the air—little warning signs that the height of the season for the tree care industry is coming to a close in the Northeast. Fall is right around the corner, along with a lighter bottom line in sight for some.

This month’s issue offers an article about options for profitable sidelines through the winter. If you’re in our part of the world, the snowplowing business is a great opportunity. And if you refer to the June issue, you will see an article on profiting from holiday lights. Anywhere in the western world, installing holiday displays provides several months of additional revenues. A few extra weeks in the winter working in a different environment can bring a nice little pay-off in the coming year too. You can meet some potential customers you might not have run into otherwise, as well as getting some visibility and advertising in new locations. This can translate into new business in the coming year. Never underestimate the power of public awareness. A front-page photo of your crews putting up the town’s Christmas lights brings a lot of free advertising and incredible community goodwill. Have you ever thought about using this opportunity to recruit employees or interest students in town in arboriculture?

You might also want to put some of this cash into some new or upgraded equipment, which brings me to the world’s largest tree care industry trade show—NAA’s TCI EXPO 2000! We have a record number of exhibitors this year; 180 companies ready to show you the latest technology, products and services in our industry. Don’t forget the chance to earn CEUs and to participate in the Business Management Seminar. Your company might also consider participating in Career Days for students. Enjoy maximum visibility as potential new employees are buzzing around tree care company booths in search of career options.

Best of all, you don’t have to tear out the application in this issue of the magazine! Go on-line to WWW.NATLARB.COM and register for TCI EXPO 2000 from the comfort of your home or office. A random drawing will select 200 on-line registrants, who will receive a free shirt from Arborwear!

Whether the crispness closes in on your area or not, don’t forget to plan for your options this winter and make one of them TCI EXPO 2000!
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Red oak showing old wounds.
Photo courtesy of Dr. Alex L. Shigo

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A New Tree Biology focuses on defense as the major theme of a tree. It is essential to understand first how any system operates at its most efficient and effective way. Then, when problems start, the chances for a remedy are much better.
If a picture is worth a thousand words, listen to what this one has to say.

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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 non-profit 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.
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5. Runners: 6" structural channel
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Dissections showed that there were highly ordered patterns of discolored and decayed wood associated with wounds and branch stubs.

Dissection of thousands of trees with a chain saw started a New Tree Biology in 1959.

Photos courtesy Dr. Alex L. Shigo

Patterns of discoloration and decay in many trees could not be explained by the heartrot concept. Heartwood in this white oak was sound in the center yet distinct columns of decay were associated with the wounds. The decay did not spread at-will in the heartwood.

Dissections showed that there were highly ordered patterns of discolored and decayed wood associated with wounds and branch stubs.
A New Tree Biology Comes of Age

By Dr. Alex L. Shigo

Is Wood Living or Dead?

Light: is it a wave or a particle? Yes! A duality that started quantum mechanics. Newtonian physics started to be replaced by new concepts, especially concepts dealing with the atomic world.

Wood: is it living or dead in growing trees? Yes! Another type of duality that started new concepts dealing with trees and their associates. A New Tree Biology started to develop.

Trees Are Generating Systems

A New Tree Biology is based on concepts of the tree as a compartmented, generating system that survives, when injured, by forming new barriers and strengthening old barriers that resist the spread of microorganisms, and that protect the structural, transport and storage systems. Organisms that infect trees counter the tree’s response by attacking in successions. The survival pressures of the tree are met with the survival pressures of the microorganisms that attack trees. Another type of duality begins to develop as trees survive, so long as they are not digested by wood-inhabiting microorganisms, and the microorganisms survive so long as they digest trees.

New Concepts Needed

New concepts had to be developed that would serve both parts of this duality. One concept was called compartmentalization. Trees survived so long as they could compartmentalize the infections. Wood-inhabiting microorganisms survived so long as they could compete successfully in successions as the wood in the compartments was digested. This was the other concept. Compartmentalization then served the survival time for trees and the succession concept served microorganisms that attacked trees.

Compartmentalization is under moderate to strong genetic control. The ability of microorganisms to compete successfully with others and to spread within the compartments is also under genetic control.

These concepts help explain long-term survival of trees and their associates. Some of the associates benefit the tree while others act against the tree. However, while events are happening, the tree as a generating system is growing new

Thousands of trees were treated and later dissected to map the spread of infections. This dissected sugar maple shows the discolored wood associated with the experimental drill wound.

Hundreds of thousands of isolations for microorganisms from sound and infected wood showed that bacteria and non-decay causing fungi were usually the first organisms to invade wood through wounds and branch stubs. Here is a non-decay causing fungus, *Phialophora melinii*, in a vessel in discolored wood in a red maple.
parts in new spatial positions. In this sense, the tree does not heal or restore injured and infected tissues. While all of these events are taking place, time is going by. The events explain the long-term survival of trees and their associates.

Old Problems Persist

The concept of compartmentalization, as simple as it is, is still not understood by many people. Proof of this can be found in the words used by some researchers as they talk about "wound healing," "regenerating roots," and "wound repair." If the tree is accepted as a generating system, then terms that imply regenerating processes create oxymorons. The terms also block clear thinking needed to help solve other problems.

One concept that has blocked progress with understanding tree defense is the heartrot concept. Along with the concept has come "heartrot fungi." The heartrot concept is based on wood as a dead, non-responsive substance. The heartrot concept is a wood decomposition concept. The concept states that wounds expose heartwood, which is dead wood, and the wood-rotting "heartrot fungi" then infect the dead wood and grow at will, eventually producing fruiting structures on the wound face. If the wound does not expose heartwood, then the injured wood soon becomes "wound heartwood," "pathological heartwood," or "precocious heartwood." This concept is still alive and very well in many textbooks and in the classrooms of the world. A major problem is the confusion about wood. It is seldom defined.

Symplast Concept

Wood is an organ made up of living, dying and dead cells that have boundaries of cellulose, hemicelluloses and lignins, mostly. The protoplasm of the living cells in wood and bark are connected in a three-dimensional network called the symplast. The dead boundary walls and dead cells that "hold" the symplast in place is called the apoplast.

The symplast is concentrated in a circumferential zone between the wood and bark called the cambial zone, and an outer bark circumferential zone called the phellogen and in radial bundles called meristematic points. This symplast concept is essential to an understanding of compartmentalization. Once the symplast concept is understood, then many parts of the compartmentalization concept fall into place. Just as you cannot have regenerating terms for a generating system, you cannot have dead wood terms for an organ that contains living cells. The easiest way to see the extent of the symplast is to pour a solution containing iodine (I₂-KI) over a freshly cut wood section. The iodine stains starch grains purple, and except for a few rare exceptions, the purple dots will only be seen in living cells. (The exceptions deal with starch grains left behind in cells that died quickly.)

Tree Defense & Protection

The symplast defines the limits of the tree defense system. Defense is dynamic and protection is static. As the inner symplast dies, the wood becomes protection wood. There are four types of protection wood: heartwood and false heartwood, discolored wood and wetwood. Heartwood is genetically age-altered wood that has a
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Sharon Ossenbruggen (now deceased) developed many teaching programs that used a wide variety of models and other materials designed to help clarify the new concepts.

Greater protection capacity than the sapwood that contains the symplast. False heartwood is wood so depleted of elements essential for life that few organisms can grow in it. False heartwood is often trunk wood associated with dying and dead branches. As the branches die, the trunk wood associated with the branches deplete their supply of elements, especially nitrogen-based molecules, that are essential for life. Discolored wood is wood infected by non-hymenomycetous, or non-decay causing fungi. In the early stages, discolored wood is a protection wood, but in later stages, as more organisms infect, the wood may lose its protection properties. As this happens, the discolored wood may take on the characteristics of soft rot where the S2 layer of the secondary layer of fibers is infected and altered. Wetwood is wood infected by anaerobic bacteria mostly. The infected wood is altered in ways that disrupt membranes, and leakage of substances leads to high concentrations of elements, high pH, and low amounts of free oxygen as micro spaces are filled with water.

Genetics Yes; Absolutes No

In nature, there are no absolutes. Strong defense and protection mean that there will be longer time periods before decomposition. Boundaries resist, not stop, infections. Strong tree defense reactions favor longer time periods, but eventually all living matter will be reduced to its primary parts, which will be reused, or recycled, for new life.

Some tree species, or even individuals within a species, have stronger and faster response systems for defense, or stronger...
Many workshops were conducted to help arborists learn about the new concepts by touching all parts of the tree, inside and outside. Here participants are getting ready to dig roots and to touch mycorrhizae under snow-covered soils.

These features are under genetic control. A major protection boundary that determines the longevity of many trees is the protection zone at the base of branches. All trees have branches and as some branches die or are mechanically removed, the openings are infection courts for wood-inhabiting microorganisms. The tree species that have the strongest branch-protection boundaries are those that usually live the longest.

As microorganisms invade trunks by way of branch openings, the tree may eventually compartmentalize the infecting microorganisms. However, over time as the trunk wood walls off more symplast, the space for storage of energy reserves is also walled off. This is a major way root-rotting fungi slowly kill trees. The tree keeps losing space for storage, and as energy storage materials decrease, so does the capacity for defense.

The compartmentalization concept includes more than the tree; it also includes organisms associated with the tree. If trees had absolute defense and protection, wood would never decay. But, it does.

**Tree Associates and Successions**

The tree has as a defense system dynamic processes that resist the spread of invaders, or resist their advance with substances that temporarily stall their growth. The grand "natural idea" of succession is: if one group of organisms is not able to continue the invasion, another group will be able to do so. The group following the one before them also uses the dead organisms for a food source. This is a major way nitrogen-based substances are brought back into the wood. A major protection...
scheme of trees is to “move” the supply of nitrogen-based substances out to the younger symplast as the wood ages. All organisms must have some nitrogen-based substances to build amino acids for proteins. The amount of new protoplasm is directly proportional to the amount of nitrogen-based substances available. Successions solve this problem by reusing the nitrogen-based substances left behind in the dead cells of those organisms that proceeded them. All these processes take time. As time goes by, the generating tree continues to grow new parts in new spacial positions.

Mass, Energy Limits

Such a system has long-term, but not absolute, survival. As any system increases in mass, the energy to maintain order in the system increases exponentially. However, the tree has “a way” to minimize this threat to survival by shedding parts. The tree “uses” and sheds leaves and needles, reproductive parts, twigs, dying branches, and non-woody roots—root hairs, mycorrhizae. In a sense, the compartmentalized wood is a type of shedding. (Another type of duality arises, as a tree is both an annual and a perennial.)

CODIT Is a Model

To help people in the field understand and use the compartmentalization concept, a simple model of the concept called CODIT was developed. CODIT is an acronym for Compartmentalization Of Decay In Trees. Decay is defined here as a process where a highly ordered substance—wood—begins to become more disordered. Some people have substituted the words damage or defect for the D of CODIT. The problem here is that the altered wood in the compartments is not always an economic loss. In some cases the lightly colored wood adds value to a product.

The real problems with CODIT are that some people forget that it is a model and they think of the model terms as real anatomical walls. The more serious problem is one where the model is taken as an absolute process where the boundaries stop the infection.

Practical Applications

If a person understands A New Tree Biology with the concepts of compartmentalization and successions, old practices will be quickly recognized as being more harmful than beneficial.

Flush cuts on branches remove the tree’s protection boundaries and create wounds in the trunk. Painting wounds blocks the normal successions, which stimulate the tree to form boundaries. Many of the organisms that are first on a fresh wound are those that “keep away” the more destructive types. Callus and woundwood form after wounding. Compartmentalization is a separate process that takes place in wood present at the time of wounding.

Digging into cavities breaks the compartment boundaries that resist the spread of infections. Drilling holes to drain liquids exposes healthy wood to infections. When wetwood is drained, the wood first infected by bacteria will usually be infected by wood-decaying fungi. As some trees are wounded repeatedly during treatments, the storage spaces for energy reserves is reduced, and defense is also reduced. Many insects and microorganisms attack when defense is low. As stored energy reserves...
Be Aerial Lift Aware

By: Jeffrey Lee, Branch Management, Riverside, CA (909) 276-8060
Sponsored by The Bishop Company for the advancement of our industry.

Leaving the Widow Carter’s yard, Big Al Fontaine beamed with “fatherly” pride and confidence as he turned to take just one more look at his newly christened bucket truck. With this “new baby” on the job, Al was confident that his ace man, Max Bunyan, would carry out the day’s work and pull down a hefty profit as well.

But, once Big Al was out of sight, a maverick idea wormed its way into the soft tissues of Max’s brain. Max started figuring and he “figured” that this new bucket truck could not only elevate him into the tree to do the standard pruning job, but, with a little ingenuity, the lifting power of that bad boy could easily get the 36 inch boxed tree over the fence and into the Widow Carter’s back yard, shaving hours off the job. Under his breath, Max chuckled at his own cleverness.

The movement of the articulating boom appeared a most lifelike as Max danced it over the boxed tree. Deftly he attached the lanyard from his body belt around the trunk of the tree and finished the connection by attaching the other end to the upper boom of the truck just below the bucket.

Just as Max had planned, the bucket lifted the tree off the ground. Then, with a creak and a mortal groan, the outstretched arm of the boom strained beneath the weight of the load. Suddenly, the lanyard gave way and snapped with a “pop” like a giant firecracker. The giant arm flexed and catapulted a helpless Max out of the bucket and flung him beyond the horizon, with the velocity of a Nolan Ryan fastball. In all his “figuring,” Max hadn’t figured on that.

The potential for accidents involving bucket trucks is too numerous to calculate. Nonetheless, the likelihood of an accident can be greatly reduced if a few simple ANSI requirements are met.

- Understand the Manufacturer’s Intended Application: “An aerial device or aerial ladder shall not be used as a crane or hoist to lift or lower materials unless specifically designed to perform such operations by the manufacturer.” (ANSI Z133.1-1994, 5.2.5).

- Tie in to the Lift: “When aloft, the operator shall be secured with a body belt and personnel lanyard.” (ANSI Z133.1-1994, 5.2.2).

- Inspect the Equipment: “Prior to the daily use of an aerial lift device, a visual inspection and operational check can be made in accordance with the manufacturer’s instructions. This inspection should be duly recorded.” (ANSI Z133.1-1994, 5.2.1).

Don’t be lulled into a false sense of security. When working in an aerial lift, realize that like a well-trained arborist, it has limits too. Just as when you’re climbing, be cautious, be careful, be aerial lift aware.

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To Order Call...
begin to become depleted, the processes that support compartmentalization no longer function. Then invaders have opportunities to grow rapidly in the wood.

In desperation, some people add fertilizers and call them tree foods. Worse yet is the practice of injecting nitrogen-based substances into trunk wood. This defeats the tree’s protection feature where nitrogen-based substances move out of dying wood. The introduced nitrogen-based substances stimulate growth of microorganisms. As the tree compartmentalizes the infections, space for storage is decreased, along with defense. The leaves may get greener, and growth may be stimulated. These obvious signs are usually short-lived. Also, as nitrogen-based substances are absorbed, the nitrogen quickly bonds with carbon to form amino acids that in turn form more protoplasm. This is at the expense of the defense system because the carbon for the amino acids comes from the already low resources. Insect borers are common attackers, along with sap-feeding insects on leaves. They usually get the blame for the decline or death of the tree.

A New and Better Future for Trees

A New Tree Biology focuses on defense as the major theme of a tree. Trees cannot move from destructive agents. They grow as highly defensive organisms. Their anatomy and physiology are tied to their defense actions, and later to features providing strong protection.

Trees connected with many other organisms, and synergistic processes led not only to stronger tree defense but to greater opportunities for survival of the associates. Forests came. Forests are systems made up of trees and many other organisms connected in such highly ordered ways that high-quality survival is ensured for all members.

Trees have developed ways to minimize the dangers of an increasing mass to energy ratio. Trees shed parts. Trees grow within their means, or within the limits of their environment. It is essential to understand first how any system operates at its most efficient and effective way. Then, when problems start, the chances for a remedy are much better.

As more people begin to understand A New Tree Biology, more old practices will slowly give way to new and better practices that will benefit the tree, the tree owner, and the people who care for the tree.


Dr. Alex L. Shigo is owner of Shigo & Trees, Associates in Durham, N.H.
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Is Internet Recruiting for You?

By Wayne Outlaw

You can’t drive down a major highway without seeing a billboard touting a dot.com company. Recently, there has been a proliferation of billboards suggesting the way to find employees is via the Internet using commercial online services. These companies, such as monster.com, hotjobs.com, brainbuzz.com and computerjobs.com, are advertising quick and easy access to talented employees.

Should a tree care company that needs an entry-level employee or one with specialized skills use the Internet as a recruiting tool? Initially, many people thought that only highly technical, Internet-savvy people posted their resumes on the Internet. This has changed dramatically. Non-technical jobs are frequently posted, and companies—if they know where and how to look—are finding high-quality applicants of all types.

Currently, the US Army is sponsoring the front page of monster.com, and the objective is obviously to get job seekers to consider a career in the military.

One of our clients in Texas found the Internet was an excellent source of new employees, based on quality of candidate, candidate flow, and, most importantly, the cost of acquiring a candidate. While employee referrals were still number one, the Internet was the second most valuable source.

With the number of open jobs increasing, not only is it harder to find someone to hire, it has also increased the quantity of traditional print advertising, which has contributed significantly to driving up “Help Wanted” ad costs. Many are finding on-line recruiting to be easy, quick and cost-effective. With today’s labor shortage, it is important for companies not to rely on a single source, but to identify and use multiple candidate sources.

Some quick and simple research will let you decide if Internet recruiting is for your organization. The first step is to identify the likely locations where potential candidates would look or browse. Most cities have at least one employment site focused on that geographical area. For example, there are seven sites in Dallas dedicated to positions in the area. Since these sites focus on the geographical area, they tend to be a good place to post ads for general types of positions. You might consider posting an ad on a site such as this because the cost is usually very reasonable or maybe even free. Remember, the candidate you are looking for does not have to find the ad, because friends or family members may see it and pass it on.

Many company owners believe individuals who are applying for entry-level positions don’t have resumes and this would make using the Internet difficult. Experience shows more people than ever before have resumes or can easily create one with inexpensive or free software. Also, your on-line ad copy can direct the individual to visit your Web site to fill out an application, or they can simply respond by phone just as they would with a printed ad.

A good source for unskilled labor is America’s Job Bank (www.ajb.dni.us). It is a free service sponsored by the United
States Government, containing all the jobs listed by local job service offices. You can log on to have your job listed free.

Searching an on-line service database is an excellent way to find candidates quickly. Inquire to see if the sites will allow you to search their database. Many will let you do this once or for a limited time to demonstrate the service you are considering. Database searching is especially helpful if a specific credential or particular job title is unique to your needs. If you want a certified arborist, search one of the national databases and identify everyone with that credential. For example, a monster.com search found three job listings that require arborist or certified landscape professional. Based on this, there is a high probability there are applicants in the database that match the position.

The major sites may well have an individual with the credentials and experience you need. If the applicants or candidates are not in your area, they may be willing to relocate. Of course, those willing to relocate are more likely to fill managerial or supervisory positions, but you never know. People relocate for a variety of reasons. The Internet provides the opportunity to match a job seeker with your job. It can broaden the job search to areas that you would not reach with traditional advertising or print media.

Internet recruiting can enable innovation—you don’t have to rely just on ads. Use the Internet as a networking tool. You could create an e-mail that outlines the job, and request help from someone in your network, just as you would in person or by phone. You can send this request to those contacts in your Internet address book that might know of someone who would fit the job. Ask them to reply to you with contact information on anyone who might be interested. In addition, suggest they forward the e-mail to several people to “get the word out” about your needs. In the body of the e-mail, you can even suggest the reader forward it to anyone who might be interested. This e-networking technique we teach in our workshop is a very effective way to recruit.

Whether online recruiting is for you is an important question to answer. Based on the scarcity of candidates and the explosion of Internet use, which will continue to rise, it is a very good tool to match candidates to jobs. At last count, there were 2.5 million resumes on the Internet and 20,000 job-related Web sites that contain listings. With this amount of communication concerning jobs and today’s tight job market, can you afford not to explore this source of candidates?

Wayne Outlaw is author of “Smart Staffing: How to Hire, Reward, and Keep Top People For Your Growing Company.” He may be reached at http://outlawgroup.com.
Teen Tree Tenders Graduate at Morris Arboretum

Stephen Graham of West Philadelphia assists Quentin Young as he shows off his tree-climbing skills during a graduation ceremony at the Morris Arboretum of the University of Pennsylvania. The boys were among 12 students from University City High School in Pennsylvania who received certificates from the arborist training program last month. The teens completed a 12-week career exploration program sponsored by the Morris Arboretum & Gardens and funded by Penn's Community Outreach Partnership Center and the Department of Housing and Urban Development. For information about education programs at the Morris Arboretum, call 215-247-5777.

Job Corps Tree Climbing Jamboree Winners

John Keeler, STIHL, Inc. national training manager (seated center) with (back row I to r) Nick Sedizi, ACRT program manager at Pine Knot; second place winner Thomas Montesino and first place winner Austin Reppin, both from Pine Knot; third place winner Brandon March from the Angell center and Sean Stephens, ACRT program manager in Angell.

Each ACRT Job Corps center around the country sends their top three contestants to a tree climbing and work skills jamboree. The 2000 Jamboree was in Kentucky's Daniel Boone National Forest on April 19. First Place went to Austin Reppin from the Pine Knot center; Second Place went to Thomas Montesino, also from Pine Knot, and Brandon March from the Angell center took Third Place. STIHL, Inc. presented the winners with a gift certificate redeemable from their catalog. In addition, winners of each Job Corps Center's jamboree will participate in STIHL's Timbersports Games in Branson, Mo. in September. STIHL and ACRT recently entered into a partnership under which STIHL provides the tools and equipment for ACRT to expand its government-funded training programs.

Registered Nursery Tree Graders Complete Training in Florida

The Florida Chapter of the ISA and the Florida Department of Agriculture and Consumer Services, Division of Plant Industry, completed the first training for Registered Nursery Tree Graders. Thirty-two green industry professionals attended the June 27-28 training in Parrish, Fla. Designed to train experienced nursery managers, arboricultural consultants, government employees and the Division of Plant Industry Inspectors in tree and palm grading, the program was conceived following the recent revision of Florida Grades and Standards for Trees, Palms and Nursery Plants.

Led by Dr. Edward Gilman, Professor and Extension Specialist at the University of Florida in Gainesville, all attendees passed the final exercises and are now ISA Registered Nursery Tree Graders. For more information, call the Florida Chapter of the ISA at 352-379-3808 or visit their Web site at www.floridaisa.org.
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ASV unveils the RC.30, a driveable, all-surface loader that fits in the back of a pickup. Its rubber-tracked technology significantly reduces hand labor, works with power and traction and goes just about anywhere without harm to sensitive terrain. The track system gives it the power and traction to dig, grade, backfill, remove snow and perform a variety of other tasks. There are a lot of small machines on the market, so making it small was not the only goal. It had to be powerful and comfortable with easy-to-use controls; and it had to be gentle because operators shouldn’t have to repair damage after the job is done. The RC.30 is powered by a Caterpillar 3013 engine, which delivers 31.5 gross horsepower. It has an operating weight of 2850 pounds, stands less than four feet wide and six feet high and has attachments such as backhoes, augers, dozer blades, trenchers and mowers. For more information, call 800-346-5954 to find the nearest dealer or visit ASV’s Web site at www.asvi.com.

A universal mounting system has been developed for the Megabyte Log and Stump Shear Attachment, which was introduced in late 1999 by Smoracy, LLC, and Bandit Industries, Inc. This mounting system makes it fairly easy to attach the Megabyte to most excavators, while eliminating any need to modify the boom. Adapting to another excavator now only requires that a bushing be inserted in the linkage arm. This excavator attachment, with pivoting shears that put full and equal pressure directly opposite the shear and claw, was specially designed to break down stumps and oversized logs to be more efficiently processed through waste-reduction equipment. It can also act as a stump puller that will split stumps while still in the ground. The 9-foot 2-inch opening enables the machine to split logs of almost any length both horizontally and perpendicularly. It is equipped with a replaceable shear knife tip, replaceable front knife surface and replaceable teeth. For more information, contact Bandit Industries, Inc. at 800-952-0178 or visit their Web site at www.banditchippers.com.

HeaterMeals are designed for outdoor workers on the go who want a hot meal. HeaterMeals get hot and ready-to-eat in 14 minutes, without electricity, fire or flame. The heater is made of iron and magnesium. When water is added, it mixes with the iron and magnesium and produces heat. The meals need no refrigeration. Like traditional canning methods, the meals are cooked twice—before and after sealing. They have a shelf life of 24 months and can be stocked anywhere. Everything for a hot meal is included: food, flameless food heater, fork, salt, pepper, napkin and a two-ounce pouch of water. There are seven different meals that can be ordered in a 6-pack of assorted entrées or a 6-pack of any single entrée. For more information, call The HeaterMeals Company at 800-503-4483 or visit their Web site at www.heatermeals.com.
Sno-Way International introduce its new salt/sand spreader in sizes and weights to accommodate lower GVWR vehicles, as well as full-size heavy-duty trucks. Available in steel or stainless steel, units are complete with no options to buy, including an EPA-approved Briggs & Stratton engine and direct drive. They range from five feet to eight feet with capacities of one-half yard up to two yards. The spreaders have electronic, state-of-the-art controls and a low profile for better weight distribution and stability. For more information, call Sno-Way International at 800-662-1453.

Blount Inc. recently introduced several new attachments to two Hydro-Ax multi-purpose industrial tractors. In land clearing applications, an operator must be able to move quickly from one task to another. The Hydro-Ax tractors have quick-change attachment capability so owners can do more with one tractor and several different attachments. The smallest model, the Hydro-Ax 421E, is a new tractor in the 150-hp class. Coupled with a 7-foot rotary mulcher attachment, it makes small work of mowing sagebrush and small trees. The Hydro-Ax 721E is a larger, high-performance tractor with up to 240 horsepower. Attachments include a rotary ax, tree spade, utility bucket, bale fork, felling saw, and power broom. For more information or to find a dealer location near you, call Blount at 919-269-2314.

Turfco introduces its new Lawn Overseeder, the LS-20. It covers a 20-inch swath, allowing experienced operators to overseed up to 30,000 square feet per hour. The 1.5-inch blade spacing works with all types of lawn grass seed, including turf-type tall fescues. The micro-screw depth adjustment permits accurate setting of the cutter blades from 1.5-inch above ground to 1.5-inches deep, with nearly infinite adjustments in between. The LS-20 can even be used as a dethatcher. It allows efficient overseeding in heavy debris or thatch and the 10-inch diameter pneumatic tires make the overseeder easy to operate over rough and uneven ground. The low center of gravity makes it usable on sidehill surfaces. The major controls are mounted on the handle bar. The blade clutch, lift bail and seed flow control are all within easy reach. The reinforced molded plastic seeder box is built right into the deck and designed to apply plain or treated seed without jamming. It is powered by a 5.5 hp Honda engine and the frame and handle are heavy-gauge steel. Blades can be replaced individually in just a few minutes. The LS-20 requires practically no daily maintenance except cleaning and the usual visual inspection. For more information, visit Turfco’s Web site at www.turfco.com or call 800-679-8201.

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When tree or lawn care companies are considering adding snow and ice management services to fill out their year, one of the most often asked questions is “How do I price the work?”. Additionally, in discussions with contractors that already provide snow-removal services and think that it is a “pain the neck” or a service that 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 business, instead of recognizing it as the highly profitable revenue source it can be.

While you must have a viable “system” for addressing the mechanics of operating a profitable snow-removal business (a full-length article in itself), pricing services properly for your market or circumstances should be a high priority. Experience in talking with successful plowing contractors from all over the United States and Canada indicates 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.
Excel Hustler turf tractors can power a number of winter attachments, including a snow thrower.

Those contractors that view snow removal as a "profit center" regularly state that snow is the most profitable part of their business. These views are expressed by contractors in all parts of the country— from Seattle, to Denver, Hartford to Washington, DC, Newark to Minneapolis and Milwaukee. From contractors that project five snow events per season in a great winter to those that 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 by 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 that call requesting "hourly rates" for snow removal may not be asking their question the right way, or do not understand what information they want. For example: if a potential customer calls requesting an hourly rate, one possible answer is $125 per hour. If that seems like a lot to the caller, you can always lower it to about $15 per hour. He will probably like that.

When you are then asked how you will do the work you might reply: "At $125 an hour, I'll send a payloader with a 14-foot scoop blade and do the job in 15
minutes. At $15 per hour, I'll send 15 guys with shovels and they will do the job in 3 hours.”

When you answer questions on price, ask yourself what the customer really wants to know—how much it will cost to clear a particular lot. The customer wants a price, not the hourly rate for your equipment. After all, 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 wants to know. Of course, sometimes a request for pricing comes in written form and the potential customer is such that it is obvious that they know what they want. Unfortunately, that’s when we must deal with all the methods of pricing our services to the customer.

There are four basic ways to price snowplowing services:

• per push

• per hour/per truck

• per season

• 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 more than 65 inches the next. Universities, airports, and extremely large sites are prime examples where “per-inch” contracts are normally used. Quoting these 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

• prevailing wind direction of the probable snow event.

The customer should also be able to tell the contractor about 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. Customers that usually request this type of pricing normally have snow removal budgets in excess of $250,000, and often plan 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. This type of customer often requires “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 who anticipate snow revenues of less than $1 million from snowplowing and related services 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 are needed to survive a mild winter (and you should know these numbers if you are doing your cost accounting properly), then securing enough “per season” work allows the responsible contractor to guarantee adequate cash flow in winter. Guaranteed income, whether it snows or not, provides you with the income 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 a one-season contract can be disastrous. Average snowfall is just that—average. 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 years when there is little snowfall, the contractor knows how much income will be derived through the monthly payments made by the customer. In years when there are above-average snowfall totals, the contractor might lose money. However, if other types of pricing snow-removal services are also used on other accounts, 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. Plowing sites on a “per-push” basis requires considerable expertise, as you must know what your equipment’s 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 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 generates 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

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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 the “guy next door” 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. Anybody can get into the plowing business by pricing in this fashion. The margins are generally much, much lower, however, as low-bid contractors have a tendency to compete at this level.

On the plus side, you can sign up clients fast using this method, since you don’t have to visit a site to provide a quote. There 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 jobsite in order to increase revenues when the unsuspecting customer is not at the site at 3 a.m. These contractors always get caught eventually, which makes it that much harder for the honest contractor to generate a trusting relationship with the customer. A lot of 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 of your 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 develop. 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...
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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 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 pruning, fertilizing, landscape installation, landscape maintenance, spraying, excavation or power sweeping—money (good money) can be made from snow and ice management services.

How do you land new customers with all the cutthroat one-truck operators out there giving away their time? Maybe this is the wrong attitude. Wouldn't it be better if—as the contractor providing services—we were in a position to interview customers we want instead of quoting work “hit or miss?”

Target marketing is the key to success in any business. Why should it be any different with plowing snow?

**Keep an eye out**

If you are servicing a shopping plaza each winter, then it would be in your best interest to have additional business close to that location. Assuming that you are providing tremendous service to your own customer—pay attention to what is happening across the street. If their lot is not plowed on time, make a mental note of this. In spring, send a letter to the person in charge of that other site, requesting an opportunity to speak with them about their plowing. Do this in the spring so that the problems of the past winter are still fresh in their minds. You may not get an opportunity to secure that business right away, but staying in touch with potential customers will enable you to get the needed opportunity when the time comes to renew plowing contracts for the upcoming winter season.
Take out the map
Consider targeting all potential customers in the immediate vicinity of your satisfied customer. Ask for a letter of recommendation that you can use when discussing the possibility of securing new customers in the immediate area. If you are charging “per push” or “per truck,” having new customers in the immediate vicinity will cut down on travel time between jobs—increasing revenues per truck. Additionally, it is easier to incorporate a new customer into the schedule if they are close to an existing service site. It just makes good sense to cluster your accounts strategically.

Choose wisely
Avoid taking on customers that have gravel parking lots, unless you charge for the increased time it takes to plow. Or, you might include a stipulation that allows you to charge the customer to redistribute the gravel in the lots each spring.
When a potential customer calls for a price for plowing services, some contractors ask why that customer is considering changing vendors. It is a fair question. If the customer is unsatisfied with the service provided by the previous contractor, this is a customer worth spending time with in order to ascertain the reasons. You might find that the previous contractor was undercharging for his services, forcing him to shortcut the job in order to make a profit. In these cases, you may need to be frank with customers and tell them that they were not paying enough for the service. Make it clear that you are going to be more expensive—but the quality of work will be better. Potential customers who want better service at the same low price are not looking for quality and dependability; they are looking for the cheapest price. Don’t undercut your required profit margin just to land these types of clients.
If they are just checking pricing, you may want to avoid getting involved with such tactics—unless you need the practice quoting work without getting anything in return. Price shoppers will change vendors next year—or, worse yet—mid-season, to land a cheaper price. In this industry, the cheap price usually reveals itself by the second significant snowfall when the service just isn’t there.

When talking with potential customers, extol the virtues of dealing with your company. If you are a large contractor with a large fleet of equipment, point out that there is no excuse for not showing up on time (if enough snow falls soon enough to allow you to complete the plowing in the allotted timeframe). You probably have a mechanic on staff (or readily available) to get breakdowns fixed quickly, so equipment is back up and running in short order. You may have a full-time dispatcher to insure that special requests can be addressed in a timely fashion.
Small contractors should stress that they don’t have a large number of customers—so every customer gets personalized service. You don’t have to keep track of a large contingent of trucks, and you always know where everybody

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is working. Personalized service means that you care about that customer’s needs, almost exclusively.

Don't hide the fact that you are making a profit at providing this service. While it may seem like everyone is plowing snow, the fact is you are in the minority. You provide a necessary service that requires specialized equipment, special talents and tremendous dedication to your customers. They should be glad you are there—ready and willing to provide services under terrible, and often unsafe, conditions. Sell the benefits of dealing with your company, no matter what size fleet you run.

**Where to start**

Your core business customers are the logical people to approach first. If you provide tree care services to a property management firm, have you asked what they do in winter to service their tenants? Have you asked each and every one of your residential clients who plows their driveways? If not, shame on you. Repeated studies tell us that the majority of our new business comes from previous (satisfied) customers. This is your single largest source of new business. Send a flyer announcing this extension of your business. If you can’t afford to hire a marketing consultant to design up the flyer, help is available. Kinkos, PIP Printing or Copy Max can help you design one and can print up color flyers affordably.

Most importantly, keep in mind that you are in the snow and ice management business year-round. While most of our customers only think of snow just before the season, we should be thinking about snow all year long. When soliciting new tree care business, ask about snow business too. When you do a pruning, fertilization or removal project, ask who does the snow removal. Leave a snow-removal flyer at every tree care job you bid—you might land that business instead of tree work.

Are your current clients happy with the service they are receiving? If they are, tell them that they are lucky to have a good contractor. But if they do decide to look around, could you please have the opportunity to secure the business?

While you are talking with them, ask what they are being charged. It’s always good to learn what the competition is charging. It’s no threat to the incumbent, since you know that your customer is satisfied. Keep this information computerized in your customer profiles. In a couple of years you may get a call to quote the work, and you will have some idea where your bid needs to be.

For those contractors that are in the plowing business to make a profit, it is a high profit center that should receive considerable attention throughout the year. You probably quote new tree care business year-round; you shouldn’t have a problem quoting snow business in June and July either.

*John Allin, president of Allin Companies, is a snow and ice industry consultant. He has been involved in the snowplowing industry for 30 years, and is currently president of the board of directors of the Snow & Ice Management Association. He can be reached at 814-455-1752 or by email at john@allinco.com*
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<td>$22.70</td>
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Ergonomics Standard Causes Prolonged Discomfort for OSHA

By Peter Gerstenberger

The chairman of a House Government Reform subcommittee accused the Labor Department of interfering with his investigation into contractors who were paid millions to help develop OSHA's controversial ergonomics rulemaking and to testify at public hearings on the proposal.

The July 5 letter from Rep. David McIntosh (R-Ind.) to Labor Secretary Alexis Herman, said several contractors were directed by the Labor Department to essentially stonewall the congressman's request for information, including some who were willing to comply with the congressman's requests. Much of the information was turned over to the congressman after he threatened to subpoena documents in early June. McIntosh is chairman of the National Economic Growth, Natural Resources, and Regulatory Affairs subcommittee.

Labor Department and OSHA officials had no comment on the specifics in the McIntosh letter, which is the latest in a series of exchanges between the congressman and the department that began in the spring. On July 7, an OSHA spokesperson said that both Herman and the head of OSHA, Charles Jeffress, are reviewing the July 5 letter and that the labor secretary “will respond directly” to McIntosh.

Senate asks for investigation

In the Senate, four GOP chairmen led by Sen. Fred Thompson (R-Tenn.) are calling for a General Accounting Office (GAO) investigation of the DOL contracts.

Thompson's letter to Comptroller General David Walker called on the GAO to respond to his inquiry by July 24 and to provide a full report no later than Sept. 1. “We are particularly interested in a prompt answer to whether OSHA coached witnesses,” the letter said.

The Senator's letter was signed by Sens. Christopher Bond (R-Mo.), chairman of the Small Business Committee; James Jeffords (R-Vt.), chairman of the Health, Education, Labor and Pensions Committee; and Michael Enzi (R-Wyo.), chairman of the Subcommittee on Employment, Safety and Training.

Documents thus far reviewed by McIntosh suggest that some 28 expert witnesses were provided with outlines by DOL to help them prepare their testimony for public hearings on the ergonomics rule. The department also apparently “provided extensive substantive edits” to their testimony to ensure that specific, pro-regulatory comments were offered by the witnesses, according to the McIntosh letter.

McIntosh’s letter comes one month after he first called on the Justice Department to investigate the use of contractors to perform inherently governmental functions on an array of Labor Department initiatives, including the ergonomics rulemaking (30 OSHR 549).

One continuing concern, according to McIntosh, is whether the department has used contractors in policy development roles and other work that should be conducted only by government employees.

Contractor work detailed

In at least one instance, a contractor apparently worked for the department under successive contracts and then was hired as a Labor Department employee some 21 days after the end of the last contract, McIntosh said in the July 5 letter.

Other contractors performed tasks that “do not require any special knowledge or expertise, such as reviewing public comments, developing draft summaries of the comments, developing basic spreadsheets for summarizing the comments and testimony, and drafting potential response to the comments,” the letter said.

At McIntosh’s request, the Labor Department has provided information on 70 contracts that were used for work on the ergonomics rule and were awarded from 1996 to 2000. Those contracts totaled $1.8 million, according to McIntosh. One contractor alone, Eastern Research Group Inc., was awarded $600,000 of that amount, the congressman’s letter said.

ERG later told the congressman that it has received about $2.5 million for work on the ergonomics rulemaking since 1992. “Therefore, the total known to me at this time is at least $3.7 million in contract awards for this rulemaking,” McIntosh said in the letter. “This is an astounding cost to the American public.”

On July 17, following the public airing of these allegations, one powerful Washington, D.C., industry group submitted its own bill to the agency, arguing that fairness dictates that it, too, should be paid.

“The interest of fairness it would only seem right that OSHA also pay witnesses who did not agree with its point of view—equal pay for equal testimony, if you wish,” said a letter to the agency from Patrick Cleary, vice-president for human resources policy at the National Association of Manufacturers.

“In that spirit, I am enclosing an invoice in the amount of $10,000 for my testimony, given on May 11, in opposition to this rule,” the letter said.

On July 18 Cleary told BNA that the industry group and its members who testified do not expect to actually be paid for their testimony but said “we’re trying to make a point” by sending the invoice to OSHA Administrator Charles N. Jeffress.

OSHA had no formal comment on the NAM letter, but the Labor Department has defended its hiring of outside contractors for the rulemaking, arguing that it was necessary to augment a relatively small staff devoted to rulemaking.

Both the Senate and the House appropriations bills covering the Labor Department’s fiscal 2001 funding now include language that would block the Occupational Safety and Health Administration from publishing its final version of the ergonomics rule. The Clinton administration has vowed to veto the appropriation, in part because of the ergonomics restriction.

Peter Gerstenberger is vice president of business management, safety & education for the National Arborist Association.
When it comes to purchasing capital equipment, aerial lifts account for the lion’s share of the arborist’s equipment costs. According to the leading leasing and financing companies specializing in the tree care industry, up to 80 percent of their business is financing or leasing lifts.

Another interesting statistic is that about two-thirds of the finance or leasing of bucket trucks is east of the Mississippi River. Quipped one financier, “... because that’s where most of the trees are!”

Right after determining that a lift is needed and which one fits the bill, the arborist’s real challenge is acquiring a lift. The two main dilemmas—both based around money—are:

- new or used?
- lease or buy?

In preparing this article, we posed these two questions to professionals who finance aerial devices every day. We interviewed NAA member companies specializing in finance. Why? Unlike the local banker, they know and understand the vagaries of the tree care business, and have seen just about every imaginable situation.

The result is this: when it comes to new or used and lease or buy, there’s no one good answer. But there is a lot of good information and some things to think about to help move the business along—not only from the standpoint of getting work done, but from a profit-and-loss perspective.
Adding a Lift? Consider These Points

- Have you conferred with your accountant first?
- Do you need the truck and lift combination or just the lift? Or just the truck?
- Lease or buy?
- New or used?
- Should you buy from a dealer?
- Should you buy from a private party?
- What are the warranty and trade-in policies?
- Does your loan officer understand your business?
- Does the loan officer understand the equipment you are considering?
- Can you structure a “seasonal” deal that varies payments?

It all depends on how your business shapes up. In the end, both decisions should be made as a team effort between you, the business owner, and your accountant.

Scott Hillman, senior account executive with Progress Leasing Company, has a pretty good perspective handling both leasing and financing within the arborist community for 15 years. His company, like most of our interviewees, handles new and used rolling stock.

In the case of a truck-mounted lift, he noted that although trucks and lifts can be purchased and financed separately, his company (and most others we surveyed) will want to hold title to both. In the event one is already paid for and the other is being financed, companies will likely want to hold title to both “for security,” he says.

Diving right into the mystery of leasing, Hillman warns that the typical five-year lease on a truck may look attractive, but the fine print needs to be reviewed to see how and if a purchase option constitutes what is known as a “dollar buyout.”

He explains that a true lease results in a residual value of 10 percent or more at the end of the lease. Under current tax
laws, that allows a company to expense payments faster—every month—as if the company were expensing a rental cost. Conversely, IRS auditors typically look at the “dollar buyout” as a form of purchase resulting in a longer term write-down. Therefore, the monthly payments on those are expensed as a capital purchase. Monthly lease payments are not fully deductible; equipment is depreciated and leasing costs are deducted as finance cost, he explains.

For example, Hillman estimates that a typical useful life on a lift or chipper is seven years in the tree care industry. A purchase or “dollar buyout” results in expensing over the seven years of its useful life. In a true lease of four or five years with the requisite 10 percent or better residual value, the company owner can expense the monthly cost over that four or five years.

“Depending on what your accountant advises, the lease gives less to government,” notes Hillman. He adds that the equipment user still has the option to purchase, finance or re-lease the same equipment at the end of the term.

Any economic downturn could signal a trend toward used equipment, says Hillman. “The tree care industry is very susceptible to a downturn in the economy, since many jobs are seen as a luxury for homeowners.”

“When recessions hit, guys doing residential work are hit hardest,” Hillman recalls. “That’s a big concern in the financial area. In 1990 to 1991, tree care took it hard, especially those servicing residential customers. But the last nine years have been very good for them and for us.

“Ironically, we are currently seeing a growth in both new and used lifts—with no real drop off at all.”

New equipment is costly for a tree company to buy, yet sales of bucket trucks in excess of $100,000 are strong to established commercial operations.

As for guidance on considering a new or used rig, Hillman urges clients to get competitive quotes and not simply ask what the interest rate is. The best way is to compare monthly payments on a lease because the underlying finance rate may be misleading. Next, find out if the lease you’re considering is a 10 percent purchase option or a lease with “dollar buyout.”

In any event, don’t make the move without consulting your accountant.

At First Sierra Financial, headquartered in Atlanta, Eileen Gresens has been specializing in the green industry for six years. First Sierra handles big-ticket items like aerial lifts for the arborist and other industries, as well as equipment for the waste, computer and medical markets. She’s proud of the fact that First Sierra has close ties to the tree care industry through its membership in the NAA, noting that it helps the customers to know their business.
"With the cost of an entirely new unit running well into the six-figure range, depending on the truck chassis, the price tends to scare off a lot of new equipment buyers. We find many ready to turn to used."

Moreover, she notes that popular, lesser-priced models with broad utility, like those from Altec and High Ranger, are running to the $80,000 range. As high in demand as they are, the wait for hot models can be up to six months, so a lot of her customers are drawn to the used market. In fact, business is more used than new.

While most used equipment is in the seven-year-old category, Gresens is finding that the actuarial life expectancy is more in the 15-year span, evidenced by people looking to finance 1984 and 1985 equipment.

Well-made pieces of equipment that are taken care of hold their value well, and many vendors will refurbish aerial trucks before testing and selling with a warranty. She says that with lifts starting in the $50,000 to $60,000 range and running up to $90,000, "when someone sees something at $50,000, suddenly there's deal."

After that, how to pay for the rig depends on its year, condition and one's credit.

As a general rule, First Sierra finances or leases most used stock—all the way back to a '92—for three years. Some mid-'90s models in good shape lease for up to five years.

"Leasing versus financing means an arborist can get into equipment with little money down and enjoy the benefits of a full tax write off. A lease," she adds, "doesn't ask for as full a financial disclosure as a financing deal, making leasing attractive to startups."

Gresens notes that an important consideration for the arborist looking at a new lift is to know that your finance or lease agent understands your business and how important the equipment is to your bottom line.

One benefit of industry specialists is that they can structure payments according to seasonal cash flow, because they understand the ups and downs of the arborist financial year. When looking to finance equipment, ask about paying a little less each month during the slow season, with higher payments when the busy season arrives.

Sometimes the local bank doesn't understand the equipment and how it contributes to the bottom line. Bankers also look skeptically on financing ten-year-old equipment. There also might be delays over loan or lease approvals by committee.

The profile of Gresens' "typical" customer is someone who probably worked for a large outfit, like Asplundh or Davey, who then decides to go it alone. "They want to become successful, and
many look to us to get started,” she says. “They will buy used ones, typically. They want to know how to run the business, so we will walk them through each way—lease or buy, new or used—and discuss payment structures.”

Gresens says her company will never advise from whom to make the purchase, but she noted the company does a lot of business with established outfits.

At C.A.G. Corporation, Brian Poole trends toward full financing, although the company does offer leases. Typically, financing for a used piece of equipment, say eight to 12 years old, can be run over a four-year term with a typical deal running up to $50,000.

C.A.G. is looking to develop a relationship and long-term rapport and comfort level with its customers. “We’re looking to grow with young businesses,” he says. “We understand that sometimes a company might not look to good on paper—especially to a bank.”

Poole looks at the arborist’s business from an insider’s perspective. He sees an industry with its seasonal ups and downs and structures payments to take advantage of cash flow.

“My advice to everyone in regard to financing or leasing is to speak with an accountant first,” he cautions. “Every situation is unique. You may not need write-offs from depreciation. Perhaps leasing makes more sense. Beware of hidden residuals or a large buyout that can hurt if you’re not expecting it. Agreements that require you to carry additional or unnecessary insurance may be more costly in the long run by offsetting intended tax benefits.”

Richard C. Howland is a freelance writer in Bedford, Mass.
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Sales Presentations

Should Suit Customer’s Personality

By David W. Richardson, CSP

Salespeople tend to plan for all the big things, but it is the little things that can get them. Although most business people realize the importance of such things as rent, heat and electricity, they sometimes don’t realize that neglecting the little things can harm their business.

Unanswered questions, misinterpretations of a customer’s needs and lack of communication can harm a business even though they can easily go unnoticed.

To avoid problems that can hurt your operation, you should have an understanding of your personality as well as the personalities of your customers. This way, you can better evaluate what may have gone wrong with a sales presentation—and correct your mistakes in the future.

If you know what makes people tick, you will get a better understanding of what went wrong with a potential sale. Richardson Resource Group uses the Personal Profile System to break personal styles into four classifications. Once you understand a customer’s personal style, you can adjust your sales pitch accordingly—so the premise goes.

The Personal Profile System breaks personal styles into four groups: Dominant, Influence, Steadiness, and Compliance.

Dominant Style (D)

People possessing Dominant styles have high ego strength and are dynamic. You cannot sell to this person. “He buys.” This customer believes that no one has ever sold him anything in his life. When dealing with a dominant style, be direct and businesslike.

Concise answers instead of lengthy explanations work best with this sort of person. You should give this person a couple of options and allow him to make a decision. And he will. High D’s make quick decisions on very little information.

Clues for identifying “D’s”: surrounded by trophies, awards and pictures of themselves receiving awards. Have nervous mannerisms. Are impatient and restless. Have high drive. Talk about goals and the bottom line. Get to point quickly. Don’t demand a lot of details—just quick proof that it will work. Are impulsive and decisive.

Sales Strategy: Ask questions about how they get things done—how they got where they are now. Prove that product or service works. Stress results, bottom line and achievement. Give high-profile references. Quote other achievers they respect. Minimize features, maximize benefits. Take care of details for them. Let them set the time parameters.

Influence Style (I)

Influencers, on the other hand, enjoy engaging salespeople in non-business conversation and are easily sold. Very much influenced by others’ opinions and suggestions, they will seek a salesperson’s personal opinion when shopping.

Clues for identifying “I”s: Have a cluttered environment including pictures of themselves with others. Engage in small talk, stories and jokes. Are friendly and affable. Are easy to approach. Talk about people. Will buy from you because they like you. Are emotionally responsive and impulsive.
Sales Strategy: Ask questions about them and their experiences. Tell how they will get credit or look good. Tell how others will benefit. Ask for their help. Entertain socially. Develop relationships. Tell "who will benefit," "who will use it," and "who thought it up." Often, you will find other people involved when decision time comes. Make something sound good to these people and they will buy it.

Although both dominants and influencers may be easy to sell to, they are usually not loyal customers. A lot of follow-up work must be done with these people to ensure that they remain patrons.

Steadiness Style (S)

People displaying Steadiness, however, are loyal customers. These individuals are task-oriented and tend to be very good listeners. Customers displaying steadiness tend to rely on trust when purchasing. If you can get the customer to trust you, they will purchase your product. This individual will ask a lot of questions. They want you to educate them about the product. Tell this customer all you know.

Although this person may shop around after he has listened to your 15-minute sales pitch, he will come back to you to make a purchase if you have gained his trust.


Sales Strategy: Ask questions about how they do their jobs. Remove risks of buying your service or products. Stress product features as well as benefits. They may be as interested in features as benefits. Let them tell you why the world is moving too fast and that old, tested things are better than new things. Give more time for decision time frame.

Compliance Style (C)

And lastly, Compliance personality types are very precise and accurate. They ask a lot of questions when shopping and...
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Zero In On Your Customers’ Needs

To discern what sort of customer you may be dealing with, ask customers questions. Don’t read minds. If a customer says that the price is too high, ask him what he means. If you ask, “Why do you feel that the price is too high?” you can begin to answer his questions.

Find out what a customer’s needs are. Ask what you can in terms of service. Don’t be afraid to ask what he thought about the service from other companies to find out what he liked and didn’t like.

If you misinterpret what your customers want at the start, it will be nearly impossible to gear your sales pitch to satisfy their needs. Salespeople should remember that we all say things, perceive things and do things in different ways; therefore, clear communication is extremely important.

David W. Richardson, CSP, is a former sales and marketing vice president with divisions of two Fortune 500 companies. He has more than 20 years of real-world sales and management experience. He is the owner of Richardson Resource Group, Inc. in Scottsdale, Ariz.
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♦ Tree Care Business workshops - you might not be a manager yet, but someday you will be—get ready!
♦ Many Technical Seminars - see the TCI EXPO brochure.
♦ Live Arborist Demos - see climbing, safety, rigging, and more, right on the trade show floor!

Friday, Nov. 10 at Bartlett Tree Research Lab
Attend Mini-Labs and Tree Care Skills Competition. (This event is for students only):
☐ Work Climb and Throw Line Competition, 9:00 a.m.
☐ Welcome! 10:00 - 10:30 a.m. Refreshments provided by STIHL, Inc.
☐ Treatments for Soil Compaction, 10:30 - 11:30 a.m.
☐ Chain Saw Field Maintenance 11:30 a.m. - 12:00 p.m.
☐ Lunch and Afternoon Refreshments 12:00 - 1:00 p.m.
☐ Chain Saw Field Maintenance, 1:00 - 1:30 p.m. Repeat
☐ IPM for Ornamental Plants, 1:30 - 3:00 p.m.
☐ Safety Equip. Exam - Tree Care Skills Comp., 2:00 - 2:30 p.m.
☐ Tree Inventories, 2:30 - 3:00 p.m.
☐ Written Exam - Tree Care Skills Competition, 3:00 - 3:30 p.m.

Saturday, Nov. 11 at Convention Center
☐ Job and Internship Fair (This event is for students only): Held in Ballroom A/B, 9:30 a.m. - 1:00 p.m.
Do you know all your career options? Find out at the Job Fair! Student Career Days 2000 jersey and food provided.
☐ Tree Care Skills Competition Awards Ceremony. Held on the TCI EXPO trade show floor at the tree demo area, 1:30 p.m. Industry recognition for student competitors. Awards provided by STIHL, Inc.

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TREE CARE INDUSTRY - SEPTEMBER 2000

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... continued on page 56
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... continued on page 60

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Trees and Miss Liberty Standing Tall

Al Farrugio is one of 13 horticulturists in the National Park Service system. For the last ten years, he's been making his home-base in New York on Liberty Island, and divides his time between there and Ellis Island, two of the most treasured landmarks in the country. His passion for his work is contagious, and as he sits near the patio just behind the Statue of Liberty, gesturing to a relative few of the 350 trees that populate the island, that passion grows.

On a recent fuel oil line replacement job, 15 to 20 percent of the island's trees could have been affected by digging. But with Farrugio's consultation, proper steps were taken to ensure that impact was minimal, and horizontal directional drilling was a consideration.

"Trenching is done constantly—and sometimes it just has to happen," he says. "But if there isn't someone there to say 'Stop, serious damage can be done,' other means won't be explored. Many people just don't know about this technology, but it is quickly becoming apparent that there is a better way."

Farrugio's obvious priority is to protect any landscape plants near construction or renovation work on the island. He refers to Liberty Island as a "cultural landscape," a term used primarily within the Park Service, but...
becoming more widely known. It's simply defined as a landscape exhibiting a high degree of significance due to its association with one or more of a number of special qualities; for example, association to a historic event. For Liberty Island, it's the association with the statue and the landscape's solid design plan that was developed in the 1930s.

"Most people don't realize that these trees, now considered historical trees, were planted here by design," he says. "The general effect was to have the statue projected above a tree-lined island. Naturally, they'd force one's eye to the statue. With digging or trenching, damage to just one tree can be devastating."

Besides the fact that a new sapling among the 75-year-old trees would look dramatically out of place, there are potential issues with fusing root structures among like trees. Since tree roots may grow together, damage in one place could destroy an entire area—even outside those in the installation path.

It's easy to see how the entire island's landscape serves a more important purpose, when pointed out by a professional such as Farrugio. Part of its beauty is that visitors don't realize that their eyes are being drawn to the monument by strategically placed hedges, trees and other greenery. Most simply relish in its beauty and rest in shaded areas sprinkled among the administration building, patio, main plaza and lookout points.

Once a month during the planting season, Farrugio climbs to the top of the Statue to survey the landscape—all the way up to the torch, which is now closed to the public. This is the perfect place, he says, to scan the tops of the trees for "flagging," clear signs of stress on a tree. He looks for differences in branch growth, strange coloration, and other signals that indicate stress or insects and disease problems.

Farrugio can also use that lookout to trace the path of installation going under and around delicate tree roots and other features of the landscape. "The whole point of having historical trees is that you need to go that extra mile to preserve and protect them," he says.
Down at your local video rental store, they probably have a copy of a low-budget horror movie called *Ticks*. To call it a B-movie is being generous; it’s probably a C or a D based on the acting alone, and let’s not even talk about the plot. The story follows a group of inner-city kids to a rural retreat, where exposure to a marijuana farmer’s toxic fertilizer mixture creates a strain of huge, mutant ticks with a lust for human blood. Throw in a couple of inbred, gun-toting marijuana farmers and a victim whose blood is loaded with super-steroids and ... well, you get the idea. The point is, as bad as this movie may be, it offers two pieces of advice that every tree care worker should heed: stay away from angry, inbred marijuana farmers with guns, and *ticks are dangerous*.

As professionals who spend much of our time in the great outdoors, tree care workers come into contact with a long list of annoying and even dangerous wildlife. Black flies, mosquitoes, snakes, bees, wasps, chiggers, poison ivy, rabid raccoons—you name it, we put up with it in the field. While the occasional upset hornet’s nest can ruin your day, the tiny deer tick poses a much more dangerous threat to anyone who works or plays outdoors.

In areas with high rates of Lyme disease and other tick-borne illnesses, which include the northeastern, north central, and Pacific coast states, the Occupational Safety and Health Administration considers landscaping, arboriculture, forestry and similar occupations to be at high risk for exposure to these diseases. Understanding methods for preventing tick bites and recognizing the early symptoms of tick-borne diseases should be considered just as important as understanding the proper handling of pesticides or operation of equipment in these areas. While the number of reported cases of the various diseases spread by ticks has skyrocketed over the last 20 years, our understanding of how to prevent, diagnose, and treat these diseases has also increased. A basic understanding of ticks and the diseases they carry can help prevent years of pain and discomfort.

Let’s start with the basics. Ticks, like mites and spiders, are considered arachnids. While there are dozens of species of ticks in North America, only a select few are vectors for diseases that affect humans. The two most notorious species involved in disease transmission are the dreaded deer tick in the East and the western black-legged tick. While both species are similar appearance to the common dog tick, they tend to be much smaller—ranging in size from that of a sesame seed down to

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**Ticks**

*Understanding the threat*

By David M. Munson

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**Some Diseases Transmitted By Ticks in North America**

**Lyme disease**—a potentially chronic disease caused by a bacteria that often causes the formation of a circular rash around the bite location, headache, fatigue, swollen lymph nodes, and muscle and joint pain. Left untreated, severe arthritis, meningitis and nervous system abnormalities may occur.

**Babesiosis**—an infection of the red blood cells by a protozoan parasite causing loss of appetite, fatigue, high fever, sweats and headaches.

**Tick paralysis**—a condition caused by the introduction of a nerve toxin to the body by a feeding tick, causing paralysis. Symptoms subside with the removal of the tick.

**Ehrlichiosis**—a rapidly moving bacterial disease that can cause high fevers, severe headaches, muscle pain and chills.

**Rocky Mountain spotted fever**—a potentially severe disease caused by rickettsiae that is recognized by the formation of small pink spots on the skin that gradually turn to red dots. Other symptoms include chills, nausea, headache, confusion, and abdominal pain, with severe cases leading to gangrene and death.
something around the size of the period at the end of this sentence, depending on their stage of development. An unfed tick has a flattened appearance, while a tick that has had a blood meal is more rounded by comparison.

Ticks feed on blood out of necessity. A larval tick begins its two-year life cycle as a tiny speck, struggling to make the long crawl to the top of the leaf litter from which it was born. There it awaits the passing of a small mammal or bird. The tick then grabs hold of its unsuspecting victim, inserting its mouthparts beneath the skin. During this first feeding, ticks often pick up the organisms that cause such serious illnesses as Lyme disease, Rocky Mountain spotted fever, Babesiosis, and tularemia. Only after they finish feeding can larval ticks drop off their host and progress to their larger nymphal stage, in which they will seek out another warm-blooded creature to feed on, and unfortunately, tree care workers are often on the menu.

After a second feeding, the tick again releases from its host and transforms into the adult stage. Adult ticks then wait atop blades of grass or other vegetation for a deer or other large animal on which they can feed. Pregnant females then drop to the ground, where they find a damp area suitable for laying around 3,000 eggs.

Where do arborists fit into this tangle of disease and blood-sucking metamorphosis? Humans are obviously most likely to host nymphal or adult ticks, both of which can carry disease-causing organisms. Those of us who work outdoors are very likely to come into contact with ambush feeding ticks while moving through grass, weeds, and underbrush. While adult ticks can be twice as likely to carry disease as nymphs, the nymphs actually pose more of a health threat, as they are much less likely to be detected and removed early. With any of the tick-borne diseases, the less time the tick spends feeding on you the better. In the case of Lyme disease, which is probably the most well-known tick vectored disease, early detection of the feeding tick may prevent disease transmission entirely. It generally requires 36 or more hours of continuous feeding for the Lyme disease bacterium to infect a new host. Frequent inspection of the body for ticks can significantly reduce the chance of disease.

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TREE CARE INDUSTRY - SEPTEMBER 2000
Inspection and Removal

Besides frequent and thorough inspection, there are several other preventative measures that should be taken to reduce the likelihood of tick bites. David Weld, executive director of the American Lyme Disease Foundation (ALDF), recommends the following while working in areas where infected ticks may be present:

1) Tuck pant legs into socks to reduce the tick’s access to the skin.
2) Apply an insect repellent containing DEET to skin from the waist down.
3) In areas where tick populations are high, treat any clothing worn below the waist with pyrethrums.
4) Conduct tick inspections of the whole body at least daily.

Weld also suggests that tree care industry professionals working in areas where the occurrence of Lyme disease is high should consider recommendations made by the Food and Drug Administration and the Centers for Disease Control regarding the use of the relatively new Lyme disease vaccine. The vaccine is available as a series of three shots administered over a 12-month period, with detailed information available through your doctor.

In addition to personal prevention methods, you may wish to consider prevention on a larger scale—both for yourself and for your clients who may have concerns about ticks and tick-borne diseases. It has been estimated that approximately 70 percent of people with Lyme disease acquired it in their own yards. For that reason, the ALDF recommends annual spraying of lawns and low-growing vegetation with an acaricide (tick pesticide) such as Tempo or, while supplies last, Dursban. Clearing away underbrush, eliminating piles of wood and litter, and reducing damp, shady areas where ticks congregate is also recommended where appropriate.

For much of the United States, the threat of disease transmitted by tick bites is very real. As professionals in an outdoor industry, we are obligated to ourselves, our clients, and one another to minimize the occurrence of these diseases by offering sound advice and fostering healthy levels of concern. By working together with health care professionals, individual homeowners and others, we can take significant strides in ridding our communities of tick-related health problems. Now if we could just get rid of those pesky inbred marijuana farmers ...
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In Colorado, Cutting Trees To Save Houses

Officials in Colorado and other states where wildfires are a danger are urging property owners to consider cutting trees around their homes as a way to keep forest fires from burning their homes. Robb Moench, a forester with Colorado State University who has given dozens of lectures on the dangers of allowing trees to grow too close to homes in forest areas, told the Associated Press that homeowners are reluctant to remove trees because they are part of what drew them to the remote parts of the region.

In Colorado alone, state officials estimate there are 372,800 homes and 749,000 people in high-risk fire zones. While federal guidelines recommend a tree-free buffer zone around dwellings, state officials say some trees can be kept. “The idea is just to make it harder for the fire to reach the house,” said Moench.

Wasps to Rescue

Although they can be a pain to arborists, wasps are being cited as the potential savior of trees in Southern California. According to The Los Angeles Times, 200 Australian wasps—100 male, 100 female—were released into the Valley Village Park in the San Fernando Valley in an effort to bring the red gum lerp psyllids that are plaguing the park’s eucalyptus trees under control.

Officials in Los Angeles said it was the first use of wasps in the United States to control a pest. The small wasps are not a threat to humans. The effort began when a resident brought the declining health of the eucalyptus in the park to the attention of city officials. The wasps have been bred and studied for the past year to ensure they pose no environmental threat of their own.

Old Growth Tupelo

Researchers in New Hampshire say they’ve found a 700-year-old blackgum, or tupelo, in a Granite State swamp and the tree could be the oldest still standing in New England. The tupelo was found in a remote area of Northwood, N.H., and was dated using a boring. Despite its age, it’s hardly an awesome specimen, though: it measures about 60 feet in height and 30 inches in diameter.

Anyone who has tried to split a piece of tupelo log will understand why Native Americans, colonists, and loggers have bypassed the species for so many centuries. The difficulty of working with the wood has helped many of the species survive. In fact, the previous state champion tree in terms of age was also a blackgum.

“There’s never been a real interest in blackgum as a lumber tree in New England, which is why they’re still sticking around,” Dan Sperduto, an ecologist for the Natural Heritage Inventory, told the Associated Press.

Driving? ... Plant a Tree

American Forests, one of the oldest conservation groups in the country, is using the Internet to spread the word about tree planting as a way to undo the environmental damage done by summer vacations.

The organization says at its Web site (www.americanforests.org) that the carbon dioxide produced by a two-week family vacation by car that covers 1,200 miles can be offset by planting nine trees—and to do so would cost less than a single tank of gas. A standard vacation by plane, the group says, requires the planting of 14 trees to offset the greenhouse effect of the fossil fuels used by vacationers to reach their destinations.

Town Tree Farm Grows

Like hundreds of communities in New England, the town of Saugus, Mass., once featured shady, elm-lined streets. Today, though, the town just north of Boston is known best for being a shopping and dining destination where busy Route 1 is lined instead with chain retail stores and king-sized fast-food restaurants. But thanks to a committee of volunteers, more than $5,000 in private donations, $10,000 in state grants and help from the National Tree Trust, the community hopes to re-leaf its streets.

According to a feature story in the Boston Globe, Saugus has revived its forgotten, 25-year-old municipal tree farm, planting 1,000 pine, maple and oak saplings. The town also recently hired a mason to cut 65 holes in downtown sidewalks where red maples and honey locusts will be planted this fall. Similar efforts are underway in communities around the country, many benefiting from the Washington, D.C.-based National Tree Trust, which was founded with a federal appropriation in 1990.

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The Birds and the Trees

GiGi, a 14-year-old, yellow-headed talking parrot who lives on Claytonia, escaped from home and couldn’t find her way back. Sara Swinson, GiGi’s owner, asked our Forestry crewmembers, Mike Henning, Dave Patterson and Rob Brockman, to keep an eye out for the bird while working in city trees. “Seemed like a strange request,” said Mike, a city forester, “but being the owner of many pets in my lifetime, I could understand her pain.”

Three days later, Miss Swinson called and asked us to come to Collins where she had spotted her parrot. The Forestry crew responded to the scene. She showed Mike and Dave the tree where her lost pet could be found. “It was a cottonwood, approximately 120 feet tall,” recalls Dave. Unfortunately, the tree was located in the back of a vacant home where the aerial lift was of no use. Mike grabbed his climbing saddle and rope and began to ascend. Approximately 50 feet up the tree, he noticed a hollow cavity in the 3-foot diameter limb. “I was tying into the top fork of the tree and a squirrel leaped from the cavity and ran down the back of my leg!”

After climbing out on the limb where GiGi was perched, Mike began to call out to the parrot. The large bird replied, “Hello, Hello.” Mike was about 6 feet from the parrot and couldn’t get any closer because GiGi was out on the very tip of the limb. He reached out with a pole saw in the hope the bird would hop on, but it frightened the bird, which flew out of the tree and into a sycamore next door.

Luckily, we could reach this tree with the bucket truck. Once on the ground, Mike headed for the bucket truck where Dave was already setting out the stabilizing outriggers. Mike climbed up into the bucket and again began his ascent. This time, GiGi was about 10 feet higher than the 65-foot boom could reach. “I tried using the pole saw again, but GiGi flew from the tree and out of sight,” Mike says. The parrot wasn’t seen again that day.

The next day, the Richmond Heights Police Department called saying GiGi had been spotted again. This time, in an 80-foot sycamore behind the local V.F.W. hall. Dave and Rob called the owner and asked her to meet them. Again, the bucket truck was put into action. Rob climbed into the bucket and began to go after GiGi. Once again, the parrot flew from the sycamore into a 100-foot pin oak.

“So we moved the bucket truck to the other side of the V.F.W. hall and tried again,” says Rob. This time he decided to bring Miss Swinson up the tree with him. He strapped her in, put a hard hat on her head and together they went after the bird.

The two of them successfully reached the limb where GiGi was perched. After a few bird calls, GiGi stepped closer to the bucket where her owner could reach her. The three descended safely to the ground, where GiGi was put back in her cage. “She went straight for her food and water bowls,” Miss Swinson remarked.

“Now we can add parrot rescue to the list of jobs the Richmond Heights Public Works Department offers its residents,” Rob said.

Mike Henning is the executive Forestry supervisor, Dave Patterson is Forestry Lead man and Rob Brockman is a veteran climber for the Forestry Division of the City of Richmond Heights, Ohio.

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<td>Understanding Costs &amp; Pricing Services</td>
<td>Building Your Employee Benefit Program</td>
</tr>
<tr>
<td>9:00 am – 12:00 pm</td>
<td>1:00 pm – 4:00 pm</td>
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<tr>
<td>Room 211</td>
<td>Room 211</td>
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<tr>
<td>Charlotte Convention Center</td>
<td>Charlotte Convention Center</td>
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</tbody>
</table>

What is the relation between estimating, job costing and accounting? In a profitable business, they must work in unison. In this program, Mr. Gaeta will explain the relation of these three important components of business management and show you how they must balance each other.

Lunch not included.

Jerry Gaeta and two partners own a full service design/build and commercial landscape, irrigation and landscape maintenance firm in Mt. Pleasant, S.C. Jerry is a successful estimator who has bid hundreds of millions of dollars in site development work. He became an associate with Vander Kooi & Associates, Inc. in 1994, and has consulted with many companies in the green industry, developing overhead recovery budgets, teaching the principles of estimating and improving their performance and profits. He was elected “1991 Nurseryman of the Year” by the SC Nurserymen’s Association, the only landscape contractor ever to receive such an honor.
REGISTRATION OPENS
7:30 am

8:30-9:45 KEYNOTE ADDRESS: MANAGING THE FUTURE - AGE WAVES IN THE WORKFORCE - Robert Tucker
Baby Boomers are turning 50 at the rate of one every eight seconds. Generation X, 17 million Americans, are the force in the workplace today. They are telling their employers that they work under and are motivated by different rules than were Boomers. Now Generation Y is making its presence felt strongly, especially in service businesses like tree care that tend to employ younger workers.

In his upbeat, interactive session, Robert Tucker will explain the most important do's and don'ts regarding Generation X, and help you understand Generation Y's unique requirements.

TRADE SHOW OPENS
9:57 am

Don't miss a single booth! Wear your walking shoes, because with over 170 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. Bonus: Key demos will be presented in Spanish each day of the show. Bring your Spanish-speaking employees!

ARBORBUCKS DRAWING
12:00 pm

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!

ARBORBUCKS DRAWING
2:00 pm

It's not too late to enter the drawing. You could be the winner!

TRADE SHOW CLOSES
4:00 pm

NEW TREATMENTS: CLAIMS, THEORIES & RESULTS
4:00-5:00 pm - Dr. Bruce Fraedrich and Dr. Thomas Smiley
If you couldn't join us for the Bartlett Lab tour, you can still reap the benefit of that organization's "R & D" by coming to hear two of Bartlett's head researchers talk about their ongoing projects and findings.

MARKETING TO GENERATIONAL CUSTOMERS
4:00-5:00 pm - Robert Tucker
In this presentation, Robert Tucker will help you brainstorm new market opportunities in serving the three age waves, help you identify the age waves among your customers, and help you predict and control how an aging population will affect your business.

WELCOME RECEPTION FOR ALL ATTENDEES AND EXHIBITORS
6:00-7:00 pm
Grand Ballroom
Omni Charlotte Hotel
Complimentary hors d'oeuvres
Visit with old friends, make new ones, network, and enjoy an evening of fun with fellow tree care professionals.

See you next year in Columbus, Ohio!
November 1-3, 2001

REGISTRATION OPENS
7:30am

IPM IN THE REAL WORLD
8:00-9:00 am - Dr. Ball revisits EXPO as a speaker after great reviews last year. Recently, as a part of some EPA research, he had the opportunity to work with arborists in their pest management operations - the focus of this work is not so

HIRING FROM OTHER CULTURES
8:00-9:00 am
In today's up economy, finding great people to work for you is challenging. Some employers are overcoming the barriers of language and culture to find

TRADE SHOW OPENS
9:00 am
Plan on an information-packed day of demonstrations, browsing the newest

RIGGING CHALLENGES & TRIPS
9:30 to 10:30 am
In a presentation that is bound to be highly entertaining as well as informative, Don Blair will chronicle some of the most difficult and intricate

HIRING FROM OTHER CULTURES
9:30-10:30 am
In our free market economy and with our highly mobile workforce, the best employees end up with the employers that are best able to fill their needs.

ARBORBUCKS DRAWING
12:00 noon
Be sure to fill out your entry form and you could be the winner of ARBORBUCKS!

ARBORBUCKS DRAWING
2:00 noon
It's not too late to enter the

ARBORBUCKS DRAWING
4:00 noon
It's not too late to enter the

ARBORBUCKS DRAWING
4:00-5:00 pm

ARBORBUCKS DRAWING
5:00-5:15 pm

ARBORBUCKS DRAWING
5:15-6:15 pm - NAA's ACCREDITATION PRO
Members of the National Arborist Association staff and Accreditation Task Force
Saturday, November 11, 2000

am

7:30  REGISTRATION OPENS

8:00-9:00  IPM IN THE REAL WORLD - John Ball
(This program is repeated from Friday morning. See Friday's seminar schedule for program description.)

8:00-9:00  IMPLEMENTING A DRUG-FREE WORKPLACE - Brian Farrington
Many companies start out with the good intention of creating a drug-free workplace for employees only to be discouraged or sidetracked by legal and administrative issues.

9:00  TRADE SHOW OPENS
This is your last day to see and learn everything you need to keep your business moving. Be sure to take advantage of all TCI EXPO 2000 has to offer!

9:30-10:30  FERTILIZATION & PEST CONTROL STRATEGIES - Dan Herms
Since 1997, Dr. Herms has been an Assistant Professor in the Department of Entomology at Ohio State University/Ohio Agricultural Research and Development Center in Wooster. His program area includes Biology, Ecology, and Management of Insect Pests of Woody Ornamental plants. His research focuses on soil management regimes as components of IPM programs for urban landscapes as well as user-friendly decision tools for predicting pest outbreaks.

9:30-10:30  A WAGE & HOUR LAW PRIMER - Brian Farrington
What is considered compensable time and what isn't? Are my employees properly classified? When do I have to pay for travel time, and why? How do I calculate overtime? These are just some of the questions you must be able to answer to avoid problems with federal and/or state wage and hour laws. Brian Farrington specializes in assisting small businesses with these issues, and will help demystify the whole subject of wage and hour law.

11:00  ARBORBUCKS DRAWING - Tree Demonstration Area
It's not too late to enter the drawing. You could be the winner!

1:00  ARBORBUCKS DRAWING - Tree Demonstration Area
This is your last chance to win! See you in the demo area.

pm

12:30  ISA Certification Exam Check-in

1:00-4:30  ISA Certification Exam - To sit for the exam, you must call ISA to pre-register at 1-217-355-9411. Application and registration fee must be received at ISA 12 working days prior to exam date.

1:00-4:30  The ISA Certified Tree Worker/Climber Specialist exam is offered to those arborists with 1 1/2 years climbing experience. The exam is a combined knowledge and skills exam.

To learn more about this exciting new certification program, contact the ISA at 1-217-355-9411 and ask for the ISA Certified Tree Worker/Climber Specialist application and information packet.

This exam is being offered by the ISA Southern Chapter. Please have your application into the ISA office in Champaign, Illinois 12 working days prior to exam date.

3:00  TCI EXPO 2000 TRADE SHOW CLOSES!
Getting There

Driving

From I - 77 South:
Exit John Belk Freeway (I - 277) South. Take Stonewall Street Exit. Turn left onto Stonewall Street. Follow Stonewall to College Street (3rd traffic light). Convention Center is on the corner of College and Stonewall.

From I - 77 North:
Exit John Belk Freeway (I - 277) North. Take College Street Exit. After exiting, go through the first traffic light and the Convention Center will be on your right.

From I - 85 South & North:
Exit onto I - 77 South. Exit John Belk Freeway (I - 277) South. Take Stonewall Street Exit. Turn left onto Stonewall Street. Follow Stonewall to College Street (3rd traffic light). Convention Center is on the corner of College and Stonewall.

From US Highway 74 West (Wilkinson Blvd):
Continue on as this turns into John Belk Freeway (I - 277) North. Take College Street Exit. After exiting, go through the first traffic light and the Convention Center will be on your right.

From US Highway 74 East (Independence Blvd):
Follow John Belk Freeway (I - 277) South. Take Stonewall Street Exit. Turn left onto Stonewall Street. Follow Stonewall to College Street (3rd traffic light). Convention Center is on the corner of College and Stonewall.

From the Airport:
Follow the airport exit signs to I - 77 North. Proceed on I - 77 North to John Belk Freeway (I - 277) North. Take College Street Exit. After exiting, go through the first traffic light and the Convention Center will be on your right.

Flying

US Airways
US Airways has been selected as the primary air carrier. Special discounts have been arranged on your air transportation. To take advantage of this special offer, please call US Airways’ Meeting and Convention Reservation Office at 1-877-874-7687 and refer to Gold File No. 17171423. Plan ahead and receive an additional 5% discount by ticketing 60 days or more prior to departure.

Airport Transportation
For those arriving by air, the Charlotte/Douglas International Airport is located seven miles west of Uptown Charlotte. Arrangements have been made with Carolina Transportation Company, Inc. shuttle service for transportation to Uptown hotels. Look for coupons in your registration confirmation packages. This coupon will entitle you to a conference rate of $14.00 per person, round-trip.

The Carolina Transportation Company ticket booth is located outside of U.S. Airways baggage claim door C. Hours of operations are from 6 a.m. to midnight 7 days a week. You must present your coupon to the representative on duty to receive the reduced rate.
Finding a hotel room

This year the host hotel for TCI EXPO 2000 is the OMNI CHARLOTTE HOTEL, located at 101 South Tryon Street (within walking distance to the Convention Center). The OMNI CHARLOTTE HOTEL is offering TCI EXPO 2000 attendees a rate of $112 single/double occupancy. Valet parking is available for overnight hotel guests at a daily rate of $16. This includes in and out privileges on a 24-hour basis. Self-parking is available for $6 per day and includes in and out privileges. Space is limited, be sure to make your reservation early. This rate will be offered until October 8, 2000. To make your reservation please call the OMNI CHARLOTTE HOTEL at 704-377-0400. Be sure to reference the National Arborist Association/TCI EXPO room block when making your reservations.

Alternative accommodations are available at the Four Points Sheraton located at 201 South McDowell Street, just a few blocks from the Convention Center. The Four Points Sheraton will offer TCI EXPO 2000 attendees a rate of $92 single/double occupancy. Self-parking is complimentary. Reservations must be made by October 9, 2000 in order to guarantee this preferred rate. To reserve your room, please call the hotel at 704-372-7550 and be sure to reference the National Arborist Association/TCI EXPO room block.

Additional accommodations are available at the Holiday Inn Center City located at 230 North College Street. The Holiday Inn Center City will offer TCI EXPO 2000 attendees a rate of $91 single/double occupancy. Complimentary self-parking is available for overnight guests. Reservations must be made by October 6, 2000 in order to guarantee this preferred rate. To reserve your room, please call the hotel direct at 704-335-5400 and be sure to reference the National Arborist Association/TCI EXPO room block.
TCI EXPO Goes On-line

For the first time ever, you can register on-line 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.

You could WIN

When you register on-line, you are automatically entered to win one of the 200 Arborwear shirts (retail value greater than $50), which will be given out at the show.

This shirt is made of soft, pre-washed 10 oz. canvas for a remarkably comfortable fit. The relaxed room in the sleeves and collar offer unparalleled freedom of movement.

This promotion is only applicable to on-line registrants and winners will be picked at random. Void where prohibited. All prizes must be picked up before the show ends. NAA will not ship unclaimed shirts. All Arborwear LLC products are unconditionally guaranteed.

Registration Procedure

Please photocopy and complete a separate registration for each conference attendee. Register before the Early Bird deadline of October 9 to receive discounts on Trade Show Admission and educational seminars. Registrations received after October 9, 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 22, 2000.

Individuals registering after October 22 must stop by the pre-registration desk located in the Second Street Concourse to pick up their admission badge.

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

Seminars

Check the box beside each seminar you wish to attend. Be careful not to pick two seminars at 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.

Seminar Registration Cancellations

All seminar registration cancellations must be received in writing at the National Arborist Association office. Cancellations received on or before October 27, 2000, will receive a full refund less a $25 administrative fee. Fees cannot be refunded after October 27, 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  
Signature  Date  

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

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<th>Date</th>
<th>Time</th>
<th>Seminar</th>
<th>Length</th>
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<tbody>
<tr>
<td>THURSDAY, NOV 9</td>
<td>1 Hour</td>
<td>Managing the Future - Age Waves in the Workforce</td>
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<td></td>
<td>1 Hour</td>
<td>New Treatments: Claims, Theories &amp; Results</td>
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<td>1 Hour</td>
<td>Marketing to Generational Customers</td>
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<tr>
<td>FRIDAY, NOV 10</td>
<td>1 Hour</td>
<td>IPM in the Real World</td>
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<td>1 Hour</td>
<td>Hiring From Other Cultures (Employer Panel)</td>
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<td></td>
<td>1 Hour</td>
<td>Rigging Challenges &amp; Triumphs</td>
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<tr>
<td></td>
<td>1 Hour</td>
<td>Hiring From Other Cultures II (Employee Panel)</td>
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<td></td>
<td>1 Hour</td>
<td>Carbon Allocation &amp; Tree Care Treatments</td>
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<td></td>
<td>1 Hour</td>
<td>What You Should Know About E-Commerce</td>
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<tr>
<td></td>
<td>FREE</td>
<td>NAA's Accreditation Program Unveiled</td>
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<tr>
<td>SATURDAY, NOV 11</td>
<td>1 Hour</td>
<td>IPM in the Real World</td>
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<td></td>
<td>1 Hour</td>
<td>Implementing a Drug-Free Workplace</td>
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<td></td>
<td>1 Hour</td>
<td>Fertilization &amp; Pest Control Strategies</td>
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<td></td>
<td>1 Hour</td>
<td>A Wage &amp; Hour Law Primer</td>
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4. Registration Options

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<tr>
<td>Gold Card</td>
<td>$205</td>
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<tr>
<td>Individual Seminars</td>
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<td>$ 60</td>
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<tr>
<td>Trade Show Entrance Only</td>
<td>$ 15</td>
<td>$ 25</td>
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<tr>
<td>Business Managers' Workshop</td>
<td>$ 95</td>
<td>$ 95</td>
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<tr>
<td>The Bartlett Tree Research Laboratory Tour</td>
<td>$ 95</td>
<td>$ 95</td>
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<td>TOTAL</td>
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5. Payment Method

- Check Enclosed  
- MasterCard/Visa/AMEX  
- AMOUNT $  

CARD NO.  
EXP. DATE  
NAME  
SIGNATURE  
(as it appears on your card)

6. NAA Membership & TCI Magazine Information

1. Is your company an NAA Member Firm?  
   - Yes  
   - No  
2. Do you wish to receive NAA Membership Info?  
   - Yes  
   - No  
3. Do you wish to receive a complimentary subscription to TREE CARE INDUSTRY (TCI) Magazine?  
   - Yes  
   - No  
4. Business/Industry: (Please check one that applies)  
   - Tree Service  
   - Landscape Contractor  
   - Property Mgmt.  
   - Consulting Firm  
   - Utility  
   - School/University  
   - Governmental Entity  
   - Other:  

You must complete all of the information below to receive your subscription: