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The Blank Page ...

As I thought about what to share with you this month, I realized that every time I open up my Microsoft Word program to talk with you here, I am facing a blank page. This is no different than the beginning of each day; nor is it any different than the moment we walk in the door at the office to interact with people who have committed to partner with us on making an agreed upon goal come to life.

Often we forget that we are the creators of every moment of what is going to happen to us. No, that doesn’t mean that we cause accidents to happen to us, or customers to engage with us in ways that we would prefer to avoid. What it does mean is that what we do with those moments is all of our choosing. 

One time I was sitting in an airport waiting for a flight when a well-groomed businessman walked up to the gate, threw down his luggage and started screaming at the person behind the desk. He then got in a scrap with a traveler in line for the flight with language that would make a colonial sailor blush. Security had to intervene. As I observed this behavior, aside from wondering when he was going to have a stroke, I wondered what rational thought could possibly have led him to believe that anyone would want to help him improve his situation as he left a destructive trail everywhere he went. He had an opportunity to make his day better and chose to make it worse for himself; while taking everybody in sight down with him.

I recently spent some time on my own professional development, just as TCIA provides you with opportunities to do the same. Very accomplished national and international CEOs, executives, authors, professors and a general shared their versions of leadership. Although they didn’t use these words, the thread of “personal behavior” ran through each of the presentations. There was the son of Steven Covey, who has staked his claim to fame on the “trust dividend” as the primary currency for business success. Rita Bailey, with 25 years of Southwest HR experience, focused on “human capital,” and Lt. General Campbell touted caring for your team in situations that daily involve life and death. Aaron Brown shared his insights on political and public figures’ successes and failures of leadership; their defining moments of staying the course or walking away because the personal price versus the transformational end was a sacrifice they were unwilling to make. Former Medtronic Chairman and CEO, Bill George, interviewed 125 leaders to author True North; helping people to match their authentic selves to their life’s work.

What struck me through each presentation was not their personal accomplishments, nor their individual messages. It was that each person found a unique way to point out that there is nothing more important than the people that you work with, your relationships with them, and the opportunity you have each day to create your experience and to affect theirs. It is so very easy when we wake up each morning to let the list of “to do’s” and the schedule dominate our thoughts and our feelings about the upcoming day. It leads us to miss important moments with our kids and our spouses by not being present and paying attention. Instead of letting the day unfold, we have already programmed ourselves into the day. It keeps us from taking the few minutes to engage with that staff member who may be having a tough time and needs a little understanding or to celebrate little moments along the way.

There is nothing we can do about what life throws at us, but there is everything that we can do about how we write the story onto the pages of our lives. This is 100 percent true in our working day. The irate customer is an opportunity to learn in our business lives – whether it be that they are right and our service needs enhancement or whether their vitriol is a chance to practice our relationship skills. The journey of creating our days should be an adventure at work as well as outside of work. We cannot control the behavior of people around us, but we can control our own. That behavior thread is what creates the trust currency that Covey writes about that can infuse your tree care company with a bright future through your people.

Every moment of the blank page of today is yours to write…

Cynthia Mills, CAE, CMC
Publisher
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“Root pruning is hard, dirty work, and the results are not always obvious, so it is usually discussed more than it is practiced.”

After reading these discouraging—but-true words in Arboriculture: Integrated Management of Landscape Tree, Shrubs and Vines by Harris, Clark and Methany, it is no surprise that many arborists would rather not deal with root collar examinations (RCXs) to manage stem-girdling roots (SGRs). This article will discuss the reasons that root pruning is a service that every arborist, especially those who want to identify and correct the cause of many urban tree problems, can and should be practicing. It will also describe ways to make this task less hard and dirty, or at least easier and cleaner in terms of understanding the why, what, who, where, when and how of pruning defective roots.

Why prune roots

Let’s talk about safety first.

After Hurricane Fran hit Raleigh, N.C., in 1996, the Director of the North Carolina State University Arboretum, J.C. Raulston, and I inspected 87 trees that were toppled. Almost 75 percent of these trees (63) had moderate to severe root defects. Most had stayed too long in a container, so their roots circled around the stem instead of radiating away from it.

Ten years later, I used an Air-Spade excavation tool to expose the roots of more than 400 trees planted at a private school after one of them failed near a classroom. More than 75 percent of these trees, many of them high-dollar specimens, had moderate to severe stem-girdling root defects.

In Minnesota, 73 percent of linden species that failed completely in storms broke at the point where stem-girdling roots strangled the stems.

In storm damage research conducted since 1997, 30 percent of trees that failed completely and were not located in storm centers but at the edge broke at stem-girdling-root compression points. This is why Dr. Ed Gilman of the University of Florida reminds us to “Examine the root collar (the place below ground where main roots meet trunk) carefully as part of a regular tree maintenance program near buildings, parks, streets and other places where people live, play and work.”

Let’s talk about tree health next.

Roots that are circling the trunk instead of growing away from the trunk injure the tree by reducing or eliminating circulation where the root presses against the trunk. The injury increases with time, often leading to tree decline. When a root collar examination is done, the number of stem-girdling roots associated with tree decline and/or sudden failure is amazing. In Kentucky, consulting arborist Dave

Finding the flare is not enough. Under the visible trunk flare, the root collar of this sugar maple is strangled by stem-girdling roots. Courtesy of Dave Leonard
Leonard uncovered stem-girdling roots as the cause of death of a sugar maple. After the owner witnessed what the tree looked like underground, he wanted his other 39 sugar maples assessed. Leonard found only two with normal root systems.

On his first root collar examination job, Leonard worked on 10,000 trees at a large horse farm, and again found only two with normal root systems.

In another Minnesota study, more than 80 percent of declining sugar maples had stem-girdling roots, so it’s not hard to see that decline of those trees was caused at least in part by strangulation. It’s not just happening with sugar maples – no species is immune to this human-caused condition. Look at any underground landscape across America – municipal, residential, you name it.

What to do

Most stem-girdling roots were once small circling roots, innocent in appearance to most observers. If these roots are not straightened or cut in the nursery when trees are transplanted into larger containers, the result can be a “multiple corkscrew” effect.

European nursery standards specify root pruning at every step, 4 to 8 inches further out each time, to avoid these defects. The American nursery standard (ANSI Z60) does not address this problem. The best way to expose and treat this condition is to wash off the nursery soil and correct the roots as you plant trees in the bare root style. This process, called root washing, is growing in popularity with planters who are concerned with long-term tree health and stability. But even when roots are growing away from the stem, the tree is not yet out of the woods.

Rootballs, the volume of soil packed inside a young tree’s packaging, have been getting rounder and rounder every year. Whether trees are grown in containers or dug from the field then balled and burlapped, soil is commonly heaped around the trunk where it does not belong. The trunk flare, where the trunk naturally turns into roots and the tree joins the earth, is all too often buried early in the growing process – and buried deeper yet at planting time. Some specifications still ignore the requirement in ANSI A300 (Part 6)-2005, 63.6.2.3, “The bottom of the trunk flare SHALL be at or above finished grade.” Instead, they instruct the landscape contractors to plant the root ball at ground level, so the landscapers obediently follow this instruction, with disastrous consequences.

Arborists should have the ANSI standard in hand when they talk to growers and landscape architects and landscapers about deep planting. When these professionals see with their own eyes that the American Nursery and Landscape Association and the American Society of Landscape Architects are represented in ANSI, they will realize that they don’t have a stem to stand on when they bury trees. The entire green industry agrees that we should always be able to find the trunk flare.

Technically, the rootball does not even include the soil above the trunk flare. It is “measured from the bottom of the trunk flare to the bottom of the ball.” (ANSI A300 (Part 6)-2005, 63.6.1.2) If the flare is found and set to grade, in a hole “a minimum of 1.5 times the diameter of the root ball” (63.6.1.4), with mulch “applied near, but not touching the trunk” (63.6.2.9), the tree roots will not need to grow up in search of oxygen. But even if these standards are followed at planting time, the tree may not grow well.

For some reason, there is nothing in the standard about the making sure the roots, at least the major roots, are growing away from the stem. Why not? You’ll have to ask your organization’s representative to the ANSI committee, and get your comments in before the standard is revised again in 2010. The ANSI pruning standard does not currently cover root pruning; perhaps with the right kind of input, that standard can change to provide needed guidance on this simple act of arboriculture.

Who is responsible

Many arborists who are paid to assess tree condition do not get to the bottom of tree problems. A Practitioner’s Guide to Stem-Girdling Roots of Trees by Johnson and Hauer reports that less than half of the arborists who responded to a 1997 survey performed a root collar examination when they were called to look at trees. In that same survey, stem-girdling roots were found 52 percent of the time a competent inspection took place. Most practitioners assumed that these examinations took too much valuable time, so their clients would not be willing to pay for them. However, if the consultant is working alone, the client may want to do some preliminary earth moving to save time and money.

If a crew is present, most of the work can be done by entry-level employees, making the service more easily affordable. With a little training and the proper equipment, all but the most delicate surgery can be done by crew members. Many workers express appreciation of working with a different
part of the tree for a change, and also of being trusted with increasingly technical procedures. Dave Leonard’s two-person root crew alternates between the Air Knife excavation tool and hand tools, which makes sense for ergonomic, morale and other good reasons.

Close supervision is required during training, however, to ensure the job is done carefully. I confess to leaving a trainee with hammer in chisel in hand, returning to find that a swatch of bark had been cleanly trimmed off the stem. This experience was instructive in two ways. First, it’s important to keep one eye on the job until the worker is proven to handle it. Second, the speed at which young trees seal injuries can provide a great sense of relief.

As with untangling vines from branches, the most important part of the job is to think before giving a firm quote, and go on the clock whenever possible. After all, the object of the job is out of sight, and it takes time to avoid injuring the trunk or removing too many roots at one time. It’s a service that sells itself, because most customers can just look and understand that strangulation is fatal. For the biologically challenged, just show them page 50 of Shigo’s *A New Tree Biology Dictionary*, which says: “As young girdling roots are noted later in the life of the tree, they should be cut.”

**Where to look**

On some very young trees, the trunk flare is not yet formed, so the topmost roots can be located by poking into the soil with a finger or a screwdriver. If roots are found in the top two inches of soil, that is considered acceptable, though future inspections will be needed to ensure that the roots are developing normally. One source cautions against removing soil away from the primary roots of larger trees and recommends using the poking method on all of them, but most authorities agree that the primary roots should be visible to ensure good root structure when planting, and to maintain tree health and safety.

On severely girdled trees, the “scratch test” can save time and trouble. Scrape away the outer bark above the stem-girdling root until you reach moist and bright-colored tissue, indicating living cells. If the inner bark is brown and dry it is dead. Resonance testing with a rubber mallet can yield a hollow sound, indicating the need for a closer inspection. If the dead area extends for a considerable extent of the circumference, removing the tree should be considered. This degree of injury is rare.

Aside from nursery- and landscaping-caused defects, stem-girdling roots can form from several locations on the tree. When roots are cut by harvesting in the nursery or damaged by construction activity, lateral buds can be released and grow at right angles. A root tip can do a 180 if it hits an obstruction such as a wire basket, or the hard wall of a poorly prepared planting pit, or a rock.
When to prune

The season during which stem-girdling roots are removed might influence the success of the treatment. We typically avoid pruning branches in spring and fall, when leaves are forming or falling, because these are times of increased sap flow and hormonal activity. Midsummer is a good time to prune deciduous trees, in part because the wound response may be more active than in winter. For all these reasons, midsummer may be the best time to prune roots. Scientists at the Bartlett Tree Research Laboratories found that summer removal of stem-girdling roots resulted in better diameter growth over two years than did fall removal or a combination of summer and fall removal for red maples under an irrigation system.

Drought can complicate recovery from root pruning, so mulch and extra water in lieu of rain are strongly recommended. Even without extra care, a study by Robert Tate at Rutgers University in New Jersey in the late 1970s on Norway maples showed that “The amount of foliage dieback after two years was less on girdled trees with roots cut compared to girdled trees with uncut roots … Girdled trees with roots cut grew slightly more than non-girdled normal trees.” Current experience bears out this observation.

Many sources echo Dr. Alex Shigo’s concern as expressed in _A New Tree Biology_: “On older trees … it is best to leave the girdling roots alone. More harm than good can be done in attempts to remove large girdling roots.”

While strictly speaking this is true, it does not seem to consider the widespread problem that stem-girdling roots have become, or the technical expertise of today’s arborist. Even some very large stem-girdling roots can be removed without collateral damage. Pruning roots relieves one kind of stress, but causes another. The stress from root removal should not last for very long, and will lessen as the tree recovers. You must judge whether eliminating stress by removing the defect outweighs the temporary adjustment brought on by root removal. Pruning large branches is, unfortunately, a routine activity, so pruning large roots should not be taboo. In the great majority of cases, pruning the stem-girdling roots is best for the tree.
How to proceed

The usual first step is to clear away the misplaced mulch and soil above the trunk flare so the sides of the primary roots are exposed. The surplus soil should be set aside for future use. Smaller roots growing upward and inward must be snipped out of the way to find the flare.

If young roots are found growing out of the stem before the flare is found, the arborist is faced with a difficult decision. These adventitious roots were formed from stem tissue in response to darkness and moisture. If they are large or numerous, they may be forming a secondary support system for the tree. Adventitious roots should be removed only with caution. One source suggests that if they are greater than 1/2 inch in diameter, they may be better left alone. But adventitious roots are fairly rare in the landscape.

When stem-girdling roots are found, clear the earth away from them as much as is practical. The idea is to make a clean cut at the origin, so their regrowth does not regirdle the trunk or buttress root. Tools ranging from a well-balanced chain saw to small chisels should be available so the work can be done efficiently but without damaging stem tissue. If the root is large and only girdles a small portion of the stem, it may be best to leave it alone. The 25 percent guideline for branch pruning may also apply to root pruning. On roots that are overgrown by stem tissue, several cuts and gentle wiggling can pull the root loose. If it does not move, sever both ends and chisel off as much of it as possible so it will be pushed off as the trunk and buttress roots expand.

Aftercare

After the exposed roots are covered with a thin layer of soil and mulch, it’s time to use the aged mulch, rich soil and pruned roots that were set aside earlier. Its organic matter and mycorrhizae make it the ideal vertical mulching material, so make some holes near the dripline and stuff it in. Standard arboricultural steps such as irrigation, mulching and pest control are, as always, recommended. Cleaning the crown of dead and dying branches will make it easier to see if root pruning has negative effects. Wounds should be kept clear of soil and mulch and should be monitored for rates of closure and decay.

An ounce of prevention in the nursery, or four ounces of inspection at buying time, or eight ounces of correction at planting time can prevent a ton of work. In the end, however, it’s up to the arborist to find the flare and fix the roots. It may be hard, dirty work, but the results are obvious over time and make for happy clients. Good roots grow good trees, and good tree care grows good roots, so it’s time to stop discussing and start practicing.

Guy Meilleur is owner of Better Tree Care Associates in Apex, N.C.
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Teufelberger buys NE Ropes

Teufelberger, with headquarters in Wels, Austria, has acquired New England Ropes, Inc., based in Fall River, Mass.

Teufelberger is the global leader for technical ropes for demanding applications and shares the top position in Europe for premium ropes for the yachting market. Founded in 1790, Teufelberger stands for consistent growth and an excellent reputation for innovation and service. The family-owned company has three strategic business units, more than 200 years of experience and employs more than 600.

New England Ropes Inc., incorporated in 1967, has 150 associates. The product range of New England Ropes comprises fiber ropes for pleasure and commercial marine, climbing, industrial and entertainment applications as well as products for the equine market and safety & rescue equipment.

Both companies attach great importance to continuity with their experienced sales and marketing team. Present contacts in the U.S. and European locations will remain available for inquiries and technical support.

Vermeer to acquire Wildcat

Vermeer Manufacturing Company intends to acquire a 50 percent stake in Wildcat Mfg. Co. Wildcat is a leading manufacturer of compost turners, trommel screens and green waste sorting equipment.

“Vermeer has been engaged in the composting market for a decade with our tub and horizontal grinder line,” says Mike Byram, senior director of environmental solutions for Vermeer. “We believe current industry trends and regulations will continue to divert organic matter from landfills and fuel additional growth in this market.”

Earlier this year, Vermeer entered the compost turner market with the introduction of the CT670 compost turner. Wildcat is considered a leader in the design, development and manufacture of drum-style compost turners and trommel screen technology. The purchase of an interest in Wildcat complements the growing line of tub and horizontal grinders and compost turning equipment manufactured by Vermeer.

Vermeer will assume management responsibility for Wildcat and anticipates the acquisition will be completed this summer.

Cummins announces biodiesel approval

Cummins Inc. recently announced the approval of biodiesel B20 blends for use in its 2002 and later emissions-compliant ISX, ISM, ISL, ISC and ISB engines. This includes the recently released 2007 products.

Cummins is able to upgrade its previous position on the use of biodiesel fuel, which limited the use to B5 blends only, up to B20 for three key reasons. First, the American Society of Testing Materials specification ASTM D6751 now includes an important stability specification for B100 biodiesel. Second, the availability of quality fuels from BQ-9000 Certified marketers and accredited producers is growing rapidly; and third, Cummins has completed the necessary testing and evaluations to ensure that customers can reliably operate their equipment with confidence using B20 fuel.

“We have completed exhaustive analysis and test evaluations which enable Cummins to provide the necessary guidance and information to our customers for the proper and successful use of this fuel in our engine,” says Edward Lyford-Pike, Chief Engineer-Advanced Alternative Fuel Programs. “This will enable our customers to have a choice that includes renewable fuel.”

The popularity and use of biodiesel fuel continues to climb. Recent studies predict that, by 2008, 1.2 billion gallons of B100 biodiesel will be produced in the United States. Cummins will continue its efforts to ensure that future products will be compatible with biodiesel fuels, and will continue to participate in industry efforts aimed at the development of consistent quality throughout the biodiesel industry.

Bandit’s new sales reps

Bandit Industries’ newest regional sales representatives include Chad Huber, Northwest region; Dick Edwards, West Coast; and Gerad Himebaugh, Midwest region.

Huber has been with Bandit 12 years. Upon graduating from Ferris State University with an engineering degree, he was hired in to Bandit’s hand-fed chipper drafting department. Shortly thereafter, he transferred to the Beast Recycler engineering department, and then to the service and warranty department. His new duties include dealer support for hand-fed chippers and stump grinders in the Northwest.

Edwards has worked in the chipper and grinder sales, service and parts industry for almost 30 years. Prior to joining Bandit, he was heavily involved in sales and dealer development in the East Coast, West Coast, and Hawaii dealer networks.

Himebaugh has more than 12 years of sales experience. Prior to accepting his current position, he was in charge of all open territory sales for Bandit stump grinders. His duties have been refined to the Midwest region to more effectively target customers and assist dealers in the area.
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Professional chain saw operators will appreciate the features of the upgraded professional guide bars, Pro-Lite® Plus and Power Match® Plus, from Oregon Cutting Systems Group, a unit of Blount Inc. The new design makes these bars more durable even in undesirable working conditions. New features, such as additional bearings, increased rivet circle diameter and larger rivets, significantly improve joint strength, distribute force load and increase resistance to spreading. Other time-proven Oregon features incorporated into the Pro-Lite Plus and Power Match Plus guide bars include: Lubri-dam™, an oil-retaining feature that prevents oil from running out the bar’s tail and keeps more oil on the guide bar and saw chain, and the patented Cradle™ nose sprocket design that significantly increases sprocket-nose life. Contact Oregon via www.oregonechain.com.

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Rayco RC 16.5 chipper

The new Rayco RC 16.5 drum-style brush chipper gives contractors and municipalities a 17-inch capacity machine loaded with smart features designed to maximize productivity and keep maintenance at a minimum. With fuel capacity of 53 gallons, the 140 hp Caterpillar diesel will run all day without stopping to re-fuel. The RC 16.5 also features Fuel Saver Technology that automatically decelerates the engine if the feed control bar remains in the neutral for 60 seconds. To eliminate clutch maintenance, the RC 16.5 features hydraulic clutch that engages at the push of a button and never needs adjustment. A torflex idler makes belt adjustments simpler and does not require pulling the engine forward. A planetary drive motor provides in-feed torque while eliminating problematic coupler systems. Rayco brush chipper feed wheels are offset, allowing operators to feed short lengths of large diameter material with no material kick up. Hydraulic lift assist is standard, although rarely needed due to the immense size of the top feed wheel. The large diameter allows the feed wheel to effortlessly climb logs and dense material. The patented Pulse hydraulic system delivers 400 pounds of steady down pressure with an additional 2,200 pounds applied automatically every three seconds. Contact Rayco at 1-800-392-2686 or via www.raycomfg.com.

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Bandit Beast Recyclers get hand with maintenance

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Contact: 1-888-isa-tree; www.isa-arbor.com/conference

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Traverse City, MI
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October 2-4, 2007
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Waco Texas
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October 26-28, 2007
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By Scott Jamieson

Our safety director, Joe Engberg, has a singular focus in our company: to help leadership drive a culture of “no one in our family gets hurt” through the entire organization. While nearly everyone else has multiple interests tugging at their sleeves, Joe is focused like a laser.

He recently sent me an article from Professional Safety magazine. The March 2007 article focused on the 2005 BP refinery explosion that killed 15 and injured 170 people. The article struck right at my heart as it detailed the findings of the accident investigation that I believe apply to our company and our industry.

The investigation highlighted the importance of trust in the workforce. They spoke of the importance of a “positive, trusting environment with effective lines of communication between the workforce and management.” Although we work very hard at this as an employee-owned company, I feel the pressure every day to find new ways to connect with our teammates. The Care of Trees is as “open-book” of a company as one will ever see, but as we continue to grow and our family gets larger, it is increasingly difficult to insure we have open lines of communication. We know through our own safety surveys and experience that the ability of our teammates to approach others on safety issues will be the key to our success. When a newer teammate can approach an experienced teammate or manager and intercede on a safety issue, we will have “arrived” around creating the right safety culture.

Leadership must create the environment and culture in the company that inspires teammates to approach each other. Leadership is the only means by which an environment of inspiration will occur. Sure you can mandate it, create policies and practices which are all necessary. The BP investigation spoke to the lack of consistency in following such policies and practices because of the decentralized nature of the business. For those of you with more than one office, you know the challenge of consistency from location to location. Every manager has a slightly different perspective and style. It is, however, top leadership’s responsibility to create the environment, to shape the culture that inspires people to follow the practices that prevent people from getting hurt.

It is also leadership’s responsibility to hold people accountable. This is a word we have been working with now for several years in our company. When I first introduced it there was a deep inhale by several who shuttered at such a thought in our most benevolent culture. We had a reputation for years of being soft on the tough issues and I knew that the only way we were going to improve in all areas was to begin to shape a culture of accountability. To me that simply meant building a winning team and a winning team does what it says it is going to do. Holding people accountable around safety is a big part of creating a winning team.

The BP article also spoke to the importance of having safety as a core value. I felt proud that we have had this for years and that the company was founded with this value at the core. As we continue to grow, it is our leadership’s responsibility to make sure that value remains the shining North Star that directs our activities.

I have seen our efforts around building a total safety culture result in improvements in many metrics beyond safety. Leading with safety is about leadership, and improvements in leadership affect all aspects of the business. I am proud of my safety director, Joe Engberg, and find his laser focus on safety to be a key to our journey of making sure no one in our family gets hurt.

On those days when I question our leading with safety results, he reminds me of all the progress we have made, and on those days when I am elated by our positive safety trends, he reminds me of the journey still ahead of us. All leaders need someone like Joe.

Scott Jamieson is president and CEO of The Care of Trees in Wheeling, Illinois.
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One tree stands dead in an otherwise lush, leafy neighborhood. For the arborist, the tree’s demise is a mystery.

It could be ants, constricted tree roots, disease, road salt or a host of other factors. Or it could be gas.

An initiative in Massachusetts, led in part by high-profile environmental attorney Jan Schlictmann, contends that a huge number of trees in many communities have died or been damaged by low-grade leaks from natural gas lines. Schlictmann and some partners founded The Massachusetts Public Shade Tree Trust, and have been trying to persuade municipalities across the state to join the effort to identify the damage, put a price on it, and move the utilities to remediate the problem.

Schlictmann gained notoriety as the lawyer for eight Woburn, Mass., families in a water-contamination lawsuit that was portrayed in both the book and film *A Civil Action* (John Travolta played Schlictmann). He and Bob Ackley, an expert on gas leaks, have been meeting with city and town officials in several Massachusetts communities, trying to get them to join the trust and promising them 60 percent of a negotiated settlement with the utility, including the repair of low-grade leaks. As of mid-June, the communities of Lawrence, Marshfield and Saugus had joined the trust, and Ackley says he expects several others to sign on.

“There’s strength in numbers,” says Bill Crowley, a Schlictmann law partner. “If we aggregate them together, we can treat the problem globally.”

If successful, the effort could set a precedent with far-reaching ramifications. Whether there’s a negotiated settlement outside the civil legal system or an actual lawsuit, it could create a precedent, and a template that could be followed in other states.

“We’re going to change what’s going on out there,” Ackley says.

The utilities, of course, see the case quite differently. “Quite frankly, we don’t understand it,” says Thomas Kiley, president of the Northeast Gas Association, which represents natural gas interests in the New England states, plus New York and New Jersey. “If a community has a situation where they think natural gas has caused some harm, they simply have to contact their local gas distribution company. They’ve proven in the past that they’re happy to work with them.”

Additionally, he says, “I don’t understand why a community would want to pay a middle man 40 percent of any damages.”

Kiley also notes that there are no scientific studies to support the trust’s claim that the leaks have caused widespread damage to trees. On that issue, the initiative promises to unearth some interesting...
information for arborists about gas leaks and tree damage.

A team of arborists will survey trees in each municipality in the trust to determine the percentage of damage done to each tree. A team of technicians, meanwhile, will be measuring methane and oxygen levels in the soil.

While the arborists won’t be determining the cause of the damage, the collection of baseline data should provide a good-sized sample for future study.

“There’s going to be a lot of information by the end of the summer,” says Carl Cathcart, a consulting arborist who will lead the team. “We’ll probably end up looking at 3,000 to 4,000 trees. There will be a pattern, I’m sure.”

The Massachusetts Shade Tree Trust originated with Bob Ackley, principal for a company called Gas Safety, Inc., which tests residences for the potential health hazard from gas leaks. He started that company after connecting with Schlictmann and founding the trust.

Ackley describes himself as a former subcontractor for the gas industry for nearly 30 years who would test distribution areas for gas leaks all over the Northeast. Some areas were a few blocks wide, and sometimes he’d survey entire cities.

“I’ve known about this for some time,” says Ackley, who would not just find the leaks but also classify them for his report. (Others would fix the leaks.)

He observed that, while the gas companies were diligent about responding to the Grade One leaks, minor leaks would not always be addressed.

“I’d go back (to an area) two or three years later, and the same leaks would be there,” he says.

Ackley knew from the start that gas leaks would kill vegetation – part of his training called for him to visually survey an area for vegetation that was dead and dying, to see if there was a likely gas leak in that area. “Then we’d test it with equipment to verify it,” he says.

Over the years, he got a sense of the scope of the issue, he says. Many of the systems have small leaks in a lot of places, particularly the cast iron systems generally found in older cities, which may date back to the early 1900s or even the 1800s.

“They’ve been sealing them, but there’s still a lot of leakage out there, and a lot of the damage has already been done,” he says. “We’re trying to stop further damage and alert the cities and towns to know that when they go to plant trees, let’s not plant trees in gas leaks anymore. That’s the real killer; when you see trees that have been planted over the last five years, and they’re dying because they’re right in a gas leak. They replace the tree in a gas leak, and then the replacement tree is dying because nobody’s got a clue. There’s been a lack of knowledge, and we are going to change that.”

Although Ackley cites a report from the Netherlands in which gas was cited as a cause of damage to 40 percent of trees in urban areas, much of the information remains anecdotal.
“I just (surveyed) a street in Lawrence on Friday and you could see it so clearly,” Ackley said in early June. “We had a gas leak, there was a big tree that was dying – a big 36-inch linden – and then down the street there were 10 or 20 lindens that were all in good shape, no leaks, and then the next block down were all leaks on the main side and all the trees were gone for 500 to 600 feet. Then they started up again. You could see the drill holes and the patches in the street, where they’d fixed gas leaks.”

Northeast Gas Association’s Kiley contends that much of the support for the Shade Tree Trust is based on anecdotal information.

“Trees are living organisms, like you and I, and living organisms die,” Kiley says, noting that a dead tree and natural gas leak found in the general area doesn’t necessarily equate to cause and effect. “There’s certainly a lot of other external factors that can impact the health of a tree, (like) insects, road salt ...”

If pressed, he expects his organization will have to hire their own arborists as expert witnesses to make their own assessments of what caused the demise of the trees. “I think it’s a money-making scheme,” Kiley says. “I think that’s the intent of the Massachusetts Shade Tree Trust.”

In both science and legal cases, the devil is frequently in the details. In this case, many of the details will be found in the work of arborists Cathcart, David Hawkins and George Ackerson. That’s the team that will survey trees for the trust.

While there are case studies in Ohio, Massachusetts and the Netherlands in which it was determined that damage had been done to trees from gas leaks, Cathcart says that plenty of questions remain about how the damage is done and how to determine it.

“We know what we read, and know about the problems that (some places) have had, but nobody seems to know what the duration is – as far as how long the gas will affect the trees, at what levels, that type of thing,” Cathcart says.

Arborists learn about the damage gas leaks can have on trees as part of their studies. While natural gas in itself is not toxic to plants, as the gas leak pushes into the soil, the high methane level creates a resultant lack of oxygen. The lack of oxygen is considered the primary culprit in the death of trees.

However, the average arborist might not be too familiar with the phenomenon, Cathcart says, “because it’s something you don’t see very often.”

Narrowing down a single cause to a tree’s demise is also a challenge. When it comes to shade trees, there are a variety of factors that may also threaten their health, particularly street trees that line city sidewalks.

“Shade trees along the street have a lot of problems,” Cathcart admits. They are grown in a confined area, subject to girdled roots as well as road salt injury, damage to the trunk from plow blades or other collisions, damage to the roots from...
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construction or crowding, and other factors. There are also issues such as drought, disease or insects that could impact any tree.

There are also trees that may be more resilient to certain hazards than others, including natural gas leaks. And trees that may be damaged, but recover.

“'To be truthful, once we start looking at these trees, we’re going to be learning quite a bit,’” Cathcart says. “This is still in the learning and research stage. Even though we know gas kills trees, this is still in the learning stage.”

The arborists will determine the condition of trees, and the percentage of their decline. They will also determine the value of the trees, which Cathcart guesses to be as high as $5,000 per tree. They will not be seeking to determine whether gas caused the demise.

“We’re not the ones who’ll say, ‘Yes, gas killed that tree,’” Cathcart says.

While Cathcart doesn’t believe that gas is the only factor killing public shade trees, he suspects that once the data is in, there will be a compelling case made that it is a more frequent hazard than is commonly thought.

“I think they’re going to find that gas is one of the main contributors for killing (street) trees,” he insists. “Right now, I think most arborists think it’s a minor thing – something that could kill trees, but never thought it was this big a problem. I personally think it’s a bigger problem than most people think.”

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Don’t miss your chance to Explore EXPO in 2007! Make your hotel reservations now – they will sell out fast! Reference TCIA to get our special group rate. Discounted room rates are based on availability, so don’t wait! Visit tcia.org for more details and complete hotel information, or call 1-800-733-2622.

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To Cable or Not to Cable
– That Is the Question

By H. Dennis P. Ryan III, Ph.D.

Tree cabling and bracing is the addition of artificial support to the tree in order to add structural support to a perceived weakness in the tree. In most cases, this is a weak crotch that has included bark in the branch union (Fig. 1). Historically, many unnecessary cables were installed; an example would be cabling long lateral branches that were not weakly attached to the trunk. In many cases judicious pruning would have reduced the weight and thus the risk of branch failure. This article will review the installation of cables to protect weak crotches.

In a survey of certified arborists taken a few years ago in New England, weak crotches were reported as a common defect that caused tree failure. It was a more commonly reported defect than decay and deadwood. A defective tree is one of the prerequisites to a tree hazard – the other is a target that might be damaged. Since arborists must be concerned with liability, attending to weak crotches is part of every arborist’s work.

Liability

Liability is based on the legal theory of negligence, which is made up of three components:

A responsibility for care, in this case, the responsibility to maintain safe trees
A subsequent breach of that responsibility, such as when a weak crotch is not addressed by cabling, pruning or removal
Damage or injury that results from the breach of responsibility; for example, if the weak crotch failed and damaged a car

Simply because you address a weak crotch does not mean you will not be liable if the crotch fails and damage occurs. What you do to address the weak crotch has to be reasonable and prudent. In court, a judge decides cases of negligence by whether you did what was reasonable and prudent.

If the tree with the weak crotch was also split all the way down the trunk and one-half of the tree was leaning 45 degrees toward a house, a prudent arborist would conclude that removal of the tree, not installing a cable, was the only option. If you decide to install the cable and the tree fails and damages the house, you have breached your responsibility of care because every other reasonable arborist who looked at the situation would have removed the tree.

On the other hand, if you looked at a tree and there were no defects and then the tree failed during a thunderstorm and damaged a house, you would not be liable because...
any other reasonable arborist who looked at the tree would have come to the conclusion that the tree did not need to be removed because there were no defects. Always do what’s reasonable and prudent when it comes to avoiding liability.

What’s reasonable and prudent when it comes to cabling and bracing? The easy answer is to follow the ANSI A300 (Part 3)-2006 Supplemental Support Systems. Following the standard includes having a follow up inspection plan after any cabling installation. It’s important to remember that when you install a cable, you admit that there is a structural defect that may increase the risk of tree failure. In some cases, branch or tree removal is better than installing a cable. Assuming it’s reasonable and prudent to install a cable, you must follow the A300 standard. For example, you shall not attach two cables to the same anchor; and you shall use a lag instead of an eyebolt in a decayed limb.

Having a follow up inspection plan is also a prudent cabling practice. Cables may last for many years, but periodic inspection reduces the chance that the installation will become obsolete or ineffective. The National Association of Realtors reports that the average house is sold every 6 years in the United States and as a result this inspection process can become a problem. Sherrill Arborist Supply of North Carolina offers their customers a unique cabling and lightning maintenance awareness program. Called the North American Tree Monitoring Program, it is designed to inform property owners that their tree support or lightning protection system requires inspection. This program reminds the property owner of their responsibility to seek periodic inspections. If your company does not have the ability to do this you might want to consider the Sherrill program.

**Tree damage**

Installing a cable wounds the tree, since holes must be drilled to insert either lags or eyebolts as attachment points. Before installing a cable(s), an arborist needs to ask whether the amount of damage (i.e., discoloration and decay) done by drilling the tree is worth the added security the cable provides by supporting the weak crotch. One way to reduce discoloration and decay is not to countersink washers on eyebolts (Smiley 1998). Properly installed attachment hardware causes very little discoloration and decay (Kane and Ryan 2002). On the other hand, when washers are countersunk into the wood (Fig. 2), as shown by Stobbe (2000), decay can quickly penetrate the whole branch or trunk. Referring to cabling systems for which trees must be drilled to install anchor points, Schroder (2004) stressed, “The extent of injury caused by the installation of crown anchoring systems is so great that this system should not be used,” but his photographs again clearly show that the anchors have been countersunk into the sapwood. Much of the research on the new dynamic synthetic systems is coming out of Europe. That research is based on preventing damage to trees. The damage they are seeing, however, is the result of improperly installed bolts. There is no question that in parts of Europe cables are not being installed according to the A300 standard, and trees are suffering severe decay damage as a result.

Section 33.5.11 of the A300 standard allows for the removal of thick bark in order to set the washer on the wood, but it does not allow countersinking into the sapwood. Countersinking into xylem has not been used in North America for decades. The old NAA Cabling Standards from 1970 also discouraged countersinking into the wood because of the damage it would cause.

Considering that the likelihood for advanced decay in branches and trunks is, at the least, debatable, an arborist must decide whether the potential for decay outweighs the stability a cable adds to a weak crotch. When the added stability outweighs the potential for decay – and cabling reduces the risk of failure of a weak crotch – cabling is an appropriate solution. Keep in mind that losing a limb because of a
weak crotch will cause much more damage and decay than will the installation of a lag (Fig. 3).

What system to use?
Thompson (1959) listed four objectives of tree bracing – and they are just as applicable today:
> Materials must be strong
> Installation must be correct from an engineering viewpoint
> Installation must injure the tree as little as possible
> The work should be inconspicuous when in place

The objectives help to compare traditional, steel cabling systems and newer cabling systems from Europe that use hollow braid ropes (like Cobra or TreeSave).

Objective 1, material strength, should be considered both at the time of installation and over time. A properly installed traditional cabling system will last for years without any modifications or adjustments. It is not uncommon to see cabling systems that are 20 or 30 years old and are still doing their intended job. The new systems do not have such longevity. According to the manufacturer’s instructions, the COBRA system can only stay in the tree, “for about 12 years.”

Objective 2, correct engineering, stresses the importance of installing the cabling system correctly. Many cables that are installed are not needed and may actually reduce the strength of a tree. Many other cables are installed incorrectly. The most common errors are installing the cable too low or installing the cable at an incorrect angle. In order to reinforce a weak crotch, “Anchors should be installed at or near a point two-thirds of the length of the limb or leader to be supported, measured from the trunk or crotch,” (A300 §33.6.3.2) (Fig. 4).

Traditional steel cabling system does this in an efficient and cost-effective manner.
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Systems that use hollow braid ropes do not stop the weak crotch from moving, because the ropes are more elastic than steel cables. Proponents of the synthetic systems acknowledge this: “COBRA is ideal as a supplement for vigorous-growing codominant stems with sound crotches,” (Sherrill Catalog, 2007).

Erk Brudi, a consulting arborist in Munich, Germany, reports that “We only use steel cables when crotches show cracks or other signs of pre-damage and need to be stabilized and kept rigidly braced to avoid further movement.” If you have a weak crotch you should only use a steel cabling system. The crotch should not be allowed to move. The Sherrill catalog also makes this point, stating that “Static (traditional 7-strand steel cable) cables are recommended for – crotches with included bark...”

Objective 3, minimal injury, caused by discoloration and decay due to drilling to install cable anchors was covered above. Given what we currently know, if you install anchors in good wood properly, according to A300 standards, decay seems to be less of a concern. More research should be conducted to see how different trees react to drilling. We may find that in some cases decay might be too much, but for most it shouldn’t be a problem.

Cabling systems that anchor to the tree by wrapping around the trunk (as opposed to drilling into the trunk) may also damage the tree. Manufacturers claim that as the tree grows the system will “self-adjust to avoid girdling.” This remains to be seen; there have been some reports of trees becoming concave on the outside. There is some long-term research being conducted on trees to see if this is in fact an issue.

For one of the hollow braid rope systems, TreeSave, you can attach the system to the tree with traditional anchors (lag or eyebolt). If you are looking at a situation...
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that needs the movement (dynamic) offered by the elastic rope but you are not comfortable with a wrap around the limb, this system may be considered. However, this system still would not be recommended for weak crotches.

Objective 4, an inconspicuous installation, is met by a steel cabling system, which is not visible to most people. As commercial arborists, we are in the business of aesthetics. We are hired to make a property safe and attractive. Some of the hollow braid rope systems are very visible and, in my opinion, very ugly. It’s hard to appreciate the tree’s natural beauty when big black ropes cover it.

**Long-term research**

Much of the discussion reviewed above will be debated for years to come because we don’t have much long-term research on cabling. At the University of Massachusetts, a long-term study on cabling has recently begun. The idea is to measure tree growth and trunk movement in response to different cabling treatments. Both steel, static systems and hollow-braid, dynamic rope systems are being investigated. Tobe Sherrill generously donated materials for both types of systems.

In conclusion, in most situations today I would recommend that arborists in North America continue to use the traditional cabling system when working with weak crotches. The system should be installed according to the A300 (Part 3) Standards for Supplemental Support Systems (2006). All professional arborists should use it.

_H. Dennis P. Ryan III, Ph.D., is professor of Arboriculture and Community Forestry at the University of Massachusetts at Amherst_

**References**


## Vermeer

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ValleyCrest Companies was founded in Southern California by the current chairman, Burton Sperber, in 1949, and continues to be led by the Sperber family, with Richard Sperber as the company’s president. Today, ValleyCrest has operations in more than 24 states, employs approximately 10,000 people and provides every landscaping service imaginable.

Tree care services is among the fastest growing businesses within the company, with last year’s sales increasing 50 percent over the prior year. Rapid company growth, and in particular rapid tree care growth, has required a proactive approach to building a strong safety culture.

The results are clear: the company’s insurance modification rate (a measure of risk) has steadily improved and now sits considerably below industry average. The lower insurance modification rate has brought meaningful financial benefit to the company but, importantly, we have also seen employee satisfaction and productive hours improve to unprecedented levels.

As safety is an especially critical part of tree care, it is a pleasure to share how we built and sustain a safety culture in hopes that others can benefit from our lessons learned.

Historically, ValleyCrest has had a strong safety record, but the journey to building a stronger safety culture began with a realization that as the company grew, our safety performance was beginning to dip. There was clear awareness that, with more growth, a strong safety record would be difficult to maintain without improving the structure, intensity and level of resources we had committed to ensuring safety. Senior leadership has always felt a moral obligation to provide a safe work environment, and throughout the company’s history returning every employee safely home each day has been each manager’s top priority, but there are also significant legal and financial implications to not being as safe as possible.

Establishing the safety baseline

To get a handle on where to start, a team studied the company’s approach to safety. Their findings were discouraging. They learned that:

- The company did not have fully documented and consistent company-wide safety policies, or a clear review process to ensure a consistently safe working environment. Safety programs or policies were left primarily to individual business units or divisions;
- There were no substantive safety metrics being tracked to ensure progress toward improving safety;
- There were no clear or consistent incentives to work safely.

In summary, the company lacked a con-
sistent and compelling safety culture that was matched to the growing size and geographic dispersion of the business.

Ownership for safety starts at the top

As a consequence of their findings, the senior leadership team re-committed their personal attention to ensuring safety remained at the top of the company’s agenda. They formed a safety department and promoted talented people into safety leadership roles. Safety policies, rules and regulations were developed by the safety department in close consultation with the company’s senior operations leaders and then were implemented across the entire company. In the months following (and still today), senior leadership and management team members led field visits, wearing their own personal protective gear, built around ensuring proper safety practices and procedures were being followed. These policies, procedures and practices continue to evolve today by a collaboration among the safety department and the branches who utilize them day-to-day.

In addition to implementing more comprehensive and consistent safety policies and procedures, the company also made a commitment to training and ensuring people had the right skills to do their jobs safely and effectively. As a consequence, job standards or skill requirements were developed for all key roles. For example, all tree care crew personnel must complete specific training and pass certification tests before advancing from one-role-to-another.

Capturing hearts and minds of employees

Once safety policies and procedures began to be more pervasive and consistent across the company, senior leadership adopted a standard set of metrics and safety forums to engage the hearts and minds of employees. For example, the company already tracked OSHA recordable incidents, but we added “at-fault” auto accidents by location. We also began communicating workers’ compensation claims by branch and provided each branch with a “Monthly Peer Ranking Report” that includes performance on key safety metrics and other leading business indicators. Importantly, metrics are continuously analyzed to identify important trends and root-cause operating drivers, or factors, of excellent or poor safety performance.

Perhaps most importantly, the company has integrated safety as a core topic in all training, and began conducting a mandatory weekly conference call for all managers in each division to discuss all serious incidents and near-misses in-and-outside their division. The purpose of the call is to learn collectively from each other’s experience, and in the process, prevent accidents or the conditions that make accidents more likely to happen.

The weekly meeting has a standard agenda:

- The division president kicks off the call sharing any industry safety incidents and lessons learned.
- A safety topic is presented by a manager using real examples with “Yes/No” photos.
- Regional safety managers address “outside-the-division” incidents and lessons learned.
- Each safety incident or near-miss that occurred in a local operation during the prior week is described by that operation’s local leader, including how it could have been prevented and if any employee disciplinary action was taken to establish that there are consequences for exercising poor judgment or behavior.

Acting with urgency

Importantly, discussing safety alone is not sufficient to instill the importance of safety or the company’s commitment to drive safety as a top priority. Whenever, a safety incident is preventable by means of changing a company policy or practice, we act with urgency to ensure the change takes place immediately. This instills in people that the cost of the change will not stand in the way of making positive improvement in our safety performance.

To emphasize a commitment for urgent action, consider some examples:

- If a branch’s safety performance is not sound, the company will shut down the operation for mandatory training.
- The company has eliminated categories or specific types of equipment from service due to persistent issues with safety. For example, in exterior maintenance short-handled hedge shears caused a high number of safety incidents, so the compa-
ny now only uses long-handled shears.

- With regard to tree care, we have mandated that tear-away safety vests must be used by ground personnel while operating a chipper near or around traffic, chipper paddles are required on all chippers, and only high visibility climbing rope can be used by climbers. Clearly, we also have standard personal protective equipment requirements and we regularly conduct field safety audits to ensure compliance with all company policies, but we also institute policies that go beyond industry standards to minimize risks that can lead to safety incidents.

- Because it was found that most safety incidents occurred with new employees, the company invests in different colored safety vests for any employee for the first 90 days of employment. The “green vest” signals to everyone in the field that this employee needs to be looked after and mentored more closely than tenured, more experienced individuals.

Training the troops

To ensure that we sustain the progress we have made on safety, we are constantly refining existing training materials and programs and we are continually expanding our investment in training. Since being safe pays back, we have been able to add impressive training personnel and resources to perpetuate our progress. Teaching or cross-pollinating our best practices from one branch to another is critical for maintaining continuous improvement. Examples of training we currently do, include, but are not limited to:

- New hire orientation and training
- Field training days, for example, electrical hazards awareness program, first-aid, CPR and aerial rescue training.
- Weekly tailgate topics
- Crew level comprehensive job skills training that must be completed for each job skill level before advancement to the next level.

Consequences for failure and celebrating & rewarding successes

To ensure we relentlessly look for opportunities to manage risk away and improve safety, we do not tolerate “safety apathy.” We shine a light on safety whenever we can. Our favorite example is a large board we have placed, usually near where crews dispatch, that says, “They Expect You to Return Home Safe,” in Spanish and English. On the board, employees place pictures of their loved ones. Many of our employees have beautiful families and they walk past the board every day before they go out. It is a great reminder to take a little extra time to ensure that they are safe because they have families to go home to.

We also fight safety apathy by shining a light on fabulous performance and rewarding it, but we also don’t live with poor performance. We send resources out to under-performing branches and we get poor behaviors or practices turned around quickly.

With regard to celebrating safety success, during safety calls or field visits we congratulate operations for doing a great job adjusting their ways of doing things to prevent an incident from occurring again. We reward field employees quarterly with cash incentives for working efficiently, effectively and with no lost-time accidents, and we look for opportunities to pat employees on the back for good safety practices.

Each year, we celebrate our safety efforts with a company-wide safety day where we recognize the safety efforts across the country and at each individual branch. The day is capped off with a BBQ and the random awarding of five Ford F150 ValleyCrest-red pickup trucks to crew-level personnel who have worked for a branch that meets safe work environment standards.
and other business performance standards. The trucks are given away by the senior team out of a large lottery drawing and the results are broadcast simultaneously across the country. The excitement for safety and the rewards it provides people is infectious on this day.

Last, but certainly not least, a significant component of management incentive compensation is tied to safety performance. Management is expected to have safety at their top of their agenda. If a manager doesn’t put safety at the top, they don’t fit in our culture and they don’t last.

Summary

To drive the “Safety First” culture, company leadership focused on six significant areas:

► First, leaders took full ownership of the “Safety First” cultural change. They moved safety to the top of the company’s agenda, where it still resides today, and created a safety department by promoting talented people to safety leadership positions.

► Clear measurable safety metrics were established and relentlessly tracked to shine a light on performance, to capture significant safety related patterns or trends and to drive safety improvement.

► Additional, talented resources were recruited to analyze what we measure so that we could develop insights on root-cause drivers of good and bad safety performance.

► Whenever safety problems or poor safety behaviors are identified, senior leadership acts to fix issues and behaviors with absolute urgency.

► Considerable investment in training has been implemented to cross-pollinate skills and safety best practices.

► “Safety Apathy” is never tolerated. Safety successes are celebrated and there are consequences for failure. Most notably, a significant portion of every manager’s compensation is directly tied to their safety performance.

Make no mistake, ValleyCrest still has safety incidents, but there is no doubt that safety is at the top of the agenda and there are clear, actionable, well understood safety policies and procedures that are followed consistently. We have harnessed the power of nearly 10,000 employees and
are constantly finding better and safer ways of doing things – and the results have been significant. Frankly, there has been no other initiative that has had as much impact on the performance of the company, or on the morale and commitment of the employees, than our ongoing efforts to be safe.

If you feel you have an opportunity to improve the safety of your team, we recommend you start by reviewing your safety performance, policies and procedures. Ask yourself some questions:

- Do we have safety policies that cover every phase of the operational steps we take daily or weekly?
- Are the safety policies well understood by all stakeholders (e.g., management, crew personnel)?
- Are the safety policies consistently followed by all stakeholders?
- Do employees correct each other when a safety policy is not being followed?
- Do you have a consistent method for tracking and discussing safety performance or safety incidents?

If the answers to these questions are not yes, start on the road to improving safety by mapping each step of your operation’s day-to-day activities and identify measures you can put in place at each step to improve safety. Institute policies; make sure the leadership of the business leads by example and relentlessly review policy implementation, focusing on results. Also, start tracking standard safety metrics and make safety the first topic of any business discussion.

To help you, there are wonderful resources that exist to make your business safer. TCIA has fabulous off-the-shelf literature, videos and in-house expertise, as does the ISA and the government. The Internet can be a great tool for mining literature on the subject, so there is no shortage of tools for getting started. Owning the goal of sending everyone home safe at the end of each day is more than enough to get started. With commitment, plenty of resources exist to help you on your journey.

Vic Bernardini is general manager and Alice Carter, CTSP, is safety manager both with ValleyCrest Tree Care Services. This article was excerpted from their presentation on the same subject at TCI EXPO 2006 in Baltimore.

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Oft used common name is not popular

Something that has irked me for many years is the misrepresentation the industry gives the common name to Liriodendron tulipifera. It is not a tulip poplar (“Battling Bolts from the Blue,” TCI June 2007, page 12) or yellow poplar; it is not even a poplar, but more properly called tulip tree, a member of the magnolia family.

Maybe some day you all will get it right.

Carl Suk, horticulturist
Crandall, Indiana

Guy Meilleur, the author, responds:

Dirr’s Manual of Woody Landscape Plants list tuliptree as a common name, and also tulip poplar, yellow poplar and whitewood. Gilman’s Trees for Urban and Suburban Landscapes refers to tuliptree, tulip-poplar and yellow-poplar. I find the hyphenation makes for a more accurate usage because, as you point out, Liriodendron tulipifera is not a true poplar. I should have used a hyphen in the article, and I’m sorry I did not get that right.

I did make sure, as always, to cite the scientific name first, so no one should be misled on the species’ identity. However, any time common names are used, stuff can happen. A client once ordered this species and I referred to it as Liriodendron tulipifera, aka “tuliptree” as you suggest is correct. When I delivered it, the client was very disappointed because to her “tulip-tree” meant magnolia x soulangiana, the “saucer magnolia.”

I convinced her of the Liriodendron’s virtues and she agreed to accept it, but still I feel your pain on this misleading common name. I’d like to use only the scientific name because I think it is beautiful, coming from the Greek word for “lily,” but people are often more comfortable if a common name is also mentioned. Thank you for reading critically.

Every picture tells a story - in this case, a false story!

The teaser on the cover of the June 2007 issue of Tree Care Industry infers that the damage to the tree we are looking at was caused by “Bolts from the Blue.” If this were in fact the case, bark would be missing from the tree. The damage being shown is very typical of wind damage to pear trees.

Concern with using shackles when securing to crane

I am writing to express my grave concern over the use of shackles as an acceptable way of securing a climbing line to a crane cable. In “Crane Best Practices in Tree Removal: Hoisting a Qualified Arborist” by Mark Adams, March 2007 issue of TCI, there were several examples showing how to attach the climbing line to the crane using a shackle.

ANSI Z133.1-2006, Section 8.1.11: “Carabiners used in climbing shall be self-closing and self-locking, with a minimum tensile strength of 5,000 pounds (22.24 kN). Carabiners shall be designed to release the load by requiring at least two consecutive, deliberate actions to prepare the gate for opening.”

Arborists are required to use self-closing, self-locking carabiners in their climbing systems. Screw locking carabiners are not permitted. It is widely accepted that these carabiners have a greater potential of coming undone than double-locking carabiners. There is also the inevitable hazard that the user may simply forget to lock it. For these reasons, arborists are not permitted to use screw locking carabiners in their climbing systems. The same logic should apply to the use of shackles or clevises being used in a climbing system. These fasteners do not lock! There is no positive locking system on a shackle. The system used to secure the climber should be “closed.” Once the climbing line is installed, it can only be disengaged from the crane if it is deliberately or manually unclipped, untied, or undone. There should be no possibility of the line rolling out or falling off.

It is common practice in the industry to attach a shackle to the cable above the ball. A friction-saver is then run through the shackle and the climbing line is installed in the friction-saver. There are several drawbacks to this system:

► The fact that the shackle can become unscrewed.
► The shackle can ride up the cable if the ball is threaded through the maze of branches of a tree unless a cable clamp is installed above the shackle.
► The shackle rubbing on the cable causes wear.

I’ve seen people using a shackle attached to the cable with no wire to lock the shackle and no friction-saver. They were running their line directly through the shackle. This is dangerous at best. If the line is running in the wrong direction over the pin, it could become unscrewed if not locked off in some fashion. I think that the use of shackles in a climbing system is a bad practice and should be avoided.

It would be safer to disconnect the ball, install a master link and re-install the ball back on to the cable. These master links come in many different shapes, sizes and configurations to meet the needs of the climber. The master link, a solid ring, has no chance of coming undone! The rule is “keep it simple.” The more links in a system and the more complex a system is, the
greater chance something can go wrong. As with any piece of equipment we use, proper training is required.

Shackles have their place in rigging and are an important piece of hardware. Having said this, they do require training as to their limitations, dangers, proper loading and usage. I think the master link is a safer alternative method for a climbing line tie-in during crane work.

Jay Webster
Arbor Solutions, Harvard Mass.

Mark Adams responds: I would like to thank Mr. Webster for taking the time to write. He expressed concern about the techniques that employed shackles as part of a climbing system that arborists use to tie-in to a crane. One technique was shown in Figures B, C and D. Although it is not obvious in the photos (Figures), the same technique is employed in Figures K, L, M, N, O and P. This technique is used by Downey Trees, Inc. and the photos were supplied by me. A second technique was shown in Figure I. This technique is used by The Care of Trees and the photo was supplied by Norm Hall. Although it is not obvious in the images, the second technique was also employed in Figures G and J. These photos were supplied by Todd Kramer, Kramer Tree Specialists.

Mr. Webster’s letter was forwarded to Mr. Hall, Mr. Kramer and two other arborists who initially reviewed the article. The five of us have collaborated on this response. We all agree that the techniques that are described and shown in the article are safe to use for climbing and for hoisting qualified arborists.

Mr. Webster begins by citing ANSI Z133.1-2006, section 8.1.11. This section of ANSI specifically addresses carabiners, however, and is not pertinent to shackles.

Mr. Webster says that he has three main concerns if an arborist’s false crotch is run through a shackle. His first concern is: “The fact that the shackle can become unscrewed.”

The article shows two different ways that the pin of the shackle can be prevented from being unscrewed. Both methods are secure and safe.

Mr. Webster also states: “The system used to secure the climber [to the crane] should be ‘closed.’ Once the climbing line is installed, it can only be disengaged from the crane if it is deliberately or manually unclipped, untied or undone. There should be no possibility of the line rolling out or falling off.”

Both techniques that are shown in the article fulfill these requirements. If the techniques are used as described in the text and depicted in the Figures, the climbing line can be removed from the crane only if it is deliberately ‘…unclipped, untied or undone.” The climbing line cannot “roll out or fall off.”

Mr. Webster is concerned because he has seen “…people using a shackle attached to the cable with no wire to lock the shackle and no friction-saver. They were running their line directly through the shackle.”

We agree that running a climbing line directly through a shackle, with no arborist’s false crotch and no means of securing the pin is a dangerous practice and should not be allowed. But this does not mean that shackles should be completely discarded from use in climbing systems. A more pertinent use of Mr. Webster’s reference to carabiners would be to say that just because someone uses a non-locking carabiner in their climbing system does not mean that all carabiners should be banned from use in climbing systems. People who use non-locking or single-locking carabiners should be informed of the need to use double auto-locking carabiners for life support. Similarly, just because some people use shackles without securing the pin does not mean that all shackles should be banned from use in climbing systems. People who use unsecured shackles should be taught the proper way to employ shackles when they are used for life support.

Mr. Webster’s second concern is: “The shackle can ride up the cable if the ball is threaded through the maze of branches of a tree unless a cable clamp is installed above the shackle.”

Mr. Kramer and Mr. Hall both state that, in the setup that they employ, the shackle cannot ride up the cable. Mr. Hall wrote: “The shackle cannot ‘ride up’ the load line. It is placed over the wedge socket, turned 90 degrees and rests on top of the ball. This is ‘the reason’ for using a 17-ton screw pin shackle; it is a ‘tight’ fit. So, if it does catch on a limb or branch, it comes in contact with the wedge socket and won’t go above that point. It stays between the ball and wedge socket.”

Mr. Hall adds that this system was approved by an OSHA officer.

In the system that Downey Trees uses, the shackle may or may not be able to ride up the load line, depending on where the shackle is placed above the ball.

This concern has been expressed before and, after working through several scenarios, I am not sure that one way is any safer than the other (i.e. having the shackle “locked” to the ball vs. being able to “ride up the load line”).

If I understand the issue correctly, the concern is that when the climber is being lowered down into the canopy of a tree, there is the (slight) possibility that the climber could end up on one side of a branch and the ball/hook on the other side. If the shackle can “ride up the line,” then, if the crane operator continues to lower the ball, the shackle will ride up the load line leaving the climber on one side of the branch and the descending ball on the other. The weight of the climber will now be hanging on the branch. If the branch breaks, the climber will fall whatever distance the ball has descended plus whatever distance they had initially been hanging below the shackle on the climbing line.

But is it any better to have the shackle locked to the ball in this situation? If the shackle cannot ride up the load line and the climber ends up on one side of a branch and the ball/hook on the other side, then the weight of both the climber and the weight of the ball/hook will be hanging on the branch. If the crane operator continues to spool out cable then two things could happen:

a) the weight of the ball/hook (which is sometimes hundreds of pounds) will drag the climber over the branch; or

b) the combined weight of the climber and the ball/hook will break the limb. The climber and the ball/hook together will fall a distance equal to the amount of cable that was spooled out plus whatever distance the climber had initially been hanging below the shackle on the climbing line.

The hazard is not whether or not the shackle can move on the load line. The hazard is the crane operator and/or the signal person not paying attention to the climber. The crane operator and the signal person should be paying attention to the climber.

(Continued on page 71)
Thank the tree gods for progress! It wasn’t that long ago that we were grateful for a stump cutter that would go through the proverbial garden gate and get the job done. Period.

But as things progress, we find we want faster, better and smarter machines. And that’s exactly what we’re getting. Technical advancements have literally “cut” a typical big stump job from a half day or longer just a decade ago to less than an hour today – indicative of the kind of progress manufacturers are making, largely in cutting technology.

Cutting new teeth

When it comes to stump cutter productivity, it’s important to have an effective cutting system, says Mark Rieckhoff, environmental segment manager for Vermeer Manufacturing Company. “You can have the most powerful stump cutter on the market, but an inefficient cutting system will reduce productivity. The cutting system pays the bills and well-maintained teeth and pockets will lead to more stumps cut per day. If you notice a definite drop in the performance and efficiency, it’s a good sign that your teeth are dull,” he adds.

When evaluating cutting systems Rieckhoff encourages tree care pros to look at overall cost, ease of service and maintenance, and the ability to maintain a sharp efficient edge on the teeth.

“Over the past three years there has been a trend toward improving the cutting system maintenance features and reducing the time required to replace the cutting system,” he says. “As a result, Vermeer recently introduced the Yellow Jacket Cutting System, which features increased side pocket clearance and a reversible carbide-tipped cutting edge.”

“The tooth tip strike point extends outward to protect the side of the pocket,” says Rieckhoff. “This enables better utilization of horsepower by limiting pocket rubbing against the stump, which can result in power loss and vibration.”

This feature also protects the top and front of the pocket from wear. The clearance from the top edge of the tooth reduces the amount of wear on the opposite side of the pocket and nut, extending pocket life. The pocket may be reversed and bolted on to the opposite side of the cutter wheel, providing a second tooth-mounting surface.

A carbide-tipped cutting edge can also be rotated to reveal a new cutting edge, he explains. The secondary carbide tip is protected and clear of the primary wear area while cutting with the leading edge. This helps extend the life of the tooth and can decrease overall cost to the customer. When the tooth is rotated, the opposite edge provides an almost new cutting surface for extended tooth life.

“Most cutting systems only offer one cutting edge while the Yellow Jacket system doubles the life of each component,” says Rieckhoff. “When rotating or replacing the tooth, the operator does not have to remove the entire pocket. The nut may be loosened with a 9/16-inch wrench to rotate the tooth, or removed to replace the tooth. This feature is designed to help reduce maintenance time.”

Wheel power and pivoting heads

According to Jerry Morey, president of Bandit recently introduced the HB20 Sidewinder handlebar stump grinder, which incorporates a head that pivots (inset), making it much easier to process the stump.
Bandit Industries, they have been supplying stump grinders for nearly five years and have focused on making improvements in the drive systems and cutter wheels.

He explains that with its smaller stump grinders, which include handlebar units and the Model 2100SP, Bandit continues to use a more traditional belt drive due to cost constraints. The Model 2100SP is its smallest and most compact self-propelled stump grinder, featuring engine options up to 35 hp.

“For medium-range and larger, self-propelled Bandit units, we utilize hydrostatic drives,” says Morey. “We have found that hydrostatic drives provide a longer-life, trouble-free drive system with reduced maintenance, lower operating costs and smoother operation. The hydrostatic system eliminates the need for a belt drive.”

Bandit is taking the hydrostatic cutter wheel drive systems a step further, he explains. “We use rotary motors on our larger units, the Model 3400 Track and 4000 Track. The rotary motor only requires hydraulic hoses that plug into the motor and eliminates any need for belt drives, jackshaft drives or gearbox drives. Rotary motors further reduce maintenance, add reliability and reduce down time, thus lowering overall operating costs.”

Since the use of the rotary motors to power the stump grinder wheel is new technology, Morey says, Bandit has been cautious about introducing it even with its larger units. “But, with a year’s time on a dozen machines, we are going forward with this design for our larger Model 3400s and 4000. We are also looking at this same technology to power the cutter wheels on our mid-range, self-propelled stump grinders for 2008.”

Hydrostatic drive systems that are presently used on their Model 2800SP and 2900 Track series stump grinders have proven to be very effective, Morey says, but adds that Bandit feels it can improve on that drive system with the rotary motor drive. “I believe we are the only company that offers a hydrostatic mid-range unit with expandable/retractable rubber tracks with our Model 2900 stump grinder.”

“We have also done an extensive amount of testing on our cutter wheels and positioning of the teeth to provide optimum performance and reliability. We have tested virtually every wheel that has been developed and have come up with cutting wheels with patterns that provide optimum performance for our machines,” he says.

According to Morey, Bandit recently introduced a new handlebar stump grinder called the HB20 in which the head pivots, making it much easier to process the stump. Because the head pivots, the amount of effort needed to grind the stump is greatly reduced.

“I realize that most of the commercial tree services opt for larger towable or self-propelled stump grinders, but many of them own a handle bar unit for smaller jobs and for those extremely hard to reach places. As far as I know, we are the only manufacturer that offers a pivoting-head handlebar stumpner,” Morey says.

Low profile and reduced drag

John Bird, president of J. P. Carlton, notes that Carlton is the only manufacturer to offer the Sandvik Dura Disk II Cutting System as a factory-installed option.

The Dura Disk cutting system was jointly developed by Sandvik Mining and Construction and Jim Paumier of New River Equipment in Canton, Ohio, and, while Carlton is the only manufacturer to offer it as a factory-installed option, it is available from New River as an after market option for other stump cutting machines.

“Sandvik is the world’s largest producer of carbide cutting tools and a leader in carbide technology,” Bird says. “The patented Sandvik Dura Disk II System increases cutting efficiency by as much as 50 percent over conventional systems through the use of a patented low profile design and a unique bit.”

Bird explains that, with this low-profile design, “there is much less drag due to large pockets or teeth being driven through the wood, chips or dirt. The placement of the teeth both around the perimeter and on the sides of the wheel does not permit wheel and pocket rub against uncut material. The design reduces the amount of chip and material spread while cutting.”

He notes that the lack of large pockets or protruding tooth holders reduces the cutting wheel’s tendency to throw chips. “There are also no double right, double left or parallel sets of teeth that tend to carry and throw material in other systems. This greatly reduces the amount of time operators have to devote to clean-up and reduces the risks associated with thrown objects when compared to other systems,” he adds.
Tool changes are engineered to be quick and easy, Bird explains. “The Dura Disk teeth stick through the holders and through the wheel and are held in place by a nut on the other side. There are no allen-head-cap bolts or gauging,” he says. “Sandvik has used their vast carbide experience to come up with the optimal hardness carbide for our application. By varying the amount of cobalt in the carbide and changing the thickness of the carbide, Sandvik has developed a tool that is extremely durable.”

“They have made the carbide hard to help keep its cutting edge and have made it thick to prevent it from fracturing,” says Bird. “These cutting tools not only last longer than any Carlton has ever tested, but they can also be swapped from one side of the wheel to the other, providing a second cutting edge.”

**Lose the bolts and pockets**

Leonardi Manufacturing Company has developed a complete new cutting system called the M1. “This system uses the patented cutting angles of the Leonardi Tomahawk tooth, which gives it top cutting speed,” says Joe Leonardi. “The M1 also has the first ever patent pending Chip Deflector that redirects and keeps the chips in a neat pile,” he says.

According to Leonardi, the system has a unique mounting style, so “it does not use any bolts or pockets, which is a huge savings in time and money. You can change the entire wheel in less than two minutes.”

The M1 system has also reduced the number of teeth needed. Currently, the typical grinding wheel for a 75 hp machine requires 20 right teeth, 20 left teeth, two straight teeth, 21 threaded pockets, 21 counter bore pockets and 42 bolts. The new M1 Cutting System wheel for the same machine holds 12 of the same teeth with no pockets or bolts required. The M1 mounting system now allows you to be able to cycle teeth from the outer row to the inner row to even out and improve wear.

Leonardi explains that this also greatly simplifies the ordering process and inventory, since one need not order left, right or straight teeth anymore – all teeth are the same. Similarly, inventory costs and inventory management are reduced.

Leonardi also has the first-ever, patent-pending Rock Shock Technology, which is a large rubber shock absorber in the middle of the wheel that helps absorb impact when hitting rocks and debris during the normal cutting process. It prevents the impact from getting driven back into the machine’s bearings, drive train and sometimes, if it is a tow-behind model, the design can also reduce over-the-road effects from your tow vehicle. “All of this amounts to long-term savings,” says Leonardi.

Currently, the M1 cutting system is available in 21-inch, 26-inch, 31-inch and 34-inch wheels. These sizes typically fit most 25 to 100 hp machines.

The M1 Cutting System comes completely assembled from the center shaft or hub and is easy for any dealer or skilled end-user to install. Leonardi says that if a machine is a pillow-block type (a mounted bearing used to provide support for a rotating shaft), it comes ready for bearings and your pulley; or if you have a right angle model, just remove the center nut and pull off your old wheel and slip on the M1 Cutting System, then tighten the nut.

**Hydrostatic drive, Quick-stop wheel**

Kevin Covert, Rayco sales and marketing manager, says his company uses the hydrostatic drive system on most of its stump cutters because it uses fewer belts and pulleys and therefore results in less wear and maintenance. Also, with safety being a concern, especially with high-throughput cutting systems, Covert points to Rayco’s Quick-Stop Cutter Wheel, with slide-lever design, that will stop the cutting wheel in three seconds.

“The main benefit of hydrostatic drives is that the engine can operate on steeper inclines without oil starvation because the engine is not located on the boom of the cutter. Also, the engine is not as susceptible to vibration when grinding. The pivot head
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power is transferred through a hydraulic pump to a hydraulic motor mounted on the stump cutter head,” he explains. With the weight of the engine in the bottom of the machine, it is also less likely to tip on uneven terrain.

In all, Rayco makes 16 models ranging from 13 hp to 275 hp, not all hydrostatic, he notes, such as the 13 hp handlebar model with manual swing arm. However, hydrostatic drive does appear on the 275 hp dozer chassis version.

Eight Rayco models are self-propelled. There is a self-propelled “handlebar” unit that can make it through a 36-inch garden gate and two large track types complete with heat and AC.

Two self-propelled gas and three self-propelled diesel rigs can go through that same garden gate. According to Covert, that’s a huge step forward for productivity because it means more horsepower and more cutting power can be brought to the toughest of backyard jobs. (Another innovation is two- and four-wheel drive, rubber-wheel units that are more turf-friendly and very maneuverable.)

In terms of cutting systems, Covert points to the company’s patented one-piece Supertooth, special in that it’s a one-piece design. According to Covert, “You unbolt one and bolt on another,” with no pockets to deal with, no bending or breaking to be of concern. Plus, he says, the design brings more mounting surface to the cutting wheel, which adds to the stability and overall longevity of the cutting devices.

Track and 4x4 for access

Morbark Introduced four-wheel drive to its D 76 SP stump grinder last year, and now it has made a tracked version of both...
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eight cutting edges, and each is rotatable.

The four-point tooth design features pockets and holders and in turn, minimizes exposure to dirt, which puts less drag on the cutter wheel. Eight cutter teeth are cutting at all times on Morbark stump grinders. It’s been designed as a configuration stump grinding wheel for use on the D 76 and D 86 units that allow them to handle even the roughest terrain.

The 76-inch boom swing arc (86-inch with the D 86) allows grinding more of the stump without repositioning. “With a 95-percent power transfer from the engine to cutter wheel, the unit’s power transfer system rates the most efficient in the industry,” says Morbark’s Dan Brandon. The hydrostatic drive to the cutter head also provides excellent efficiency and torque.

A hexagon-shaped cutter wheel provides for less resistance and friction when grinding through the stump. Flange bearings assist cutter wheel productivity by minimizing exposure to dirt, which puts less drag on the cutter wheel. Eight cutter teeth have four cutting edges each, translating into 32 cutting surfaces. Twenty-four teeth are cutting at all times on Morbark stump grinders.

The D 76 SP 4x4 has a 62-hp, liquid-cooled, Caterpillar diesel engine for a longer engine life, better serviceability and torque. A wide variety of tooth styles available, retention of the single-bolt system and a platform for future work tools (Super Rock, Back Teeth, etc.)

Craft explains the challenge this way: stump cutting involves cleaving vertically stranded wood fibers, acknowledging that just any cutter shape is not very durable for slamming against rocks. Flatter and flatter tooth faces (less rake) become tougher and more durable against rocks, but require more and more horsepower to pull the tool through the cut. A sharply angled cutting edge is called a big “positive rake.”

“With the new cutter wheel, the teeth would permit the operator to optimize the teeth for his application, while maximizing performance (material removal rate) by utilizing the maximum possible rake angles for the conditions (rocks) present, and flatter lower rake teeth on the lead teeth only to the degree required,” says Craft.

Craft says his company’s radially staged cutter wheel assembly theory uses extremely efficient cutters on the inboard positions, and only tough-as-need-be (for the conditions) configurations on the outboard positions.

He says, “The inner cutters on a stump grinder hardly wear at all, even though they are being used, cutting only wood (not rocks) every cut.”

Additionally, he says, the new, virtually smooth wheel side-face all but eliminates parasitic drag of conventional pockets and holders, especially churning through wood chips and debris. The new design provides fast and easy tooth rotation and changing, accommodates an extremely wide variety of tooth configurations, results in a relatively low cost per tooth edge and, ultimately, achieves the objective of maximizing material removal.

Priced to attach

If, at the end of the day, stump cutting is about making money, you need to look at lower operating costs leading to better margins, says Mark Holman, sales and marketing director for ArborWolf. That, Holman says, is a matter of an optimum cutting system.

“The ArborWolf is a unique stump cutter technology that focuses on utilizing existing assets,” he says. “Many tree removal companies sub out their stump grinding because owning a dedicated stump cutter is not feasible because of the high cost of purchasing an expensive, single purpose, stump cutter. Why not adapt a stump grinder to a machine you already own? Attachments are a fraction of the cost of a dedicated stump grinder, and at the end of the day, you have a multi purpose piece of machinery – not something that can be used solely for one function.”

With a relatively low investment in an ArborWolf attachment-style grinder, you can keep the profits on stump grinding to

Miller Machine’s new stump grinding wheel for use on the company’s line of attachment-style stump grinders eliminates pockets and holders, minimizing drag.

Adapting an attachment-style stump cutter, such as Arborwolf’s model AW-1825 shown here, to a machine you already own might make sense for some tree care company owners.
You’re already on the job. Why not grind the stump before you leave and keep those profits as well?”

Mark Holman

They kept improving the design of the blade, eventually building the very first walk-behind stump grinder. In the late 1990s, they premiered the Praxis PRX90 and PRX130 stump machines. “We see them as a perfect balance of power and weight that allows the operator to comfortably and cost effectively remove stumps. Others followed our lead into the new walk-behind market, but the performance difference was significant between our machine and the competition,” Cornelius says.

What allows his machines to work so effectively with a 9 hp and 13 hp engine is the design of the cutting blade. “It slices through the stump as opposed to hammering at it... burning clutches, belts and causing early retirement for engines,” he says. “Additionally, our blades can be changed in about five minutes in the field, which reduces downtime tremendously. Since we have a four-sectioned blade system with 12 carbide teeth, if a tooth breaks, you only have to replace one section of the blade and not the entire blade.

In 2006, US Praxis introduced a 103 pound, 5.5 hp stump machine “that we are having incredible success with,” he says. Cornelius says US Praxis is currently in the process of developing a towable 24 hp, self-propelled stump machine (planned for the fall of 2007) that he expects to greatly reduce vibration as well as help customers reduce the initial investment in equipment.

It’s all about teeth

Just about anyone who has run a stumper has been touched by Border City Tool & Manufacturing, which has provided carbide-tip stump cutter teeth for more than 50 years. Rick Lemaux, plant manager at Border City Tool, says the company’s bread-and-butter is the traditional ½-inch square (shank) tooth-and-pocket, two-piece design. “We are the original manufacturer of stump cutter teeth (for one of the leading brands) and make standard (non patented) teeth,” says Lemaux.

He says the company focused on designing a heavy-duty tooth and kept to the proven, economical half-inch square format, although it did produce a different system with a larger lip for more tooth support for the ½-inch square shank going into the pocket.

Going deep

If you’re into processing stumps big-time, Fecon, manufacturer of the Bull Hog mulching attachments, FTX track carriers, tree shears and saws and grapples, last year introduced the SH140 stump grinder for its track carrier. This 34-inch diameter wheel, with what are described as “90 cutting tools,” draws on 140 hp to 170 hp and creates an 80-inch-wide and 24-inch-deep work zone – sufficient for tough stumps and entire root balls, according to Fecon.

So that’s what is new in stump grinders. Whether you are looking to add a little side business, expand the services you can offer existing customers or start a whole new business on its own, there is a piece of equipment out there that is right for you. Now you just have to decide which one it is.
By Al West, TREE Fund board president

It’s been a goal for the TREE Fund since the fall of 2003 to achieve compliance with the Better Business Bureau (BBB) standards for charities. The 20 standards are tough and many organizations don’t even try to comply because they think they can’t make the grade. But the TREE (Tree Research and Education Endowment) Fund has that compliance goal in our sights.

With our move to Chicago and the hiring of an entirely new staff in the last couple of years, we have been able to substantially reduce administrative and fundraising costs. Our financial statements for 2005 and 2006 show we’ve been moving steadily toward achieving full BBB compliance. Our program expenditures are now at 60 percent of our total expenditures, and the standard of 65 percent is within our reach. After actions taken at our recent board meeting, we can now proudly say that we’ve met nearly all the standards and we’re within striking distance of the last few.

We are working hard to balance the immediate need to fund as much research and education as possible with the long-term need to be good stewards of your donations by assuring the future of the TREE Fund. As you may recall, the Board decided in 2002 to expand the endowment to a minimum of $1 million. To help reduce our reliance on special event revenue, we want to grow our current endowment of $1.1 million to $3 million by 2010, and we’ll need your help to do it.

So in the spirit of those BBB standards and our plans for the future, the Board made a tough decision this year to balance the budget rather than risk our future by spending endowment funds. In recent years, our special event revenue hasn’t kept up with our research grant expenditures. As a result, we chose to use a small portion of endowment funds to maintain our research funding. This action, while well-intentioned, cannot continue. Now we must focus on investing in the future by operating within a balanced budget, supporting research and education grants up to what our fundraising will allow, and continuing to build the endowment.

As a result of this financial self-discipline, funds available for new research this year may be less than previous years unless you increase your support. All 15 Board members have accepted their responsibility to help raise the additional money. We’re all actively looking for new sponsors and donors to help us keep research funding at our traditional levels for this year. And we’ll need even more support for ambitious and exciting new programs on our drawing boards.

The TREE Fund sincerely appreciates its donors’ and sponsors’ contributions of time, talent and of course, direct donations. The need for arboricultural research and education continues to grow and your financial support of the TREE Fund right now will make a real difference.

Hawaii here we come!

By John Lloyd, TREE Fund Board

Calling all golf enthusiasts! The Asplundh-sponsored golf outing to benefit the TREE Fund takes place on the morning of Sunday, July 29, at the Ko’olau Golf Club, just before the official opening of the ISA Annual Conference in Honolulu, Hawaii. This event promises to be a treat for all us hackers to experience!

The Ko’olau Golf Course is carved out of a magnificent tropical rain forest on the windward side of the 2,000 foot Ko’olau Mountain Range. You play in three distinct climate zones that feature winding ravines, extreme elevation changes and breathtaking views of cascading waterfalls. Located on the eastern side of Oahu, this course uses ravines as the target for hole locations.

From the blue tees, this course is one of the toughest in the nation. A scramble format, prizes and, of course, mulligans and the Chicago String Game will make this a fun time for all. Come support the TREE Fund and enjoy this spectacular golf course.

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To register, please use ISA Conference form.

Tree Research & Education Endowment Fund

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Raise Your Hand for Research
9th Annual Gala Auction & Reception

Monday, July 30th
5:30 p.m. – 8:30 p.m.
Royal Hawaiian Hotel
Monarch Room
$20.00 per person

Don’t miss the excitement as we raise money for research and education to advance knowledge in the field of arboriculture and urban forestry. Enjoy complimentary appetizers as you examine more than 100 live and silent auction items. Soak up the sumptuous surroundings of one of Hawaii’s most historic hotels—just a short stroll from the Sheraton Waikiki—as you bid on items that include:

- Handmade Electric Guitar made from urban tree wood
- “Meet Me in St. Louis” conference package
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- Muskie Fishing Trip in Wisconsin
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... and much, much more including tools and equipment, travel packages, and exclusive handmade merchandise!

New this year! Be sure to check out these items and other packages from July 9th to July 29th on our new online auction

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The theme for last year’s TCI EXPO 2006 in Baltimore was “team building.” To my mind this presented a fine opportunity to speak about some important but unsung members of our plant care teams – beneficial insects that help reduce the numbers of pests in our landscapes.

These good guys, predators, parasitoids and pathogens are the three “Ps” of biological control. They are the unsung heroes because their presence and importance often goes unnoticed and under appreciated. For million of years before we arrived on the scene, predators, parasitoids and pathogens prevented hungry, plant-eating insects from devouring the green world. Here is a brief glimpse at some of Mother Nature’s hit squad and the ways they work for us.

One of the underlying principles of both plant health care (PHC) and integrated pest management (IPM) is that we try to maximize the use of beneficial organisms. Natural enemies provide biological control. The goal of biological control is to reduce pest populations to tolerable levels, not to eliminate or annihilate all pests in a landscape. A healthy landscape is one with pests in it. Natural enemies only go where they can find food. You will not find good guys in a landscape devoid of prey needed for reproduction and growth. Some level of pests encourages and helps support the establishment and persistence of populations of beneficial predators and parasitoids. It may seem a bit counter-intuitive, but a landscape with some pests is a desirable goal for landscape managers.

Predators

Let’s look at some of the members of Mother Nature’s hit squad, the three Ps, starting with predators. When you think of a predator, what comes to mind? Most people think of organisms high in the food chain such as lions and tigers. Predators are animals larger than their prey. They will kill many victims in the course of their lifetime. For example, the multicolored Asian lady beetle, *Harmonia axyridis*, loves to spend time off the ground in trees. *Harmonia* was imported in the 1970s and 1980s and released in the southern United States to control aphids on nut bearing trees. Since then, it has spread from coast to coast, border to border, and now consumes billions of aphids every year in the urban forest.

How do you recognize lady bugs, a.k.a. lady beetles or lady bird beetles? First, be on the lookout for eggs. When you see little yellow, spindle-shaped eggs, please leave them unmolested. Small lemon-yellow eggs are usually the next generation of a lady bug. These eggs hatch and out pops a small alligator-like creature called the larva. These demons may devour more than a thousand aphids in their youth before turning into a pupa. From the pupa...
emerges the adult lady bug – an aphid killing machine. Each adult may eat 90 to 270 aphids per day. (An exception to the advice above would be small lemon-yellow eggs on an elm tree. In this case, the eggs may be those of elm leaf beetle and may deserve molestation with extreme prejudice.)

In autumn, Harmonia enter homes by the millions. You may wonder why Harmonia makes itself at home in your home. Back in its native range in Asia, this beetle seeks large, rocky outcroppings in the autumn when prey become scarce. Thousands of beetles aggregate at these outcroppings and find protected crevices and cracks to shelter them during the winter. In many parts of this land, big cliffs are not plentiful, but large houses are. After a summer of eating aphids, they enter homes for shelter. To prevent them from entering homes, caulk, screen and plug every hole you can find in your house. This will help exclude these interlopers and increase your energy efficiency as well.

Arborists sometimes ask “How well do lady bugs really work at reducing pest populations?” Here is one example. A few years ago I discovered a large planting of barberry dripping with barberry aphid. I treated four of the barberries with a systemic insecticide and four others were left as untreated controls. The plants treated with the insecticide were free of aphids after nine days. Surprisingly, the untreated plants were virtually free of aphids just eight days later. What happened? About the time that the insecticide was applied, I noticed fleets of Harmonia lady bugs moving onto the shrubs. Several days later the plants were crawling with hundreds of these hungry predators. These ladies of the landscape took a few more days to work, but in the end, biological control was equally effective as the insecticide at reducing aphid populations. Sometimes biological control requires just a little longer to work.

Some of my favorite predators in the landscape are lacewings. They may be the psychopaths of the insect world. The larva of the lacewing is a natural born killer. It has two big, hollow jaws used to grab an aphid with a classic pincer movement. It has a hydraulic pump in its head and, as soon as it latches onto and aphid, it pumps digestive enzymes into the hapless victim. These enzymes begin to digest the internal tissues of the aphid while it is still alive. How gruesome. The pump is then reversed and the lacewing sucks the fluids from the victim. When the meal is nearly complete, I have seen lacewings lift the carcass of the aphid into the air and twirl it about in a somewhat macabre celebration. After completing development, the larva spins a cocoon on the surface of a leaf and pupates. From the pupa emerges a gorgeous insect with lacy wings and large golden eyes. As a youth, the lacewing is a meat-eater, but as an adult, these beauties eat nectar and pollen. The egg of a lacewing looks like a small grain of rice atop a slender stalk. Anyone who works with plants on a regular basis will see the eggs of lacewings during the months that aphids are active.

Lacewings are important predators of many other insects such as lace bugs and small caterpillars, as well as spider mites. Some lacewings are masters of disguise. While staring at a branch, I noticed a piece of animated lichen on a herky-jerky stroll down the stem. Now, lichens are usually attached to bark or a rock and they do not usually go for a walk. Upon closer inspection, noticed small legs beneath the lichen that propelled it and a set of wicked jaws protruding from the front end. This was the larva of a lacewing. Like their relatives, the green lacewings, these larvae are ferocious predators of many soft bodied insects like aphids and scale insects. In fact, I placed this debris-covered larva on a twig encrusted with oak lecanium scales and the predator proceeded to gobble them. Not only did it eat them, but it also took the empty carcasses of its victims and placed them on its back amidst the collection of lichens, bark-flakes, and other debris. What was the purpose of this? Was it some kind of bizarre trophy collection of a deranged invertebrate killer?

A fascinating study by the famed biologist Thomas Eisner shed some light on this unusual behavior. Most of us know the bug story about ants as guardians of aphids. Aphids provide ants with honeydew, a carbohydrate rich food, and ants protect aphids from insects that would like to eat them. By removing the debris from the backs of the trash collecting lacewing larvae, Eisner discovered that lacewings attempting to enter an aphid colony for dinner were immediately detected by the shepherds, the ants, and tossed out of the colony and sometimes off the tree. However, when the lacewing larvae disguised themselves in debris products made by the aphids, such as wax or skins, they easily snuck past the ants and enjoyed an aphid feast much the same way Æsop’s wolf snuck past the shepherd for a tasty lamb dinner. So, next time you are idly watching the bark of a tree and you see a
Most of the aphids were gone and only fat
pieces of lichen go for a stroll, remember
that looks can be deceiving. You may actu-
ally be watching a tiny wolf in sheep’s
clothing.

Another common group of predators you
often see in landscapes are hover flies or
flower flies. They lift-off from flowers and
patrol vertically and horizontally. They
search vegetation to detect colonies of
aphids. When they encounter suitable num-
bers of aphids, they lay small white eggs
nearby. In a few days eggs hatch and vorac-
ious maggots plunge into the aphid
colony. Flower fly maggots have a moth
hook used to subdue the victim and suck-
ing mouthparts to lap up the blood and
body fluids of the unfortunate aphid.

Several years ago I was working with a
friend who manages a large public land-
scape. We were inspecting crabapples in
spring and discovered many terminals
infested with aphids. My friend suggested
that it was probably time to spray. We
examined several branches and found syr-
phid fly eggs on almost every one. We
decided to hold off the spray for a week to
see what happened. At the end of a week
most of the aphids were gone and only fat
happy maggots remained – another case of
Mother Nature’s hit squad in action.

Parasitoids

The second of the three Ps of biological
control are the parasitoids. Parasitoids are
usually smaller than their victim, which is
called the host. Recall that with predators,
the predator consumes much prey during
the course of its life. Parasitoids often use
just a single host to develop or, in some
cases, a single host can sustain the develop-
ment of several parasitoids. Some are called
endoparasitoids because they feed and
develop inside the host. I often see endopar-
asitoids at work in colonies of aphids.

When you come across a gang of aphids,
mummies and let’s say I find five. That is
10 percent that have been parasitized. Next,
I wait a week, return to the spot, and count
the aphids again. If the rate of parasitism
has jumped from 10 percent to 20 percent
or more, then the ballgame is probably over.
If the rate of parasitism is 10 percent or less,
and predators are absent, you might want to
give Mother Nature’s hit squad a helping
hand by applying an aphid smack-down
treatment of horticultural oil or insecticidal
soap. If your clients are really clever and
curious, you can use this teachable moment
to explain how natural enemies work. They
may become believers and this, ultimately,
can make your job easier.

Some parasitoids develop on the outside
of their host. These are called ectopara-
sitoids. Ectoparasitoids are often the larvae
of wasps and are important in reducing
pests such as white grubs in turf and many
kinds of scale insects. Although the larvae
of both ectoparasitoids and endoparasitoids
feed on insect pests, in many cases the food
of the adult is nectar and pollen.

Pathogens

The third P in our pantheon of Ps is pat-
genous. Pest insects get sick from
microbes such as fungi, bacteria and viruses
just as we do. The most famous and
widely used microbial product in the tree
industry is Bacillus thuringiensis or Bt.
Bt is a naturally occurring microbe found in
soils around the world. It produces a toxic
protein that binds to cells in the insect’s gut,
ultimately destroying the cells. This results
in a rather slow and relatively prolonged
demise of the insect. The three most com-
monly used strains of Bt in our business are
Bt. spp. kurstaki, Bt. spp. tenebrionis, and
Bt. spp. israelensis. Bt. kurstaki is very
effective against caterpillars, particularly
young ones. Bt. tenebrionis is used to kill
the larvae of beetles such as elm leaf beetle.
Bt israelensis is used to kill the immature
stages of flies. Israelensis is formulated as
the Bt dunk that you throw in a pool of
water where mosquitoes are breeding.
These are very good tools for your plant
health care tool box.

Other important pathogens used in bio-
logical control include fungi and nematodes. Entomophaga maimaiyax is a
fungus that was imported from Asia and
released in our forests. For more than a

Flower fly maggots make short work of aphids.

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and attract and retain natural enemies.

of flowering plants that will provide food to diversify it and provide a constant array of the goals of landscape design should be parasitic wasps eat nectar and pollen. One lacewings, flower flies, lady beetles and stages of these good guys eat pests, adult asitoids we visited? While the immature lady bugs, lacewings, flower flies, and par-
opollen, are very important. Remember the types of prey and sources of nectar and accounting, several types of armored scales such as euonymus scale, white prunicola scale and pine needle scale were in outbreak mode. Landscapes that were not on cover sprays or only treated for a few years had virtually no scale problems. Why? We believe that the cover spray approach was poorly timed to kill scales, but very effective in removing natural enemies that helped reduce populations of scales. Without the hit squad in the vicinity, scale populations exploded.

Calling in the pros

We’ve met three major groups of players in Mother Nature’s hit squad. What can arborists do to aid and abet their beneficial activities? Make a deliberate attempt to preserve and protect the hit squad. How do we do this? We can give them habitat that allows them to survive and increase. They need food, places to reside, favorable regimes of temperature and moisture, and habitats that are free of toxic chemicals. Diverse habitats that provide refuges and alternative food sources, such as many types of prey and sources of nectar and pollen, are very important. Remember the lady bugs, lacewings, flower flies, and parasitoids we visited? While the immature stages of these good guys eat pests, adult lacewings, flower flies, lady beetles and parasitic wasps eat nectar and pollen. One of the goals of landscape design should be to diversify it and provide a constant array of flowering plants that will provide food and attract and retain natural enemies.

decade it has successfully collapsed gypsy moth populations in several states throughout Northeast. Another fungus, called Beauvaria bassiana, is labeled for controlling pests such as aphids, mites and caterpillars. Nematodes have been successfully used to control many types of landscape pests including caterpillars such as the iris borer, black vine weevils and white grubs.

Landscapes with many types of plants arrayed as ground covers, beds of herbaceous plants, shrubs, small understory trees and overstory trees provide a rich variety of habitats and food sources that enable many kinds of natural enemies to take up residence and persist. Simple landscapes consisting of just a few types of plants and little spatial complexity are more pest-prone and house fewer natural enemies.

Finally, try to avoid activities harmful to beneficial insects. We have found general cover sprays and blanket sprays to be very detrimental to the natural enemies. They put the “hit” on the hit squad. In landscapes in Montgomery County, Md., we followed residential landscapes treated with cover sprays from four to 17 years. At these accounts, several types of armored scales such as euonymus scale, white prunicola scale and pine needle scale were in outbreak mode. Landscapes that were not on cover sprays or only treated for a few years had virtually no scale problems. Why? We believe that the cover spray approach was poorly timed to kill scales, but very effective in removing natural enemies that helped reduce populations of scales. Without the hit squad in the vicinity, scale populations exploded.

Michael Raupp, Ph.D., is a professor of entomology and extension specialist at the University of Maryland at College Park, and is affectionately known as “the bug guy.”

Several references were used in preparing this article. They include:

The Love of Insects by Thomas Eisner, Belknap Press.

“Do top-down or bottom-up forces determine Stephanitis pyrioides abundance in urban landscapes?” Ecological Applications 16:262–272. by Paula Shrewsbury and Michael Raupp.


Biological Control of Insect and Mite Pests of Woody Landscape Plants: Concepts, Agents, and Methods by Michael J. Raupp, Roy Van Driesche, and John A. Davidson. University of Maryland Press, found at www.agnr.umd.edu/MCE/Publications/Category.cfm?ID=C

The Illustrated Guide to Biological Pest Control, UCIPM, found at www.ipm.ucdavis.edu/IPMPROJECT/ADS/manual_naturalenemies.html

Other excellent Web sites to learn about biological control and the biology and ecology of insect pests and beneficial insects in landscape include:

Bug of the Week
http://raupplab.umd.edu/bugweek/

Biological Control: A guide to natural enemies in North America.

www.nysaes.cornell.edu/ent/biocontrol/

Biological Control Information Center
http://cipm.ncsu.edu/ent/biocontrol/

Home and Garden Information Center
http://plantdiagnostics.umd.edu/#

Insect Parasitic Nematodes
www.oardc.ohio-state.edu/nematodes/

An excellent source of information regarding flowering plants to attract beneficial insects is found at the ATTRA Web site: www.attra.org/attra-pub/PDF/farmscaping.pdf

Information on the effects of pesticides on beneficial insects can be found at the Koppert Web site: www.koppert.nl/c0110.html

and at Russ Mizell’s Web site at: http://biocontrol.ifas.ufl.edu/natural_enemies/Orchard/orchard_pestcontrol_side_effects.htm
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When the membership of the Tree Care Industry Association officially opened enrollment of the new Accreditation program three years ago, supporters and advocates had less-than-modest goals – a transformation of the industry.

And just why did the members believe the industry needed transformation? In researching the problems, successes and challenges facing commercial arboriculture in the new millennium, volunteers, members and consultants discovered that the same critical deficiencies that hampered the industry in 2004 were critical challenges in the industry as far back as surveys existed. What the industry wanted and needed in 2004 were the same things arborists and tree surgeons were looking for in 1984 and 1954 and 1924. They are:

1. More employees who were better trained and better paid
2. Lower insurance premiums, especially workers’ comp premiums
3. Help competing against low cost, low paying, cash-under-the-table employers
4. Assistance running the business side of commercial tree care, from regulatory compliance to personnel management to financial management.
5. Recognition from consumers that tree care is a valuable service delivered by reputable companies

That’s a pretty ambitious agenda – and a lot to expect from one program. Is it working so far? The early indications are a resounding “Yes!”.

Development of the Accreditation program started from a very simple idea: Without fundamental changes in how we look at solving long-standing challenges, the same problems will continue to plague the industry for decades to come. And the solutions should start at the top, with the owners, who can change the attitudes and practices of employees, consumers, bankers, insurance underwriters and government regulators.

There is a right way and a wrong way to run a business. Many in the industry knew what a well run business would look like, they just needed help getting there themselves. As the Accreditation program began and more and more research was gathered, it turned out that most owners were doing a pretty good job; they just needed assistance and guidance to turn good companies into potentially great ones.

Owners of commercial tree care firms want to be able to put more money in their pockets at the end of the year, and they want to develop a workforce that is stable, safe and well paid. Being able to offer health insurance, paid vacations, year-round work, a 401(k) – in other words a career instead of a low paid job with high turnover – means being able to charge customers the true
value of their services and have enough left over at the end of the month.

**Large companies**

It is not surprising, perhaps, that the biggest companies in the commercial realm jumped on the idea of Accreditation early. As national leaders, SavATree and The Care of Trees saw the value for the entire industry in consistent standards of tree and customer care. Both companies entered into the continuous audit program, which guarantees that any branch can be the subject of a surprise on-site audit at any time. Bartlett Tree Experts, which has been on a buying spree since selling its line-clearance division several years ago, decided there was real value in having at least one of its branch offices in each of its divisions go through the on-site audit process. By having them go through the same process and follow the same check-list, they could be more easily integrated in a standardized manner in doing things the Bartlett way.

**Smaller companies**

In many ways, Accreditation offers the most benefit to smaller companies. The system is easier to accomplish for them, since the number of employees that need to be brought along and the scope of policies that need to be established is smaller. In addition, some of the regulatory burden that Accreditation checks is less onerous.

Aside from the largest companies, who are the accredited companies today? Here are some surprising statistics on the average accredited company, not including the large multi-branch companies. (The numbers below are median statistics.)

**Accredited Company Statistics**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of full-time production employees</td>
<td>19</td>
</tr>
<tr>
<td>Total number of full-time employees</td>
<td>27</td>
</tr>
<tr>
<td>Number of lift trucks</td>
<td>2</td>
</tr>
<tr>
<td>Number of forestry body trucks</td>
<td>4</td>
</tr>
<tr>
<td>Number of spray rigs</td>
<td>3</td>
</tr>
<tr>
<td>Number of chippers</td>
<td>4</td>
</tr>
<tr>
<td>Total gross revenue</td>
<td>$2.1 million</td>
</tr>
<tr>
<td>Employees who speak Spanish</td>
<td>9%</td>
</tr>
<tr>
<td>Annual workers’ comp premium</td>
<td>$53,309</td>
</tr>
<tr>
<td>Workers’ comp experience mod number</td>
<td>0.87</td>
</tr>
<tr>
<td>Industry average workers’ comp number</td>
<td>1.00</td>
</tr>
</tbody>
</table>

1. **More employees who are better trained and better paid**

What’s the secret to having employees who are well trained and well paid? It’s no secret, really. Plenty of industries and professions provide a model. Realtors make a lot of money because they provide consistent service for a consistent price. Electricians and plumbers are paid well because their industries – and the government – recognized that the level of hazards and specialization require expensive technical training. As a general rule in free market economies, the higher the level of education or training the higher the pay. The Accreditation program launched from a belief that too often in the past commercial arboriculture accepted low standards and inconsistent training.

Given the difficulty commercial tree care companies have in attracting and retaining good employees, it’s not surprising that the first accredited companies have stressed the human resources value of the program.

“I’ve had challenges finding quality employees,” confirms Robert Props, vice president of Propps Tree and Landscape in Roseville, Calif. “Now I’ve got employees searching me out. I’ve got good employees looking for a good company calling me.”

While recruitment is certainly a benefit, others have found that the teamwork aspect, the building of company commitment, has been important, too.

“It makes the guys proud to be part of an organization that takes safety and quality work seriously,” reports John Eisenhower, president of Integrity Tree Service in Scottsdale, Ariz. “It also helps our small team pull together by gaining recognition that we are doing things right.”

Mike Schoeni, branch manager at SavATree, headquartered in Bedford Hills, N.Y., calls Accreditation “an opportunity to show our employees that we care about making this a professional organization, that we care about their safety and the quality of work we do.”

2. **Lower insurance premiums, especially workers’ comp premiums**

Randy Owen, president of Owen Tree Service in Attica, Mich., absolutely credits Accreditation with saving him thousands of dollars on his insurance bills. Part of the reason is the very simple organizational requirements (for OSHA compliance) and Accreditation fulfillment.

“At our company we were not documenting what safety training we did, when we did it and who was there,” Owen says. “Now, we document all safety and training programs and we reap many benefits, such as OSHA compliance. And, we reap large savings on our insurance premiums and renewals.”

Erich Schneider, president of Schneider Tree Care in Greenville, S.C., gives direct credit to Accreditation for his lower premiums. When his insurer came to do an audit of his company, “I could answer all of the questions about [best business practices and safety programs] to better than their satisfaction.” Schneider’s modifier rate has gotten lower each year after Accreditation, “because we follow the right procedure and we set the bar higher.”

“During the quoting process it was learned that Schneider Tree Care, Inc. is an accredited member of the Tree Care Industry Association (TCIA),” says Patrick Rhyne, ARM, safety management specialist for Selective Insurance Company of
America. “Our survey process revealed a high level of professionalism, employee training and continual emphasis on safety within the company. It was imperative to us that they have all aspects of safety incorporated into a formal safety program. They have done an outstanding job abiding by OSHA and ANSI standards as noted by their documented training records, low accident rates and loss history experience.

Many companies say they have a safety program but lack in the actual execution, allowing it instead to lay dormant. By having implemented an active safety program, including formal employee training sessions and employee accountability, a high degree of comfort was established in regard to Schneider Tree Care’s control of hazards and exposures. This resulted in providing them with the coverage and services they needed for insurance protection at a competitive price.”

Insurance companies are in business to make money, of course, and one way they do that is to skim the cream off the top in finding companies to insure. The goal is to let other insurers write policies for the companies that have more accidents. And insurers are using Accreditation to find the best risks, allowing them to charge less.

“Workers’ compensation is one thing,” confirms Michael J. Rook, vice president at Summit Insurance Services, Inc. “General liability, automobile and property insurance are expensive, too. Companies that go through Accreditation have safety programs in effect and controls in place to mitigate those losses. They will get better consideration and be afforded better rates.”

The documented push for safety is helpful in shopping for insurance, and it also gives companies an outside source to motivate employees to follow company safety regulations. No employee wants to be the one who costs a company accredited status. And having an outside, independent auditor confirm exactly what safe practices are reinforces what a company’s safety trainer has been telling employees.

“It gives us one more reason to push employees to comply with safety and tree care standards,” confirms Schoeni.

3. Help competing against low cost, low paying, cash-under-the-table employers

In competing for municipal work, the only way companies can compete is to offer a better deal. The most common way to offer an attractive deal is by cutting corners. In doing so they naturally lose out on quality and safety. When municipalities are competing for work, the one with the best deal is not always the lowest bid. The leading municipalities are rapidly recognizing that they have to look beyond just the cost of doing business.

The impact of that preference is just starting to be felt nationwide, as more and more cities and towns sign on to the SMA program.

John Richards, owner of Tree Care Enterprises in Rockford, Ill., has already seen the results first-hand. In bidding on a municipal contract recently, he found out that the other bidders couldn’t meet the city’s requirements in terms of safety programs and credentials. “The other bidders couldn’t match the terms of the contract,” he says, “so the city was willing to pay about $70,000 more (annually) to us.”

Accredited companies that don’t do much municipal work are finding that the credential is helping them land high-value work elsewhere. Whether the potential client is a commercial property manager or a high-end homeowner, the reliability, competence and professionalism that comes with Accreditation sets those companies apart in the marketplace.

“Trying to separate us from the other 300 plus tree companies in the area” is his biggest challenge, agrees Props.

“Accreditation separates us from the competition by proving that we are leaders in our industry with the backing of TCIA.”

And those leaders tend to charge more. “We don’t profess to be the cheapest,” admits Richards. “In fact, we are probably the most expensive in town. Busy people making good money want to know they can trust somebody to show up and do the work.”

4. Assistance running the business side of commercial tree care, from regulatory compliance to personnel management to financial management.

Some of the requirements and assistance under this area are government mandates, some are best business practices from financial analysts, and some are the collective recommendations of TCIA members. The list includes a business plan, accounting and financial management best practices, ethics standards, consumer complaint resolution policies, proper insurances, a long list of personnel policies and paperwork requirements, quality control safeguards, safety and regulatory compliance requirements, and a high standard for a professional image.

Even the most profitable and professionally run companies found gaps during the audit process.

“We knew the auditing process was going to be pretty rigorous,” relates Scott Jamieson, president and CEO of The Care of Trees in Wheeling, Ill. “We knew it was going to find some things to make us better. It did.”

The discovery of gaps does take some work, and closing those gaps may take more. In the end, owners have found that having secure and reliable systems in place frees them to stop running around putting out fires and focus on more important things.

“Accreditation has put a lot of the nuts and bolts of business together to where it gives me a stronger foundation for operating the business without having had formal business training,” notes Robert Mead,
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president of Mead Tree & Turf Care in Lisbon, Md.

John Richards, owner of Tree Care Enterprises in Rockford, Ill., knew he had to become accredited to get out of day-to-day operations.

“I wasn’t out selling, which is what I like to do,” he says. Instead, he was running the office and handling personnel. “I was just winging it,” he admits, “and I’d solve problems by giving in to everything. Having written policies in place has taken things out of my hands.”

While Accreditation has advanced the business side of operations for smaller company owners, it has served as a way to motivate far flung branch managers of the larger companies.

“I looked at Accreditation as a challenge to our management team to be worthy of independent, outside evaluation,” relates Daniel Van Starrenburg, president & CEO of SavATree. All of their branches are accredited.

5. Recognition from consumers that tree care is a valuable service delivered by reputable companies

The power of the Internet, where high-value clients search for companies, continues to grow. On TCIA’s Web site, Accreditation continues to be the most requested page after the home page. In just the 30 days between May 12 and June 12, there were 5,998 “page views” on the main Accreditation page and 2,628 prospective customers clicked on the Accreditation map.

Other Web sites and organizations are starting to assist consumers in finding reputable companies. And the word about Accreditation is starting to spread. The Better Business Bureau, for example, has a brochure entitled “How to Choose a Tree Care Company” that specifically lists TCIA Accreditation as one of its “Indications of Professionalism in tree care.”

According to Randy Finch, owner of Finch Tree Surgery in San Gabriel, Calif., the Pasadena Beautiful Foundation, in cooperation with the City of Pasadena, maintains on their Web site a list of accredited companies that gained the credential “through an audit of their adherence to industry standards, maintenance of trained staff, and dedication to quality business practices.”

Summary

More employees, lower insurance premiums, help competing against low bid companies, business and regulatory assistance as well as an improved professional standing with the government and consumers. Problems solved, all in three short years? Not yet, but accredited companies are further down the road than their competitors. The gap is widening every year.
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A competent OSHA Compliance Safety & Health Officer (CSHO) can spot one or more violations on your crew from 100 yards away. These very visible offenses can be deemed “serious,” in other words, they could result in death or serious injury to an employee. As such, they carry relatively steep penalties. One employee could represent multiple infractions and multiple fines. This class of violation is the most common kind one encounters in tree care.

What are we talking about? Failure to use personal protective equipment, or PPE. PPE violations may be cited under several OSHA standards, depending upon the type of PPE that is lacking and whether the operation cited is in an area with federal OSHA jurisdiction. The most common citations come from “Subpart I – Personal Protective Equipment.” This group of standards are identified by the numbers 1910.132 through 1910.138. Other standards to be aware of include 1910.95 for hearing protection and 1910.67 for fall protection in an aerial lift.

So let’s say that an OSHA CSHO happens to be driving by your work site and observes your bucket operator with no PPE whatsoever. It is an easy three point citation that will probably cost your company between $2,000 to $4,500.

In addition to fall protection, the other violations that are easy to spot and easy to make stick are head protection and eye protection.

Now the burden of proof is upon you to show that the employee knew better by virtue of your safety policy and training, but chose to be “willfully negligent.” To have this citation vacated and escape the fines, you had better be able to prove that your policy required PPE, that PPE was provided, and that employees were trained in PPE use and maintenance.

You may even need to show that your company had disciplined employees for infractions in the past, because after all, what good is a rule if it isn’t enforced?

By now the CSHO is out of his car and talking to your employees as he inspects the work site, something that he is perfectly within his rights to do if he spots an imminent danger. With just a little more investigation, he is likely to discover that there is no evidence of a written certification of hazard assessment, and write your company up for that as well.

What he wanted to see was a brief statement detailing the hazards of the work site and the PPE that had been provided to protect from said hazards. It could be something as simple as a fill-in-the-blank statement on the work order.

How long does your crew have to work to recoup $2,000 to $4,000 in lost profit? Implement a PPE program. It is easy, it is the right thing to do for worker safety and it is a good way to avoid further scrutiny.

Peter Gerstenberger is senior advisor for Safety, Compliance & Standards for the Tree Care Industry Association.
Letters

(Continued from page 47)

person should never allow the climber to be on one side of a branch and the ball on the other side.

Mr. Webster’s third concern is: “The shackle rubbing on the cable causes wear.” I think that any wear caused on the cable by a 200-pound climber hanging on the shackle would be negligible. It certainly could not be more wear than is caused by the cable turning over the pulley at the end of the boom or rotating around the spool at the base of the boom while there is a several thousand pound piece of wood hanging off of the hook.

Finally, Mr. Webster suggests:

“It would be safer to disconnect the ball, install a master link and re-install the ball back on to the cable. These master links come in many different shapes, sizes, and configurations to meet the needs of the climber. The master link, a solid ring, has no chance of coming undone! The rule is ‘keep it simple.’ The more links in a system and the more complex a system is, the greater chance something can go wrong.”

He does not state whether or not a false crotch is to be used with the link. I understand him to mean that a false crotch would be threaded through the master link and the climbing line would then be threaded through the false crotch and not directly through the link. But, his comment to “...keep it simple...” makes this interpretation uncertain. If Mr. Webster intends for the climbing line to go directly through the master link, then I would not allow this system. But, if he intends that a false crotch is to be used, then this is a valid option and might work well for companies that own a crane. When renting a crane, however, this procedure adds extra time to both install and then remove the master link. A shackle can be installed, secured, checked and re-checked much faster and more easily than the ball can be disconnected, reconnected, checked and re-checked.

Also, Mr. Webster’s suggestion to use a master link contradicts part of his argument against the use of a shackle. A master link does not solve what he listed as two of the problems with a shackle, i.e. that a master link can still ride up the load line, and a master link will cause the same amount of wear as a shackle.

Once again, I would like to thank Mr. Webster for reading the article and taking the time to write and submit his comments. I hope that this response has adequately addressed each of his concerns. If the tie-in techniques are used as described in the text and depicted in the Figures, then these techniques are safe, secure and efficient ways to use a crane to hoist a qualified arborist.

Call back

The photo on page 14 of the June issue of TCI lacked a photo credit. The photo of Andersonville National Cemetery in Georgia was by Fred Boyles of the Andersonville National Historic Site.
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Please circle 55 on Reader Service Card
In 2004, I was at the ISA International Tree Climbing Competition with a pair of binoculars and a notebook diligently diagramming the climbers in an attempt to unlock as many of their secrets as possible. I knew by the end of the day this could take me where I wanted to go in arboriculture. What I didn’t realize at the time was that I was watching my future climbing partners in their early days.

As I look back, I am amazed at how far that competition has taken me professionally and am glad that my wife told me “you could do this.” Since then, I have been a judge, technician, chairman, and now a competitor. Every day I get to work and train with two champion climbers; their knowledge and experience has been invaluable to me.

While serving as chairman for the 2006 Tennessee Climbing Championship I was charged with recruiting competitors and sponsors—personally calling over 100 companies statewide. Although the competition was successful and many tree companies participated in this event in one form or another, I was surprised by the number of tree company owners who discredited climbing competitions as a waste of time and resources. Concerned about the lack of enthusiasm from these particular companies, I feel compelled to share with all those in the arboriculture field how you can become more profitable through competition climbing.

Competitions increase a climber’s desire to perform efficiently, which in turn improves a company’s productivity. These organized events build confidence, boost morale, and increase production skills. Regular participation can help develop routines for risk assessment, work planning and setting a pace on the job. Novice climbers will grow exponentially watching climbing competitions are excellent venues for practicing and reviewing safe methods for working, as well as answering questions regarding appropriate work habits.

Climbing competitions increase a climber’s desire to perform efficiently. These organized events build confidence, boost morale and increase production skills.
experienced climbers. Veteran arborists can connect small pieces to the larger puzzle when they interact with colleagues and discuss the rapid advances in industry equipment and innovation in techniques. I am always more enthusiastic at work after a competition, batteries recharged and ready to test drive the newest methods. The training leading up to an event keeps climbing fresh on an arborist’s mind, while improving both the person’s health and skills.

Safety is always a major concern for any tree care company and climbing competitions are excellent venues for practicing and reviewing safe methods for working, as well as, answering questions regarding appropriate work habits. Competitions are set up to mimic real work situations; they begin with a thorough gear inspection, have an aerial rescue event (both of which should be occurring regularly on the job), and have a work climb. During the events penalties and sometimes disqualifications are issued for unsafe practices. This makes employees aware of unsafe techniques and faulty equipment climbers use every day without even being aware of the danger involved.

For those who consider competitions as a dangerous risk for their employees, the incident rate at these events is low (much lower, in fact, than actually performing tree work) and those that do occur almost always result in positive rule changes and, in some cases, ANSI Standard updates. If a new technique is deemed questionable, experienced judges on site carefully examine it to decide if it is safe and appropriate to use. Numerous innovations and techniques have been developed or discredited at competitions.

An owner’s goal is to be profitable and by simply attending or, better yet, participating as a volunteer, you gain numerous advantages over your business competition. I was able to forge many valuable relationships with vendors who supply equipment, key figures in the industry, along with tree company owners and other...
Climbing competitions are great opportunities to learn, practice and network with others in the industry - all of which can provide benefits for the participants' employers.

The atmosphere of competitions makes it easy for all involved to discuss how to overcome challenges and to speak to your business competitors on neutral ground about their operations. Building these relationships can lead to cooperative efforts for much needed industry changes in the areas of regulatory legislation and insurance.

Your company as a whole can benefit by having a strong presence at competitions. Branding your company is tough, but is critical to your success. Many times local media will show up for stories and interviews giving you opportunities to get your name out there. These events are free to the public affording your company endless opportunities for advertising to a broad spectrum. I have known several companies that show up and give away their shirts or other items promoting their company. Event sponsors can set up displays on site and speak directly to prospective clients.

Everyone involved in a tree company can gain something valuable by attending tree climbing competitions. The camaraderie at these events is outstanding, all are welcome and everyone is willing to share their knowledge and experiences.

Keith Pancake works for Poteet Tree Service in Nashville, Tennessee. He has no climbing titles (yet), in this his rookie season.
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Arbor Talk isn’t like any talk radio show you’ve ever heard. At first, it sounds like two guys just shooting the breeze, but that’s before its co-hosts, Ken Six, owner of Treescapes by Six, Inc. in Houston, Texas, and Peter Felix, owner of Tree Health Management in Long Island, New York, start talking about trees.

Their guests are usually arborists too, invited to share their expertise on tree care, or their take on news stories about trees.

Six came up with the idea. “I got tired of driving around and seeing improper pruning,” he says. He also got tired of hearing misinformation about trees on radio call-in stations. The last straw came in 2002. “I was watching HGTV, and they had a horticulturist talking about trees,” Six says. “On HGTV, I felt that trees weren’t getting the respect they deserved. If plants were getting their own TV show, trees needed one, too.”

Beginnings

Six’s first inspiration was to create and host TreeTV, a Web-based TV show, in 2003. He found high-school students to shoot the video. Then arborists started sending him videos they’d taken.

He covered trees, tree planting, tree diseases. He flew to Southern California and reported on the tree situation in Lake Arrowhead a year after a fire there. He interviewed the mayor of Woodville, Texas after Hurricane Rita blew through. He put a developer in the hot seat after a listener warned him that the developer was planning to bulldoze 400 trees in order to build some high-end stores.

In June 2006, Six started his radio show, Arbor Talk, which is also Web-based.

There are distinct advantages to having a TV or radio show on the Internet, he says. “The Internet gives you exposure globally.

There are people in over 100 countries that at one time or another have checked the show out.”

Listeners can hear the programs live if they’re at their computers when they air, Six says, but this is where the Internet has another advantage over regular radio.

“The show is always accessible. A lot of people are up in trees, and diagnosing trees when the show is on. They can’t get to their computers. Instead, they can go to the archives and listen to shows whenever they like.” They can also download the shows and listen on their iPod or MP3 player.

Radio beginnings

Just before Six’s first radio show, the elm tree on the White House grounds that’s pictured on the back of the $20 bill fell.

“I thought, we need to know about this,” Six says. He called Lew Bloch, a consulting arborist and landscape architect, who happened to be in Washington DC at the time. Bloch gave a first-person report of the damage on the show.

One of the biggest changes on the show began the day Peter Felix was a guest, Six says. “We hit it off and I asked him to do the show together.”

Coincidentally, Felix had thought about doing a radio show about trees himself. “Out of the blue I got an e-mail from Ken,” he says. “I went on as a guest and the rest is history.”

Although the two men come from virtually opposite ends of the country – which comes across clearly in their voices – they sound like old friends. “We have the same ethics, ideals and vision,” Felix says. And of course, the same love of trees. Both men are members of TCIA and have more than 50 years of tree care experience between them.
From coverages such as pesticide and herbicide application to workmanship errors, our experience and knowledge of the arborist industry enables us to offer you the tailored, comprehensive coverage you need. To find out more, contact your local Hartford Agent or visit mb.thehartford.com/treecare.
Not everyone had faith that Six’s inspiration would succeed, he says. “At first, people e-mailed me and said, ‘What can you talk about?’

He’s found more than enough. In fact, he says, he and Felix have expanded the show to two hours. “There’s so much going on with trees,” Six says. Both he and Felix look online for interesting news stories about them. They usually find between ten and 15 from around the world every day. To prepare for a show, they discuss ideas, find out a little background information about their guests, and prepare some questions.


There’s an endless supply of guests, Six says. They’ve had people with PhDs, and one of the authors of the book, Landscaping for Dummies. Andy Felix, Peter’s brother, who is also an arborist, talked about equipment on the show.

They’ll also begin interviewing vendors, Felix says. “Ken and I want arborists to trust us to ask the questions they would ask.” The vendors can promote their sales and models, but he and Six will only endorse the materials they use themselves. They’d like see the show include nursery and landscaping people as well.

Another way the show has evolved, Six says, is its audience. At first it was geared toward property owners. “People care about their trees,” he says. “When people first came here from Europe, the first thing they saw was the trees. It’s our heritage.”

Although homeowners do call in and e-mail, so have people in the green industry. Now, Six sees the show as being especially for the tree care industry, “kind of like Tree Care Industry magazine,” he says. They’re hoping arborists will look at it as a forum.

They spread the word about the show through e-mail reminders. Guests tell their friends they’ve been on it.

“You wouldn’t believe the responses,” Six says. There are between 2,000 and 3,000 downloads a month of the current and archived shows.

The station arranges professional commercials, including one for the National Forest Service and another with a Jerry Seinfeld voiceover. The show also has sponsors. Felix says, “TCIA has been gracious enough to sponsor us. We’re looking for more sponsors.”

This isn’t a money-making venture, Six says. “When you have a passion for something, you don’t think clearly in financial terms. It’s just something you have to do. I stumbled into the tree business 32 years ago. Trees have paid for my house and my kids going to college. It’s me giving back.”

The next major development is that arborists who listen to Arbor Talk will be able to get CEUs (Continuing Education Units), Felix says. TCIA members will be able to use them for their CTSP (Certified Treecare Safety Professional) credential. ISA members can take a 10-question test on what the week’s speaker had to say and get half a CEU credit per show.

“We knew America and the world needed Tree Radio,” Six says. “It’s like a voice whispered, ‘Start a show and the listeners will come.’”

Felix adds, “It’s been a blast to do. It absolutely makes my week.”
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Erik Johnson is 100th to earn CTSP credential

In March, Erik N. Johnson of Nels J. Johnson Tree Experts, Inc. in Evanston, Illinois, became the 100th participant to receive his Certified Treecare Safety Professional (CTSP) credential. Other than, as he noted, having an easy certification number to remember, he doesn't get anything else for being number 100, so we used the occasion to ask him a bit about the program and how he hopes it will help both him and his company.

Name: Erik N. Johnson
Age: 33
Job title: General Manager/Chief Operating Officer
(His grandfather, Nels Joel Johnson Sr., founded the company in 1930, and Erik's father, Nels Joel Johnson Jr., and uncle, Karl Johnson, own the company now.)
Other Certifications: Certified Arborist

Years in the business: About 20 years part time, full time for the last 10

Q: Why did you enter the CTSP program?
A: Our industry is, in the day-to-day routine, a dangerous business and safety is coming to the forefront of this line of work—nationally, with insurance companies and as recognized by TCIA.

In a lot of cases, it's something that can either make or break the business. It filters down through the employees. If the employees get the impression that you're dedicated to safety and making sure that they come home at night, they're happier, they work better, they're more productive and, most importantly, they're safer. Out in the field they're working with new climbing techniques, new tools, gear, etc., and when they see that management is behind them in these efforts, especially in safety, it just boosts overall morale. When we heard about this we definitely wanted get involved with it.

Q: Can you say what you thought of the training—was it what you expected?
A: Being one of the first to get involved with it, I really didn't know what to expect. After the semi-hour in Chicago, I thought it was very valuable as far as getting owners and employees to focus more on incorporating everybody into the safety process, making it a culture of the business rather than a dictatorship, you know, 'Listen, this is what you have to do because we're required by law.' This program segues into making it more of a team effort, something that we're not doing because we have to, but because we want everyone to be safe.

Q: Can you tell me about the process; was it tedious, interesting, etc.?
A: It was very interesting. Rather than specific technical skills or practices, it took a different angle. It wasn't the nuts and bolts of how to do a particular task; it was more 'how can we get everybody on board with this? How can an employer get their employees to buy into this so that it is something you almost don't have to think about, more of a team effort?'

Q: Can you tell me one or two things you learned in the training?
A: One of the things it teaches is that when you get employees to participate in the training sessions they are more apt to buy into it. Instead of someone standing up in front of you or even out in the field showing you something, it is more a rapport that you build with your employee. It incorporates people to get up and either try it or talk about it, everyone from your foreman down to the ground technicians. It gets everyone more involved, which is new. So far everyone's been loving it.

It also made me think of safety in a different light, in that I don't have to stand up in front of the guys and point at the board and say, 'This is what we've got to do — boom, boom, boom. Any questions?' This is a new way of looking at safety and getting people involved with it. It opened my eyes to a different way of incorporating the entire company into getting on board with this culture of safety.

Q: How do you expect to use this at your company?
A: We average 50 to 60. Several are certified tree workers and several are involved in becoming certified arborists. They all got excited because they get The TreeWorker magazine, so they've heard about the CTSP and when they saw that I got my certification they were all excited for me and asking how they can get involved with it.

Q: Are you planning on putting anyone else through the program?
A: Oh, yeah. Definitely.

Q: Would you recommend CTSP to others?
A: Absolutely. I think it helps in becoming an accredited company, which we are striving to do. It is also something we plan to use in our marketing and advertising.

More CTSP workshops scheduled
To meet the demand, the following CTSP workshops have been scheduled:
August 22-23, 2007, San Jose, Calif.
September 28-29, 2007, Baltimore, Md.
November 6-7, 2007, Hartford, Conn.
To learn more about CTSP, contact TCIA at 1-800-733-2622 or via www.tcia.org, or e-mail peter@tcia.org.
It's only the tip of the iceberg...

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TCIA Speaks to OSHA at Safety Summit

Because of successive budget cuts, OSHA has been forced to reduce or eliminate certain activities. One area they have drastically cut back is training for their own personnel, a move that probably seems counter-intuitive to anyone in the private sector.

- The safety justification for crane use in arboriculture
- Aerial lift fall protection
- Safe operation and maintenance of brush chippers
- Refining the terms used with, as well appropriate use of, arborist climbing systems

Gerstenberger closed each meeting by discussing the significance of TCIA's Certified Treecare Safety Professional (CTSP) program and company Accreditation to increase safety. OSHA personnel from Maine in particular were very receptive to these concepts and brought up how that state's Certified Logger Professional (CLP) program had been effective in lowering workers comp mod rates. The attendees questioned if TCIA programs would provide that same benefit. Gerstenberger responded by saying that over time it was our anticipated intention that the programs would have this effect, and that TCIA was tracking these issues.

These opportunities allowed TCIA to make observations about OSHA that may be significant to members in various parts of the country.

First, because of successive budget cuts the agency has been forced to reduce or eliminate certain activities. One area they have drastically cut back is training for their own personnel, a move that probably seems counter-intuitive to anyone in the private sector. In fact, Gerstenberger was informed that Region 1 and Region 8 (Rocky Mountain states) were the only two to sponsor this type of training.

Second, there seems to be a culture shift underway in the agency, away from the hard-line approach of fining employers by the letter of the OSHA standard, and in the direction of being receptive to guidance from sources like Z133. There may be several reasons for this. A key driver seems to be personnel changes and limited resources that restrict OSHA's capacity to promulgate new standards.

The new Z133 standard is available in Spanish

New standard for safe work practices

The 2006 revision of the American National Standard for Arboricultural Operations - Safety Requirements (ANSI Z133) is now available in Spanish. ANSI Z133 contains the industry standards for safe work practices. Adhering to the American National Standards for tree care helps make you an expert in the eyes of clients and authorities, such as your local municipality. ANSI standards are recognized as the final authority in the United States civil court system.

The Z133.1 safety standard undergoes review and revision on a five-year cycle. For the 2006 standard, all sections were completely rewritten and updated, and a new section was added to address safe use of equipment-mounted winches. In addition, safety requirements for ropes and climbing equipment, cabling, rigging and pesticide application have been included.

You and your crews need to be aware of the many significant changes made to Z133 since its last revision, in 2000. First available in English last August, the updated Z133 is now available in Spanish. To order, call the TCIA at 1-800-733-2622, or shop online at www.tcia.org.
The Tree Care Industry Association recognizes our 2007 Partners Advancing Commercial Tree Care. Their strategic partnership with TCIA supports our journey to Transform the Industry.

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Helping to build a stronger marketplace can have significant benefits for your company. To learn about the many branding and marketing opportunities available, contact Deborah Johnson, Director of Development; johnson@tcia.org or call 1-800-733-2622
A 6-inch tall tree? Researchers demonstrate way to control height

Forest scientists at Oregon State University have used genetic modification to successfully manipulate the growth in height of trees, showing that it’s possible to create miniature trees that look similar to normal trees – but after several years of growth may range anywhere from 50 feet tall to a few inches.

This is a “proof of concept” that tree height can be readily controlled by genetic engineering techniques. It opens the door to a wide variety of new products for the ornamental and nursery industries, experts say, if regulatory hurdles can be overcome – a big “if.”

The findings were recently published in the journal Landscape Plant News.

“From a science perspective, this is a very interesting accomplishment and there’s no doubt it could be made to work,” says Steven Strauss, a professor of forest science at OSU.

“But further development may be precluded by social, legal and regulatory obstacles,” he says. “Clearly there would be concerns whether the market for specialty tree products such as this would be strong enough to make it worth the large investments of time, money and testing that current regulation of genetically modified organisms would require, at least in the U.S.”

That aside, he says, it appears that with further research and development programs, it would indeed be possible to create an elm tree – which ordinarily would grow to 100 feet or more – that is only five feet tall at maturity, a charming addition that would fit nicely on a backyard deck. Or a 30-foot version that might be a better fit on urban streets. Or, in fact, just about any height in between. Other changes can also affect foliage shapes or color in very attractive ways, and some might have value in cleaning up environmental pollution.

In their studies, OSU scientists were able to create young poplar trees, which grow rapidly and can reach a mature height of 150 feet or more, that were anywhere from about 15 feet to a few inches tall after two years of growth. The smallest of them could be difficult to even find, tiny little “shrublets” among the flowers in the field site.

The manipulation of height growth was achieved by insertion of certain genes, mostly taken from the model plant Arabidopsis, which inhibited the action of a class of plant-specific hormones known as gibberellic acids. These compounds are also used as sprays to control the size and fruiting of orchard trees. In trees, the compounds promote the elongation of plant cells – when they are inhibited, the cells do not fully elongate, and plants remain short and stocky.

“It’s really interesting that these genes from Arabidopsis, which is a small plant in the mustard family, have been conserved through 50 million to 100 million years of evolution and can perform more or less the same function in poplar trees,” Strauss says. “The modified trees themselves look pretty much normal, just a lot smaller, and a little more compact or bushy.”

Altogether, the researchers used seven distinct kinds of genes and more than 160 different types of genetic insertions to create about 600 genetically modified trees. All caused decreased signaling by gibberellic acids. They were grown in the field with USDA approval, and assessed several times for variation in size and appearance.

Other than reduced size, there appeared to be striking variation in foliage color and leaf shape, some of which might have significant ornamental value. Root development also appeared to be very strong, which might provide increased stress tolerance and have value where extensive root development is needed, such as in bioremediation of polluted soils or in very windy, limited soil moisture situations.

From an environmental viewpoint, the researchers said, dwarfed trees such as this are unlikely to be any kind of threat to spread, because they would compete very poorly with normal or wild trees. In virtually all tree species, low height is a disadvantage as trees compete for sunshine. Another possible value, from that perspective, is that this trait might be used

TREES CARE INDUSTRY – JULY 2007
The initial studies were done with poplar. Similar results should be possible in any tree species, but are limited by the lack of research into gene transfer methods for most ornamental and forest trees. However, usable methods are already available for sweet gum, elm, black locust and pine. The current successful modification with poplar could be just “the tip of the iceberg,” the researchers say in their report.

The research was funded by the U.S. Department of Agriculture.

Dwarf trees and crop plants created with traditional cross-breeding or horticultural techniques are already widely used in fruit trees, the ornamental tree industry and agriculture.

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tree care industry – july 2007
The longer I work in the green industry the more I realize just how much trees, while very different, have similarities to us. By relating these similarities to our human make-up, perhaps we can learn to better care for these sentinels of the plant world.

Take for instance the human body – with the life-supporting internal organs functioning within us – hopefully balanced to keep us in optimal working order. Then relate that image to the tree. The first thing we see is the beautiful structural form of an oak, or the blazing fall color of the tupelo. We fail to realize the internal structure or complex life function that goes on belowground. Perhaps we should ponder this more.

Water is life sustaining. Trees need water to survive as we do. How much is a problem that, in terms of too much or too little, is the most prevalent cause of tree demise in the landscape.

When you plant a tree in the ground – you become a caregiver. When planted properly, a tree has a pretty good chance of survival if it is watered properly. And while it can’t cry like a baby to let us know it’s in need, it will show signs of lack of subsistence. Leaf color will first dull to an off color and lose its sheen, then it will start to brown and crisp on the edges.

Hot windy weather has the same effect on trees as it does on us. You know how the hot winds tend to parch us out, causing dry eyes and chapped lips. Remember that next time you’re inside the house to avoid the elements. Water needs on trees can rise up to 50 percent or more during windy periods. So, in effect, you may want to turn on the irrigation system and let it run for a bit to compensate for the extra demand.

Mulching the ground is the best thing you can do for a plant. You know how comforting a warm down blanket is for us on a cold night – if trees could show emotion they would indeed turn up their branches and smile for your spreading a layer of mulch beneath them. Mulch moderates soil temperature, holds in moisture (diminishing application by 30 percent or more) and provides organic soil improvement.

We have control over our nutrition to an extent trees do not. In their natural environment, trees are there because they are supposed to be. The supporting environment provides them with everything they need to live a harmonious life in terms of soil moisture and soil composition. When we plant a tree from the nursery, we are taking a species from another environment and requiring it to thrive in what we have to offer.

Most will do fine – a testament to the adaptability of trees. And it is true that most soils, especially clay types, are usually rich in potassium and phosphorus, although nitrogen may be lacking at times. There is a tendency to over fertilize. Plants will let us know if they are lacking in nutrients by abnormal leaf color and patterns in the leaves. If a plant looks healthy, it is better to leave it alone, since an over fertilized plant can make it prone to problems.

In closing, by relating ourselves to the plant kingdom, perhaps we will become better caregivers to these needy creatures. Next time you’re out in your garden or landscape you are caring for and you feel the need for a drink or your belly growls for a bite to eat – think of your trees.

Rod Whitlow operates a landscape design firm and is a garden writer and photographer in California.

From the Field

Trees are like people

By Rod Whitlow

This Quercus macrocarpa, burr oak, is in front of the author’s house - about 30 feet away. “Fastest growing tree I have ever seen - quicker than the sycamore. It has largest acorns of any oak and huge leaves and is native to mid-west, I believe.” The photo was taken by the author with a fisheye lens.

TCI will pay $100 for published “From the Field” articles. Submissions become the property of TCI and are subject to editing for grammar, style and length. Entries must include the name of a company and a contact person. Send to: Tree Care Industry, 3 Perimeter Road, Unit 1, Manchester, NH 03101, or staruk@treecareindustry.org.
BACKWOODS OR BACKYARD.
WE’LL BE THERE.

No matter what the terrain or location, Vermeer has a brush chipper and stump grinder to meet your needs. Our equipment includes industry-leading features that help increase productivity and worker safety, and we back it up with a worldwide dealer network. When it comes to tree care, look to an industry leader – Vermeer. Call 1-888-VERMEER or visit Vermeer.com.

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SAVE 2/3 of GRASS SEED WAIT DAYS?

Example - Maryland State Highway Dept.: one week vs. three

- OR – as U.S. civil service head groundsman said: - “We’ve never seen grass up so fast! Now 3 or 4 days from sowed seed routinely!”
- Used by U.S. Air Force to control dust on dirt flying fields, World War II.
- Tested, bought, taught, used for turf, plants, trees, by a great number of state university campuses, over 65 years.
- Cut golf greens closer, “like glass”- still healthy.

HOT or COLD • DRY or WET • Another “making impossibles easy” When 115° to 122° daily in Palm Springs, Calif.

“SUPERthrive™ kept all our greens uniformly thick and wear-tolerant, with no problems, while all other courses in the area lost 6 to 14 greens. SUPERthrive™ worked wonders on 400 trees we planted. SUPERthrive™ is a blessing. SUPERthrive™ kept the greens alive and together through the dry summer days. It also keeps roots penetrating in COLD weather.”

FURTHER UNIQUE FACTS -

- Guinness Book of Records, “Biggest ever moved.”
  Standardly, with SUPERthrive™ contractors and parks claim to ACCEPT NO LOSS of trees. Worldwide (though no salesmen.)
- 100% of 2000 SUPERthrive™ dealers asked at trade shows said they are “aware that SUPERthrive™ revives shrubs and trees with as little as green under their bark.”
- Said U.S.D.A. head grower scientist - “Far more growth above and below ground than when fertilizers used alone.”
- Over 500 parks systems heads wrote that nothing works so well.
- Saving 50,000 Mojave Desert trees and plants, for U.S. Bureau of Land Management, while beautifying 100 nearby Las Vegas hotels.
  #1 Environment saver. • Regularly helps win American Rose, Orchid, etc., Societies’ flowering plant competitions.
- Famed offer-proof- Since 1940, unchallenged, $5,000 guaranteed to be world champion Activator, Reviver, Trans/Planter, Extra Grower, and Perfecter. — Far Best. Unique. Nothing is at all “like” it.
- 65 years, NEVER ONE BOUNCED on professional guarantee: “After using first gallon - money back if you wish you had not bought it.” (Public agencies or established businesses in U.S.)

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