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What Do We Need to Do as Employers?

As someone who also runs a small business (yes a not-for-profit is a business), I’m always looking for the next idea, solution, challenge to take us to the next level of providing the kind of service our customers (members) expect from us.

In April, we held one of our quarterly management team retreats to take a look at what had changed in the last few months, why it had changed, and how we felt about it. We then examined what was going to make us successful in the future; important conversations before we begin our strategy planning and three-year budget projections this summer. At the top of our list were additional staff competencies and continuing technological improvements in order to deliver quality services faster, at your convenience.

We wound up focusing on these two areas due to a significant increase in our new programming for you: Accreditation, PAC and lobbying on your behalf at the state and federal levels, new product development, enhanced safety activities, increasing our meetings reach, and a Day of Service in Detroit to name a few. We also recognize that while our technology capabilities were overhauled in 2000 and 2001, they are now dinosaurs compared to where they need to be to get you what you want, when you want it.

What does this have to do with you? First – another reassurance that we constantly evaluate how to enhance value to the tree care industry. Second – we’re just like you. We have customers to satisfy – AND we have employees who provide that satisfaction who we need to nurture, grow and develop.

OfficeTeam, a nationwide staffing service, just released the findings of a survey about what employees want. Forty-eight percent of employees said that a bonus or raise is at the top of their list; 24 percent said that they want more time off, and 17 percent said that they need additional help. OfficeTeam says one interpretation of these results is that “employees today are feeling undervalued, overworked, and spread too thin.” (Boston Sunday Globe, May 9, 2004, p. G2.)

The article goes on to say that personnel reductions have required employees to take on additional responsibilities and heavier workloads and an offsetting pay raise is appropriate. It also discussed how employees feel so overworked that many don’t feel they can take a vacation and/or they take work along anyway. Add to that the development of technologies that allow people to stay connected, which has led to an expectation in some workplaces that employees MUST stay connected.

I’d just like to comment on the fallacies of some of these developments in the workplace. To my knowledge, it has never been documented that burnt out, worn out, over-worked employees have increased productivity at any workplace. It has been documented that fatigue increases the risks of accidents, which is an important factor in the tree care industry.

What is being touted in a lot of management publications as a changing expectation in the workplace – that you take your laptop, cellphone and/or PDA and call in or e-mail in while you’re on vacation – is ridiculous in my book. That’s called telecommuting – not vacation!

As someone who has been in a leadership role in business now for 16 years, I believe that if we set aside our egos, train our employees well and look after the people who are going to make our businesses successful, us not calling in or e-mailing when we go on vacation is probably one of the greatest expressions of trust and gifts that we can give to our employees. Writing in mid-May, I just got back from two weeks of vacation, and I can attest personally to the fact that my staff moved the ball down the court significantly; took care of everything that needed to be handled; and didn’t come home to one tiny hint of a fire. What I did come back to were members who were sending e-mails about their satisfaction or encouragement to continue raising standards; new people having been hired; and a staff who was able to inhale deeply and take a breath.

Our people know what it will take to put us on the map. We need to give them the resources to do it, pay them appropriately, and encourage them to take the time off to rejuvenate. People want to be successful – and they’ll exceed our expectations with just a little encouragement and positive reinforcement.

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Cynthia Mills, CAE
Publisher
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In August 2002, TCIA’s Accredited Standards Committee A300 finalized a document that redefined the way those in the tree care industry deal with one of nature’s most powerful facets – lightning.

The new industry standard ANSI A300 (Part 4) – 2002, Lightning Protection Systems incorporates significant research in the field of atmospheric meteorology. This relatively new information has a profound impact on the requirements and recommendations for all arborists who sell tree lightning protection systems.

Since there are an average of 25 million strikes of lightning from the cloud to ground every year in the United States, arborists who provide lightning protection for trees have their work cut out for them. Those who adhere to the ANSI A300 standards will be happy to find out that it is now easier and less expensive to install safe, effective lightning protection systems on valuable trees.

Who’s ANSI, and what is an ANSI standard?

The American National Standards Institute (ANSI) is a private, non-profit organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI accredits organizations that aim to produce ANSI standards, such as TCIA.

ANSI standards are created by qualified industry volunteers. TCIA’s ANSI-accredited standards committee (ASC) A300, formed June 28, 1991, set out to create several standards for tree care operations before working down its checklist to the lightning protection standard. In 2000, the ASC A300, which includes about 25 members and alternates, began to put together the current requirements and recommendations for companies that install lightning protection for trees.

After gathering all the recent research and writing up the draft, the committee presented the standard to the public for input. With all public comment taken into account, the committee then created the final document, which was approved Aug. 30, 2002.
Compliance with ANSI A300 standards is not mandatory, however adherence to ANSI standards indicates a tree care company is making every attempt to follow the best known tree care practices. ANSI A300 standards provide the minimum performance parameters that arborists need to work within. They also are a guideline for writing work specifications.

The old standard vs. the new standard

Prior to the publication of the ANSI A300 Lightning Protection Systems standard, the general industry guidelines were outlined in TCIA’s (formerly NAA’s) Lightning Protection Installation Systems Standard, last revised in 1987.

“The old ... standard is really a lightning system for a house, put on a tree, without any additional research,” says Bob Rouse, TCIA’s director of accreditation who also serves as secretary of the ASC A300. “It’s not necessarily appropriate for a tree.”

This now obsolete standard presented a brief description of how lightning functions; which types of trees are most susceptible to lightning; and when lightning protection systems should be used.

In addition, it called for several very specific hardware recommendations for effective systems. For example, the thickness of copper down conductors – “the vertical portion of a run of conductor which ends at the ground” – was recommended to be “32 strands of 17 gauge copper wire”; the placement of the grounding connections were suggested to be “beyond the dripline of the branches”; and the points on the air terminals at the top of the down conductors were shown to be sharp.

Some of the most significant changes from the old standard to the new guidelines involve these very items. The new ANSI A300 standard calls for “14 strands of 17 AWG copper wire” – not the 32-strand type originally specified. New studies have helped researchers conclude that ground rods need to be a minimum of 10 feet from the tree – with the actual distance depending upon the type of soil – but not necessarily beyond the drip-line of the tree.

A third critical difference between the old and new standards is the “sharp-vs.-blunt” air terminal tip debate. For decades, a pointed terminal on the end of a grounding wire was believed to be the best method of lightning protection. In the past several years, however, studies have shown that a blunt terminal works more effectively. Manufacturers are still catching up and haven’t started producing blunt tips in any measurable amount.

Dr. Tom Smiley, an arboricultural researcher at the Bartlett Tree Research Lab, said that at Bartlett, tree care workers who install lightning protection systems are foregoing the sharp air terminals.

“We’re switching to blunt terminals, but there isn’t a manufacturer making them yet,” says Smiley. “So now we’re just cutting and bending wire” to simulate a blunt terminal. “It’s probably not quite as good as a manufacturer’s blunt terminal,” he quips, “but we’re a little bit ahead of the manufacturers on this.”

Additions to the new standard

Aside from several changes made from the old standard, there are also several items introduced in the new ANSI A300 standard.

Soil dependency: As stated in A300, “Soil type and the physical character of the surrounding area shall be considered before grounding the system.”

“The new standard is very soil-dependent,” Smiley elaborates, “so you need to know something about your soil depth and...
quality before you bid the job, or before you put (the system) in."

According to A300, if you are installing ground rods in sandy soil, you need twice the amount of rod that you would need if the soil were not sandy. Multiple ground systems in typical soil require "a minimum of 8 feet of total ground rod length;" multiple ground systems in sandy or gravelly soil require "a minimum of 16 feet of total ground-rod length."

Before this new standard, Smiley explains, it didn’t make any difference what type of soil an arborist was dealing with: one ground rod outside the drip-line, or "two to four multiple grounds ... driven as deep as possible," was all that was called for – and in some cases, that might not provide proper protection.

“It’s more likely under the old system that there would be damage to the trees,” Smiley adds. Under the new standard, he notes, “there still could be damage – but it would be a pretty rare thing.”

Ground plates: The introduction of the ground plate – “A copper plate used to form a ground terminal in shallow soils” – is also an integral part of the new specifications.

The old standard recommended dealing with shallow soils only by using several shorter grounding rods. The new standard outlines a “horizontal ground system” in areas where rods cannot be driven more than 2 feet into the ground. The typical horizontal system would be terminated with a ground plate.

Protecting trees – not people, cars, buildings, boats, ammunition: “The single biggest thing in the new standard is that a tree lightning protection system is only designed to protect that tree,” Rouse emphasizes. “Arborists really need to put a disclaimer that lightning protection doesn’t provide any personal protection or protection of any property.” A lightning protection system on a tree will not protect a person, house, car – or anything else under the tree, he adds.

This key point is stated clearly in the ANSI A300 standard: “Lightning protection systems are used to reduce the risk of damage to trees from lightning strikes. Protected trees shall not be considered a safe haven from lightning strikes.”

In contrast, the old standard somewhat implied that a tree with a lightning protection system can offer shelter or safety during a thunderstorm:

“Trees ... with branches overhanging buildings, ... in a recreational or park area, particular trees under which children might play or people congregate during a lightning storm, isolated trees on a golf course where golfers may seek shelter during a rainstorm, isolated trees within a pasture under which animals may gather during a thunderstorm, ... should be equipped with lightning protection systems set forth here-in.”

This dangerous and potentially fatal assumption that a lightning protection system on a tree could be a safe haven for anyone or anything underneath is a potentially fatal mistake to make.
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Major difference between the obsolete NAA standard and the new ANSI Standard:

Prior to the current ANSI A300 Lightning Protection Systems standard, the guidelines for protecting trees from lightning were outlined in TCI’s (NAA) Lightning Protection Installation Systems Standards. The research incorporated into the new ANSI A300 standard includes several significant changes:

1. **THE NEW ANSI STANDARD**

   Lightning protection systems are used to reduce the risk of damage to trees from lightning strikes. Protected trees shall not be considered a safe haven from lightning strikes.

2. **THE OLD NAA STANDARD:**

   Trees … with branches overhanging buildings, … in a recreational or park area, particular trees under which children might play or people congregate during a lightning storm, isolated trees on a golf course where golfers may seek shelter during a rainstorm, isolated trees within a pasture under which animals may gather during a thunderstorm, … should be equipped with lightning protection systems set forth herein.

3. **THE NEW ANSI STANDARD**

   Conductors shall be at least 14 strands of 17 AWG copper wire.

4. **THE OLD NAA STANDARD:**

   Copper consisting of 32 strands of 17 gauge copper wire, … shall be used from the air terminal on top of the main trunk of the branch, down the trunk of the tree, to the grounding connections. … Substandard (sic) diameter copper wire can be expected to vaporize during a lightning discharge of any magnitude, resulting in destruction or severe injury to the supposedly protected tree.

5. **THE NEW ANSI STANDARD**

   Branch conductors shall be installed so that no aerial portion of the tree is farther than 35 feet from a conductor.

6. **THE OLD NAA STANDARD:**

   For additional protection, two down conductors can be used on any size tree. … On trees with broad heads, conductors shall be extended into the highest parts of side branches in order to fully cover the spread of the crown.

“The new standard specifies that air terminals don’t need to be closer than 35 feet to one another,” Smiley points out. “This saves a lot of money, because on a double-stem tree, under the old standard, you needed two wires all the way to the top. Now, you only need one, and that is independent of tree diameter.”

What the new standard means to you

According to the National Oceanic and Atmospheric Association (NOAA), lightning causes about $5 billion of economic impact in the United States each year. For homeowners, municipalities and others who previously could not afford a lightning protection system, losing a valuable tree to lightning’s power could be devastating.

Under the new ANSI A300 standard, however, tree lighting protection systems are more affordable than those used in the past.

“The new standard provides the same level of protection as the old standard but (at) about one-third to one-half the cost – which means that more people are willing to purchase lightning protection, resulting in more trees being saved,” Smiley explains.

Dick Jones, of Davey Tree Experts, agrees: “The reduction in the size of the cable, the (reduction in the required) distance from the tree (and the) reducing of the materials … (all) reduce the cost of the installation.”

“You might spend the same amount of time installing the system, but the materials cost less,” Jones adds, meaning that ultimately, more people can afford to purchase lightning protection.

How lightning and lightning rods work

The National Weather Service Office of Climate, Weather, and Water Services offers a brief explanation of how lightning happens:

A moving thunderstorm gathers (a) … pool of positively charged particles along the ground that travel with the storm. As the differences in charges continue to increase, positively charged particles rise up taller objects such as trees, houses, and telephone poles. …

The negatively charged area in the storm
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This understanding of lightning has led to thorough research regarding lightning rods.

Dr. Charles Moore, a retired professor of physics at New Mexico Tech, has studied the best way to improve lightning rods that are used in lightning protection systems. The conclusions drawn by him and others emphasize that “using sharp lightning rods is a mistake. They ionize the area around them” – meaning that sharp rods create “electric field rates of intensification ... much greater than those over similarly exposed blunt rods for the initiation of upward-going leaders” – or lightning. Thus, the sharp tips are, in effect, protecting themselves instead of discharging electricity from the storm. “Blunt rods,” according to Moore, “are better receptor(s) for lightning.”

“With a blunt tip, electric forces get strong enough because there is not that ionization occurring,” he adds. “Thus, the electricity in the air can be more easily discharged,” resulting in a strike to the rod and not the tree or other high points nearby.

Although this recent breakthrough in understanding lightning has been incorporated into arboriculture in relatively recent years, scientists have actually been studying the phenomenon for more than 2,000 years. Few of us might recall that in 55 BC someone named Lucretius discovered that lightning bolts prefer elevated objects, but most of us can envision Benjamin Franklin outside in a lightning storm with a key on his kite string.

Indeed, Franklin’s research into lightning has had a lasting influence in the field of meteorology. In 1750, Franklin speculated that “the emissions from sharp-tipped rods would prevent lightning by discharging electrified clouds.” In practice, however, he discovered that instead of discharging the clouds and preventing lightning strikes, the rods acted as a lightning receptor.

Franklin’s discoveries regarding lightning – which he called a “most sudden and terrible mischief” – were held in high regard and for centuries were used as the basis of lightning protection systems. Although the recent studies by Moore and others have concluded that sharp-tipped rods are less ideal, it will take time before the new blunt-tipped-rod recommendation is commonplace.

“We’re recommending that the National Fire Protection Association specify the optimum form for a lightning rod,” Moore sums up. “Right now, it’s still haunted by the memory of Franklin’s suggestions.”

Other research used in the ANSI A300 standard came from studies done by those who are tree care specialists. “At the Bartlett Tree Research lab, we have nearly 100 (lightning protection) systems installed that we monitor,” says Smiley. These trees have fuses on them, and when they are struck by lightning, researchers are able to observe any damage to the tree, wires and roots. “We draw conclusions based on damage and the system that is in place,” Smiley adds.

In addition, a lot of the new research used in the standard comes from work done in Florida, where a high count of lightning strikes makes for an ideal testing area.

“We learned a lot from sailboat lightning protection,” Smiley explains. “They actually use a smaller wire on sailboats (than we use on trees)!”

Conclusion

With the thought in mind that at any given moment there are 1,800 thunder-
storms in progress somewhere on the earth, adding up to 16 million storms every year, it’s little surprise that lightning protection systems are an important factor in saving trees.

Clearly, the new ANSI lightning protection standard is a huge boon to the tree care industry. The new standard can make lightning protection a reality for homeowners and others who previously could not afford the heavy-duty hardware that was part of the process. In addition, arborists and clients alike can rest assured that lightning protection systems installed according to the ANSI A300 standard have the best chance of surviving a lightning strike.

And, after all, we aren’t just in the tree care business, says Smiley: “We are in the tree protection business. What’s the bottom line?” he asks rhetorically. “Protecting trees.”

Ariana Zora Ziminsky is former assistant editor of Tree Care Industry magazine.

Works Cited:
4 - ANSI A300 (Part 4)-2002, Lightning Protection Systems, “46.6.1.3 - Branch conductors should be installed so that no aerial portion of the tree is farther than 35 feet from a conductor.”

Not yet ready to change with the times?
The arborist uses ANSI A300 specs as a guide for writing work specifications. Your specs need to meet the requirements and recommendations of ANSI A300. Beyond that there is nothing wrong with over-specifying the system for those critical or high-end jobs. Over-specifying, with a reason, goes on in most industries – we are not an exception.

For the arborist, it is easy to get caught up in the actual “shoulds” and “shall’s” of the standard. Don’t forget that anything over and beyond the standard is fine. The important thing is that the client has a written spec to compare with others so they can make an informed decision. ANSI A300 Part 4 allows the arborist flexibility so that the needs of individual trees and individual clients can be met. A tree care company could even specify “deluxe” and “economy” lighting protection system designs. In this example, both the deluxe and economy system would meet the ANSI A300 Part 4 standard, but a deluxe system could use some of the recommendations from the obsolete NAA standard – such as the number or size of down conductors.

Proper marketing of these options could increase your client base for lightning protection systems to those who could not previously afford a lightning protection system for their trees and to those who want to protect more trees than they could previously (such as parks, cities, golf courses, private estates, etc.). Proper marketing can also reinforce the choice of a deluxe lightning protection system to your current and new exclusive clients.

What you should not do: Do not cite the old NAA standard. This is now obsolete. Aside for the legal problems this could cause you, the standard does not require you to consider the soil condition before grounding, which is a key component to the success of any lightning protection system.

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John Deere work boots for arborists

More than 50 models of John Deere boots and shoes made their debut at the World Shoe Association Trade Show in Las Vegas in February. “This is a brand built for the authentic hard-working agribusiness professional at one end of the line, and for the lighter-duty home and garden hobbyist at the other end,” explains George Pugh, general manager of the John Deere Boots & Shoes line. Features will include deep-woods traction lugs soles, technical moisture management linings, smooth walking wedge soles, shock absorbing foot beds, pliable leathers and a broad range of sizes and widths. The line will also have optional soft and steel toe. John Deere boots and shoes will feature targeted product lines for agriculture, construction, forestry and lawn and turf care. The boots and shoes will have an average retail price between $99 and $139, with some specialized products, such as Buffalo Hide Logging Boots, as high as $225. The full John Deere line of boots and shoes will be available for retail delivery in August. John Deere Boots & Shoes are being manufactured and marketed by EJ Footwear under an exclusive licensing agreement with Deere & Company. “The John Deere line is a perfect complement to our other outdoor and work lines – Georgia Boot and Dickies Footwear,” stated Jerry Cohn, president and CEO of EJ Footwear.

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Oregon Cutting Systems has introduced a new reduced-weight version on its popular Power Match guide bar. Currently available in 32-inch, .063 gauge, 3/8-inch pitch, the new bar offers the timber cutter a significant 26 percent weight reduction. Reduced-weight bars can be adapted for .404-inch pitch chains with a simple tip replacement. Additional long-bar selections to the Oregon reduced-weight bar offering are currently in development. These additions will be in the 28- to 37-inch categories. When operating with Oregon reduced-weight guide bars in long-bar applications, users will notice a dramatic improvement in saw balance. Less weight helps to limit the risks associated with user fatigue. Cutters will also notice productivity gains. Oregon has accomplished this weight reduction without sacrificing quality.

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The new Stihl MS 361 and MS 361 C mid-range chain saws offer low vibration and a variety of innovative features. At 4.4 bhp, the MS 361 offers users the best power-to-weight ratio in the 50 to 60 cc class. The new saws feature a completely redesigned anti-vibration system that reduces vibration levels by nearly 30 percent (compared to the MS 360), giving added control with less fatigue. Their filtering system, featuring filter fleece for dirty conditions or a 70-micron fabric filter for average conditions, increases servicing intervals by 100 percent.

The saws’ repositioned tank vent, located on the clutch side instead of the flywheel side of the chain, provides superior protection from debris, dirt and moisture. A carburetor preheating system, equipped with a winter/summer shutter, speeds engine starting in cold weather conditions. In addition, a gravity-cast cylinder with a four-port system produces lower emissions and a high power output, with less displacement. Contact Stihl at 1-800-467-8445 or visit www.stihlus.com.

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Purdue Agriculture Honors Jamieson

Purdue University’s School of Agriculture in April recognized nine new distinguished Agricultural Alumni during a ceremony at the West Lafayette, Ind., campus. Among the recipients was Scott A. Jamieson of Arlington Heights, Ill., president and CEO of The Care of Trees in Wheeling, Ill.

The award honors mid-career graduates who have made significant contributions to their profession or society in general and have a record of outstanding accomplishments.

“These people represent who we are and what we do so well,” said Victor Lechtenberg, dean of Purdue’s School of Agriculture. “They are innovators and educators. They are leaders and motivators. We take great pride in our alumni, and these are nine of our best.”

The Care of Trees is the second largest tree care company in the United States, with 500 employees and annual sales exceeding $40 million. Jamieson earned a bachelor’s degree in forestry and natural resources from the school in 1984. He is now one of the 116 Distinguished Agricultural Alumni recipients named since the program started in 1992.

FMC boosts Aggie Products Group

FMC Corporation, makers of insecticides, miticides and herbicides, in May announced key appointments for the company’s Specialty Products Business, Agricultural Products Group.

Appointments include John Miller as national sales manager; Jim Walter as business development manager; Brenda Franke as marketing manager; Amy (Gabrielian) O’Shea as marketing manager and export zone manager for Latin America North; and Mary Jo (Corcoran) Reynolds as Florida regional manager.

Miller previously worked for FMC in both the Industrial Chemicals Group and the Automotive Service Equipment Division, which was sold to Snap-On in 1996. Reporting to Miller will be the regional sales managers, national sales support manager and the software solutions business team.

As business development manager, Walter will develop and implement strategies for industry growth, including acquisitions of new chemistries through alliances and partnerships with other key industry players.

Franke will be create and implement marketing strategies and analyze market trends for both the Pest Management and Turf & Ornamental market segments. Previously, she served as a field rep in Texas and as an area business leader. Franke’s appointment marks her return to Philadelphia where she previously served as a product manager for North America.

O’Shea will oversee the Latin America North efforts in Central America, the Caribbean and Mexico. Most recently, O’Shea was the Software Solutions business manager and a marketing manager for Specialty Products Business where she was responsible for the termite and software business segments.

As the result of a more centralized focus in Florida, Reynolds will oversee the newly combined Turf & Ornamental and Pest Management market segments in Florida and will maintain some national account responsibilities. Prior to her appointment, Reynolds served as...
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the Specialty Products Business national account manager.

“These latest developments in FMC’s Specialty Products Business, Agricultural Products Group business segment, assemble a team of FMC employees who have demonstrated entrepreneurial spirit; an understanding of organizational effectiveness and leadership; analytical and strategic insight; and extensive marketing and sales experience,” said Don Claus, director, Specialty Products Business, FMC Agricultural Products Group.

“These attributes, coupled with our existing Specialty Products Business team, will provide a solid foundation as we continue our growth through the strength of our industry knowledge and existing relationships,” said Claus.

Caught in the H-2B Cap? Need help?

Are you one of the unlucky employers caught in the “first-ever” enforced H-2B labor cap for 2004? The United States Citizen and Immigration Service gave U.S. employers no advance notice of their plan to enforce the cap when they issued their March 9 press release. Many employers are now struggling to find a labor solution in order to stay in business.

USCIS announced that it had received enough H-2B petitions to meet this year’s congressionally mandated cap of 66,000 new workers, and that they would not accept any new H-2B petitions.

Fortunately, petitions for current H-2B workers do not count toward the congressionally-mandated H-2B cap. Accordingly, USCIS will continue to process petitions filed to:

► Extend the stay of a current H-2B worker in the United States;
► Change the terms of employment for current H-2B workers;
► Allow current H-2B workers to change or add employers.

Foley Enterprises, a TCIA associate member service company, can assist employers who have members of their current workforce who maintain an “unexpired” work permit to apply for an extension of stay. Contact Foley Enterprises at 1-888-623-7285 for information on extensions of current labor certifications.
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**Beyond today’s standards.**

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A pest is an unwelcome visitor that has the potential to cause extensive damage to plant life. It is usually a small creature with or without wings. Pests are mostly insects, however, other small creatures such as mites, spider mites, snails, etc. also pose a severe threat to tree life.

Insects are the most successful colonizers on earth. They come in all different sizes, shapes and colors. Most insects go through four different stages in their lives – egg, larvae, pupae and adult. The larvae (caterpillars) are voracious eaters and cause an enormous amount of damage to leaves. Insects remain inactive (not developmentally) during the pupa stage; however, once they emerge as adults, they go out in search of food. When trees put forth new shoots, leaves and flowers, the insects are there to feast on them. Some pests can tunnel into the wood (xylem) of a tree, suck sap and cause the death of a tree. Through billions and billions of years of organic evolution, pests and plants have evolved ingenious offensive and defensive strategies for their sheer survival. A thorough understanding of their strategies is absolutely essential for successful gardening.

The common pests on ornamental cherries are aphids, tent caterpillar, borers and scale. Left unchecked, pests may totally destroy a landscape. Therefore, it is imperative to spot them, identify them, understand their life cycles, recognize the symptoms resulting from their attacks on plants and control them. Be prepared for any unpleasant encounter with a pest. If not, by the time an arborist notices the symptoms, the damage may be far too advanced to tackle. It is always good to remember that prevention is better than control.

Diagnosis

Diagnosis is the most important part of pest management. Pests leave behind tell-tale signs of their attacks on plants as visible characteristic symptoms, which help in their identification. The visible symptoms include chewed or tattered foliage or blossoms, stippled (flecked), yellowed, bleached or bronzed foliage, distortion of plant parts, dieback of plant parts, and presence of pest or pest-related products. Pests with chewing mouthparts chew both the blooms and the leaves. The larvae of moths, butterflies, beetles and sawflies, and adult beetles, grasshoppers, snails and slugs, cause irreparable damage to foliage and flowers.

When insects or their relatives suck the cell sap, withdrawing or destroying the green chlorophyll at the point of penetration, islets of discoloration appear on the leaves. When the damage is severe, these islets coalesce. The infested leaves become bleached, yellowed or bronzed. Some of these insects possess sucking mouthparts and others have puncturing mouthparts. Spider mites (arachnids, not insects), aphids and leafhoppers cause these kinds
of symptoms. Aphids cause distortion of flowers and vegetative buds. The parts that are under the siege of insects initially die. The entire plant also may die under severe damage. Scale insects, borers or beetle larvae may be responsible for this kind of damage.

Pests leave telltale signs of their attack on plants. These signs may remain on plants for quite sometime even after the completion of pest activities on the plant. Aphids, white flies and leafhoppers leave behind honeydew and sooty molds. Aphids and lacewings cast their skins off on plant parts. A wooly, cottony or waxy material remains on the plants after an attack by aphids. Snails and slugs leave a trace of slimy material.

A pest may show one or more of the symptoms listed above, and more than one group of pests cause the same kind of symptoms as described above. In addition, plant diseases, mineral deficiencies, use of herbicides, and cultural practices may cause symptoms similar to those caused by pests. Therefore, it is, imperative that arborists make the correct diagnosis for proper pest management. When an arborist notices an abnormality, it is wise to look for the causative agent and identify it. If not visible to the naked eye, use a magnifying glass for a correct identification. Contact state or local agricultural agencies or entomologists for a correct identification.

**Aphid (Myzus cerasi)**

Aphids are seasonal pests. They swarm leaves and buds as soon as a tree puts forth new shoots in spring. Leaf curling and growth abnormalities result from an infestation. They produce a colorless, sweet, sticky fluid called honeydew that attracts ants and flies. An unsightly black fungus called sooty mold grows on this honeydew. Aphids lay eggs on the bark of the tree. Eggs over-winter on the bark. In spring, the black nymphs hatch from the eggs to invade the flower buds. They puncture buds with their cornicles to suck the sap. Two to three generations develop on cherry trees. Adult aphids are usually wingless, however, a few in each generation have wings. During summer, aphids colonize mustard family species. In autumn, the winged adults return to cherry where they mate. The females lay small eggs on the bark.

Spray with malathion, diazinon or insecticidal soap after the eggs have hatched and before the leaves have curled. Apply dormant oil in winter to suffocate overwintering eggs.

**Cankerworms (Alsophila pometaria and Paleacrita vernata)**

The caterpillars of these moths are popularly known as measuring worms or inchworms. The emergence of caterpillars coincides with arrival of spring. The caterpillars with their chewing mouthparts feast on cherry foliage. Severe infestation may lead to defoliation. Older caterpillars are black or greenish with stripes. The gray male moths have wings; the female moths are wingless. Each species has only one generation a year.

Use neem oil-based insecticides (azadirachtin) for “bio-rational” control of caterpillars. One or more springtime applications of phosmet will also control this pest.

**Eastern tent caterpillar (Malacosoma americanum)**

Eggs hatch into brown hairy caterpillars in early spring. Mature eastern tent caterpillars are about 2 inches long, black with a white stripe along the middle of the back and a row of pale blue oval spots on each side. The smart caterpillars weave silken tents at the forked areas of branches to hide when they are not voraciously eating the
The damage to the tree depends on the severity of infestation. Under a severe siege, defoliation occurs.

Adult moths emerge by late June to continue with their life cycle. The females lay eggs on the twigs. The eggs overwinter on the tree waiting to hatch in spring.

Spray with carbaryl, phosmet or azadirachtin to control the tent caterpillars.

**Fall webworm** (*Calioara cerasi*)

These are caterpillars of the moth. Adult moths have white forewings that may have rows of black spots. Yellowish eggs, in clusters, overwinter on the trees. In spring the eggs hatch into brownish grey worms. Mature worms are about 40 mm long with 12 small warts and tufts of hair. In late summer, they make a loosely constructed web on the infested end of the branches. Webworms cause minor foliar damage on cherry trees. The pupa bears 12 characteristic appendages at the posterior end.

Spray with carbaryl or phosmet for the control of worms in summer.

**Sawfly or pear slug** (*Calioara cerasi*)

Sawflies damage the leaves, especially on young trees. The small, black, shiny four-winged adult sawflies emerge from their cocoons in May. Females insert eggs into blisters in the leaves. The green slug-like larvae eat the upper surfaces of leaves, often skeletonizing them. After feeding, the larvae enter the ground to form pupae. Adults emerge again in July and August, and the females lay the eggs of a second generation. Pupae of the second generation overwinter in cocoons. Foliar applications of rotenone destroy the slugs. Consult the labels for dosage rates.

**San Jose scale** (*Quadraspidiotus perniciosus*)

Female San Jose scales lay eggs on the branches of the susceptible trees. The eggs hatch immediately into tiny yellow crawlers under the edge of the adult scale covering. The crawlers aimlessly wander until they settle down on favorable spots. Partially grown scales overwinter under their circular gray covering or scale on the twigs and the branches of trees. They begin to feed as the sap starts to flow. The crawlers insert their mouthparts into the host plant and begin feeding and secreting a white, waxy material that later turns black. The scales over-winter predominantly in the black cap stage (nymphs). If winter is not too severe, some adult females may also survive. The nymphs molt three or four times in late January and become adults. Immature male and female scales are indistinguishable until after the
first molt, when the body of the male begins to elongate. Males molt four times. The mature adult is yellowish and winged. They mate with the adult yellowish females that remain under a gray, circular shell. After mating, females produce eggs that remain hidden under their covers. Crawlers emerge in April. There are usually four generations per year. Crawlers may be present throughout the summer and fall.

San Jose scales cause injury by feeding on twigs, branches and fruits. They may also inject salivary toxins while feeding. Heavy populations on the bark can cause gumming and kill twigs, branches and entire trees if left uncontrolled.

Use biological controls, such as parasites (Encarsia perniciosa, Aphytis melinus), or predators, such as twice-stabbed lady beetle (Cilocorus orbus) and a nitidulid beetle (Cybocephalus spp.).

Spray with dormant oil (or oil plus another organophosphate insecticide when populations are heavy) or phosmet after bloom to suppress scale populations. To detect the yellow crawlers, wrap black tape coated with pheromone traps.

The peach tree borer (Synanthedon exitiosa)

The peach tree borer is the larva of the moth. It is the most damaging pest on cherries, peaches and plums. It is white with a brown head, and is 1 1/2 inches long at maturity. The adult female has a dark blue-black body with an orange band on the abdomen, dark blue front wings, and clear hind wings. The male is smaller and has three to four narrow yellowish bands across his body; both pairs of wings are clear.

The borer has only one generation per year. The adult is the only stage that leaves the tree. Most adults emerge and lay eggs during July and August. The female moth lays about 500 eggs on the tree trunk, in cracks or under bark scales, and in soil near the tree trunk. Eggs are small, oval, reddish brown and hard. Eggs hatch in 10 days. The larvae feed on tree bark, working their way into the trunk as they become larger.
The larva is dull white with a brown head and three pairs of short jointed legs. The larva overwinters under the bark. Once the spring arrives, the hibernating larva becomes active, starts feeding and completes its larval stage in spring and early summer. When fully grown, the larvae pupate under bark or in the soil near the tree base. They are attracted to previously infested or injured trees. Only one generation is hatched each year.

A massive exudation of gum from the base of the trunk is the first sign of the attack. This gum mass contains bits of wood chips, sawdust and frays produced by the feeding larvae. Burrowing larvae weaken the tree, which may lead to the death of the tree.

Look for symptoms at the base of the trunk when pruning. Timing of insecticide application is crucial in the control of borers. Use pheromone traps or sticky tapes for moth activity. Pheromones attract males. Break the mating cycle by killing the males. Hang the traps three feet from the ground in late May. It is important to notice the first emergence of the trapped moth and the peak emergence. At peak emergence, there may be about 50 borer moths per trap per week. Examine the trapped moths for correct identification as the pheromone traps may attract borers.

If the infestation is low, you may kill the borer by stubbing with a sharp wire. Fumigate the infestation by placing a ring of Para dichlorobenzene crystals around the base of the tree on the ground. Place the crystal close to the infestation. Make sure that they do not touch the tree trunk. Spray with a pesticide containing lindane over larvae.

Spider mites (Tetranychus spp.)

Spider mite is an arachnid with eight legs, an oval body and two red eyespots near the head end of the body. They are not visible to the naked eye. However, a web is visible under the lower surface of the leaf, hence the common name, web spinning mites.

The female usually has a large dark blotch on each side of the body and numerous bristles covering the legs and body. Immature females resemble the adults. However, the newly hatched larvae have only six legs. Eggs are spherical and translucent, like tiny droplets, becoming cream colored before hatching. The mated female mites overwinter under rough bark scales and in ground litter and trash. They begin feeding and laying eggs when warm weather returns in spring. Spider mites reproduce rapidly in hot weather and commonly become numerous in June through September.

Mites suck cell contents from leaf cells; leaves loose their chlorophyll and become bronzed. Feeding frenzy may lead to defoliation. Severity of damage depends on the extent of infestation and water stress that make the plant vulnerable to the mite attack.

For biological control use the western predatory mites, the six-spotted thrips, lady beetle, pirate bugs, big-eyed bugs or lacewing larvae. Create favorable conditions for proliferation of predators after releasing them. Do not use pesticide when you use biological controls. Insecticides such as carbaryl or pyrethroids will destroy good bugs and favor reproduction of spider mites. Irrigate the tress to avoid water stress, which enhances mite damage. You may use water under pressure to wash the under surface of the leave, especially in summer when the mite population peaks.

For any kind of pest problem, use biological or bio-rational controls whenever available. When using chemical pesticides, follow the instructions for use and safe disposal. Make sure that the pesticide is approved for use in your area. Use the right kind of sprayer for an effective coverage. Be aware of the harmful effects of pesticides. Wear proper clothing and masks to avoid skin irritation and breathing problems. Take a shower and change clothes after the use of spray chemicals.

Good horticultural practices such as proper fertilizing and irrigation and creating favorable conditions for beneficial insects will keep ornamental cherry trees free from pest attacks.

Lakshmi Sridharan is a scientist with a Ph.D. in molecular biology, botany and microbiology.

In late summer, fall webworms make a loosely constructed web on the infested end of the branches.
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Smaller, Mobile Grapples Save on Labor and Increase Safety

By David Rattigan

From the standpoint that time is money, his nearly two-year-old grapple has probably earned him a few dollars, says Bill Robinson. But the proprietor of Cobra Tree Service in Memphis, Tenn., sees that as a secondary benefit.

“I bet most people are using them to make their lives easier,” Robinson says. “I don’t think it makes us much money, but it sure makes the work easier. It’s saved our backs and saved our health and that’s why we bought it. Now, we can take a 2,000-pound log and pick it up, rather than having to cut it up and take it out by hand.”

The grapple has long been a valuable tool for tree cleanup, and the development in recent years of smaller models, dangling grapples that attach to ATVs, skidders and trailers, are creating new opportunities and new uses. The small models, such as the Implemax, Beaver Squeezer and Hood Jr., allow for greater mobility and can fit into tighter spots than the traditional truck-mounted log loaders.

Jeff Marsolek, who runs J.R.’s Tree Experts in Cheyenne, Wyo., has two grapples in his fleet. Since 1995 he’s owned a truck-mounted Prentice Loader (about $40,000, without the truck) and in January he purchased a Beaver Squeezer (about $9,000), which he attached to an ASV Posi-Track. “It’s mobile,” he says of the smaller grapple. “It’s user-friendly and easy to hook up – an excellent piece of machinery.”

One problem with traditional truck-mounted log loaders is that they often can’t maneuver in backyards and alleys, where one has to contend with power lines, Marsolek says. As a result, his crews would need to park it on the street and manually move lumber to the curb. However, he’s found that a smaller grapple can pull right up and work in those tight spots.

“It’s nice to be able to drive in and pick up what we need, and have it out to where we need to load it in one fell swoop,” Marsolek says, noting that otherwise the job might require his crew to cut and haul the lumber. “It easily does the job of four guys in a day.”

The larger grapple is still a valuable tool, Marsolek says, as it can pick up more and carry more. For curbside pickup, it’s quicker and more efficient, he says.

“Each is great for its purpose,” adds Marsolek. “Now that I have this (the smaller grapple), I wouldn’t want to live without either of them.”

Low impact

Mike Wilwand, vice president of Bailey’s Inc., an equipment distributor in Laytonville, Calif., says that company executives Nick and Sam Bailey recognized the value that hydraulic self-loading
trailers could have when they were first introduced to them three years ago, in Sweden, by farmers in the countryside and in demonstrations at a logging show. The trailers were developed in that country, where the soil is thin and particular attention is placed on having a minimal impact on the environment.

Using the machine to clean up brush and move wood was one use, but customers had other uses that Wilwand says the company hadn’t considered. Landowners concerned about fires have used them to clean up brush on their property. Some have used them to place rocks as a design element around their yards. Some logging companies have even purchased them, using the equipment to finish off larger jobs. And, Wilwand notes, “Tree services really like it.”

Cobra Tree Service’s Bill Robinson has owned a Farma 51-D hydraulic trailer-mounted grapple loader from Bailey’s for two years. It cost about $16,000. “It was the second or third one we sold,” Wilwand says.

“I never knew these existed,” says Robinson. “The only ones I’d ever seen were on trucks (and costing $30,000 and up), and somebody like me can’t afford that.”

The grapple loader has cut the work time in half for some projects. In some cases, it’s made work much easier by providing easier access in tight spaces. After bringing down a tree in a fenced-in back yard, for example, “We parked right next to the fence, and reached over and got it,” Robinson said. “There are all kinds of tricks you can do with these things.”

Michael Cruz, proprietor of Cruz Forest Wildlife Management in Wilderville, Ore., uses an ATV and his two-year-old 900 TR hydraulic log loader (a grapple mounted on a trailer, with its own power unit) for small timber removal on federal forest land. The 8-foot poles he removes – 3 to 10 inches in diameter – are used by a pet supply company for its product (called “Critter Huts”). The removal of low timber is part of a government effort to remove the small brush that forms a potential fire hazard in the forest, as well as taking nutrients from larger trees.

“By cleaning out the small brush, there are no fuel ladders to get to the big trees,” Cruz explains. It’s required by the government that his work has a low impact on the forest trails and surrounding environment, and this has been an effective tool in achieving that aim.

“It’s really low (impact),” Cruz says. “It lets me work in the winter. It’s good for the soil, and won’t hurt anything.”

Labor and safety
Whether it’s lifting a lawn mower for the
purpose of repairing its blade or lifting logs to feed a wood chipper, commercial tree care experts frequently find many uses for grapples.

“These tree guys will put it through some pretty tough applications,” says Nick Newgaard, sales and marketing representative for ImpleMax Equipment Inc. based in Bozeman, Mont.

ImpleMax has been producing dangling tractor- and skid steer-mounted grapples since the mid-’90s. President and founder Will Callahan recalls that he introduced the original tractor-mounted grapple at a Tree Care Industry Association trade show, where some people asked whether it could be mounted on a skid steer as well. The next year, it was. “Over the last eight or nine years we’ve been getting the concept fully accepted in the market place,” Callahan says.

What the early adopters – those who first started using the smaller, mobile grapples – found was that they saved on labor and they increased safety for those on the job.

“It’s really about labor,” Callahan says. “There is a shortage (of labor) that continues to get worse, and the quality of labor is going down. This is a tool to alleviate the labor problem. Very simply, this handles larger loads than a man can carry, so it dramatically reduces the labor required to process a tree in order to get it to the chipper or loader at curbside.”

Because of the ImpleMax grapple’s rotating capability, it can also feed the load directly into the chipper chute. That not only cuts down the labor, Callahan says, but it’s safer. The bruised and broken wrists and arms that came as a result of branches “kicking” as they were fed into the chipper are no longer an issue, because the workers are not feeding the chipper by hand. “(The injuries are) eliminated,” Callahan says, “because the man is out of harm’s way. He’s in the cab.”

Adding value to the job

Geer Tree Specialists Inc. in Canton, Ga., specializes in low-impact jobs, says president Sam Geer. “If somebody’s got a big tree in a tight spot, they’ll say, ‘I don’t want to know that tree was ever here, and don’t want a blade of grass wrinkled.’ We’ll do that,” Geer says.

ATVs and smaller, dangling tong-style grapples allow him to do that kind of work effectively. “We look to get in and out, with low impact,” he says. Using an ImpleMax with a T-200 Bobcat “gives us low ground pressure and the ability to move logs.”

Although it wasn’t the most important factor in his decision to buy a small grapple two years ago, Geer also notes that, “Image is important if you’re running a higher end, professional business. When you pull up and you have the appropriate equipment for the job, it creates a better image.”

Geer, who in addition to his ImpleMax has also used the Beaver Squeezer and been impressed with both, says that the smaller grapples are effective tools, even though they may be more expensive than a root- or bucket-style grapple. “It’s been a really great asset to our business,” he says. “We’re a small company and this is the first grapple we ever bought. This does everything we need it to do specifically for my business. You may have to spend another $4,000 (more than a than a root- or bucket-style grapple), but you have to look past the price point.”

Prior to purchasing the grapple two years ago, Geer’s company would contract out log pickup. While the pickup companies did a good job, it was an arrangement he was never totally comfortable with.

“You like to control everything and do everything in-house,” Geer said. “You never want to leave a job and have that extra bit of mud on the driveway, or pieces

Low-impact machines reduce turf damage.

With the help of a grapple and log truck, valuable wood is saved from the chipper.

Because of the ImpleMax grapple’s rotating capability, it can also feed the load directly into the chipper chute.
**Vermeer**

<table>
<thead>
<tr>
<th>Model Number</th>
<th>Part No.</th>
<th>Knife Description &amp; Size</th>
<th>SALE Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC1000</td>
<td>KCH20100</td>
<td>Double Edge 9&quot; x 4-1/2&quot; x 5/8&quot;</td>
<td>$27.66</td>
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<tr>
<td>BC1220-BC1250</td>
<td>KCH20002</td>
<td>Single Edge 8&quot; x 3-1/2&quot; x 3/4&quot;</td>
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<tr>
<td>BC1400</td>
<td>KCH20110</td>
<td>Double Edge 8&quot; x 5&quot; x 5/8&quot;</td>
<td>$28.40</td>
</tr>
<tr>
<td>BC1800-BC2000</td>
<td>KCH20103</td>
<td>Double Edge 10&quot; x 5-1/2&quot; x 5/8&quot;</td>
<td>$33.12</td>
</tr>
</tbody>
</table>

**Morbark**

<table>
<thead>
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</thead>
<tbody>
<tr>
<td>100, 200, 290</td>
<td>KCH10001</td>
<td>Double Edge 7-1/4&quot; x 4&quot; x 3/8&quot;</td>
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<tr>
<td>10, 13, 17, 2050</td>
<td>KCH40001</td>
<td>Double Edge 10-1/2&quot; x 5&quot; x 1/2&quot;</td>
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**Brush Bandit**

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<tr>
<td>Model 90</td>
<td>KCH10002</td>
<td>Double Edge 5-3/32&quot; x 4&quot; x 3/8&quot;</td>
<td>$14.95</td>
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<tr>
<td>Model 90XP, 280XP</td>
<td>KCH10004</td>
<td>Double Edge 5-3/32&quot; x 4&quot; x 1/2&quot;</td>
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<tr>
<td>Model 100XP-250XP</td>
<td>KCH10003</td>
<td>Double Edge 7-1/4&quot; x 4&quot; x 1/2&quot;</td>
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</tr>
<tr>
<td>Model 250XP, 254XP after '01</td>
<td>KCH10101</td>
<td>Double Edge 7-1/4&quot; x 4-1/2&quot; x 1/2&quot;</td>
<td>$21.56</td>
</tr>
<tr>
<td>Model 1890 Intimidator</td>
<td>KCH20103</td>
<td>Double Edge 10&quot; x 5-1/2&quot; x 5/8&quot;</td>
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<tr>
<td>Model 1290 Drum</td>
<td>KCH30001</td>
<td>Single Edge 12&quot; x 3&quot; x 3/8&quot;</td>
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<tr>
<td>Model 1690 Drum</td>
<td>KCH30002</td>
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**Asplundh**

<table>
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<td>KCH10001</td>
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<td>12&quot; Drum</td>
<td>KCH30001</td>
<td>Single Edge 12&quot; x 3&quot; x 3/8&quot;</td>
<td>$16.40</td>
</tr>
<tr>
<td>16&quot; Drum</td>
<td>KCH30002</td>
<td>Single Edge 16&quot; x 3&quot; x 3/8&quot;</td>
<td>$18.60</td>
</tr>
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**Mitts & Merrill**

<table>
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<th>SALE Price</th>
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</thead>
<tbody>
<tr>
<td>Drum Style</td>
<td>KCH60001</td>
<td>Double Edge 4-1/4&quot; x 2-3/8&quot; x 1/2&quot;</td>
<td>$9.20</td>
</tr>
</tbody>
</table>

*To receive this special pricing, you must use this code: 6394
Most Brush Chipper Knives on sale. Call if your model is not shown. Offer ends July 31, 2004*
of bark on the ground where the truck was, or the yard rutted up. A subcontractor can cost you time and – if you don’t check up on them – might cost you money. It might also cost you jobs; cleanup is what people remember.”

(Of course, even a careful operator using a rubber tracked machine may leave some ruts. Callahan noted that many tree care specialists opt to tell their client that they may leave ruts, but the job will cost the client less money. The clients will accept that, he says, and schedule their lawn maintenance company to come the next day.)

Because Geer’s crew is not moving as many logs by hand, the grapple has also made the work safer. Given the high cost of labor plus insurance, Geer believes that keeping the job safe, plus keeping the wear-and-tear toll down, is important to his business.

“Absolutely. If your crew is working eight hours humping logs out by hand, throwing them in the truck or leaving them on the curb, these people have got to get up for work again the next day,” Geer says. “I’ve done it, and it takes its toll. It’s not long before it starts wearing on you.”

That is feedback Callahan says he’s received from other clients as well.

“Not only will it save labor, but it will free up the labor you’ve got for more skilled tasks,” he says. “It will help your efficiency and bottom line and everything else, and just plain improve morale. The drudgery of the industry is dragging brush; you get rid of that and morale will go through the roof. All sorts of dynamics will improve within the group.”

“We tell the new guys, ‘You don’t know how easy you’ve got it,’ ” Geer says. “It’s changed the way we do business.”

Dave Rattigan is a freelance writer living in Peabody, Mass.

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What Price Chipper Maintenance?

By Rick Howland

When it comes to maintaining a brush chipper, there’s a price and there’s a cost. It’s the balance between the pain of pulling maintenance or the larger pain of not doing it.

To put it in perspective, how do you feel about a $40 air filter? How do you feel about changing it three times a year — or more? You might be thinking “ouch!” or something a bit more intense, but those filters — and the rest of the items that add up to regular maintenance — can save you as much as $5,000 a year.

Preposterous? Not according to the chipper manufacturers interviewed for this article. As competitive as they are, they all agreed on one thing. If your chipper costs about $30,000, basic, average maintenance should run about $1,000 a year for oil, filters, belts, knives and labor to perform the work yourself. Many of our interviewees said those numbers are “safe to say.”

Individual results, as the saying goes, may vary, but the consensus is that regular maintenance will just about double the lifespan of a unit that’s not maintained.

Here’s the thinking. If a basic unit runs about $30,000 and maintenance is $1,000 a year, that’s a total cost of $36,000 over a six-year period. Our raw cost per year, then, will be $6,000 per year for six years. That’s assuming there’s no trade-in value at the end, which we will get to shortly.

(That’s also assuming the buyer paid cash and is not paying interest!)

Not maintaining a piece of equipment means it will last about half as long. The good news is that there’s no $1,000 per year maintenance cost. As we did with our maintained chipper, we will assume at the end of three years that our unit has had it. Our raw cost for this chipper will be $30,000, or $10,000 per year for three years.

If we do the math, that’s a difference of $4,000 per year — just on life of our capital investment, assuming we use the equipment up completely. Over the life of our maintained unit, that’s a $24,000 difference to the bottom line.

Now let’s assume that the cash value of a well-maintained unit at the end of that six-year cycle may be worth, conservatively, a minimum of a quarter of its original price, in our case $7,500. Let’s also assume that a poorly maintained machine may be worth the same amount after only three years.

In the course of six years, we’ve “worn out” or used up $22,500 worth of the well-maintained machine, or $3,750 per year. If we used up two machines over that period
due to poor maintenance, we used up $7,500 worth of equipment annually. Compare both figures to the $1,000 annual investment in maintenance. Over six years, given this comparison, maintaining a good, quality chipper is money in the bank.

In reality, no business is exactly like any other, and our example is just that, an example. Many readers will take exception to the specifics, but one can’t argue with outcome. You can do the math yourself, depending on your initial cost, your maintenance and other factors specific to your situation. The equation still works. The only figure that remains constant, according to our manufacturers, is that you get twice the life out of a maintained chipper versus one that is not maintained.

But wait, there’s more. Maintenance gets even more painful, or more profitable, depending on which road you take. There are hidden costs to poor maintenance, the kinds of costs that will chip away at the bottom line. Good maintenance will add to the money pile.

Put another way, the price of maintenance versus the cost of not doing maintenance affects the day-to-day operation of the business and also goes to the potential for liability that could put you out of business, or keep you in business and forever paying for an injury or disability. At the very least, not doing maintenance affects efficiency and throughput.

When we first purchase the chipper, all goes well. The engine is efficient. The machine is processing brush and producing chips. The season goes on. The filters get clogged; the oil doesn’t get changed. The cutting edges get duller and duller. More of a load goes on the chipper motor, adding to its wear. Perhaps heat builds up, the hydraulics don’t like it and the process slows down even further. The belts get worn or loose and the motor doesn’t turn as fast or as strong. And slowly, the chipper doesn’t do its job as well.

“So what?” you might be inclined to ask. “That’s the nature of the business.”

The nature of the business is to make money at the business. If the machine slows down (exclusive of its wearing out), the job takes longer and longer. Labor costs and fuel costs start to rise. “So what if a two-hour job takes three, or a six-hour job takes eight, the equipment is in the field working.” Yes, and so is your labor which is now taking a half to a one-third longer to accomplish the job.

And what about your product? Savvy arborists will be looking at the chips as product, a potential new revenue stream — something to sell to the next customer directly in bulk or indirectly as part of a landscaping job. Now, not only does the non-maintained machine cost in terms of
capital depreciation and increased labor, the quality of the product and the price you can get for it drop off as well.

Then there’s the case where a failed chipper puts all or some of the crew into idle.

In the worst-case scenario, you or your worker is running material through a poorly maintained chipper. Something fails, perhaps that safety equipment wasn’t checked out, and there’s an injury. Insurance may cover the liability, but you have employee down time and increased insurance costs. Worse yet, a potential lawsuit.

Bob Campbell of Woodsman is representative of many chipper manufacturers who are working to reduce maintenance on the one hand and trying to make chippers simple to keep up on the other. The theory, he says, is that an owner or operator will be more likely to perform regular maintenance if it’s quick and simple, rather than put it off until there’s a major and costly problem.

With units ranging from $28,000 to $110,000, Campbell says, Woodsman has been stressing simple designs and says the company has succeeded in reducing mov-

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hours and a half, few will take the time, and the job won’t get done. Even the knives are easy to replace,” he says. “Slip open the hood. Three bolts and 45 minutes should do the job.”

“The problem with chippers is that, by nature, they work in an abusive environment,” Bird says. “Any time a knife dulls, every aspect of the machine is affected – drivetrain, cutter wheel, feed bearings. There’s greater stress and load placed on the whole unit as it tries to load and chip with a dull knife.”

In a testimonial to today’s advanced chipper technologies, Bird figures an operator can get away with that for an extended amount of time, and the problem won’t necessarily show up at the end of week. “But it will show up as the chipper ages. That’s when you get into the biggest trouble,” he says. “The chipper just isn’t worth as much as a trade or for someone to buy.”

A quicker chipper killer is the simple $40 air filter. Not cleaning or changing a filter can destroy an engine if it’s not maintained on a regular basis. The Carlton Company knows that the ultimate potential danger in not changing the filter is a ruined motor. Rebuilding or replacing a chipper motor can run in the $10,000 to $12,000 range.

Long before even having to change the filter, operators can do a lot to care for the machine. It doesn’t take much (it’s free, in fact) on a hot, dusty summer day to pop an air cover, blow out the filter with just 30 pounds of air, or tap out the debris on the two-stage filter. And as for clutch life, a lot of the maintenance, adjustment and repair can be delayed by engaging and disengaging the cutting disc at low rpm, Bird says.

At Vermeer, Jay Sarver, a product specialist in the environmental division says there are three direct values to maintaining a chipper. “You lower the chances of major components failing. You get higher production. And you get a better return on your investment when you trade in your chipper, especially if you’ve also kept up with product updates. From a well-maintained chipper you will get twice the life than one that’s been neglected.”

Sarver also had an interesting take on the “maintenance-only-upon-failure” philosophy that some follow. “If you continue not to do maintenance after you’ve replaced a failed part, you’ll probably be replacing the same parts again and again.”

“Maintenance also affects your warranty,” he adds. “It’s not uncommon for him to see bearing failure at 100 hours because the operator didn’t properly perform maintenance.”

“That kind of bearing failure is not covered on warranties, and the bearing manufacturer can always tell if a manufacturer sends them back for replacement and testing.”

He figures routine maintenance is not a lot to ask. “It takes at most 20 minutes in the shop or field before starting the day’s

Users with older machines may balk at those numbers as being low, but the fact is, Campbell notes, new machines are better and stronger and the hydraulic systems are more sophisticated, so there’s less maintenance and downtime and greater efficiencies.

Figures from J. P. Carlton, in business for more than 50 years, show the same thing: maintenance will double the life of a chipper – or better.

Says Carlton’s John Bird, “Quality chippers are designed to do two things – maximize customer profitability by going as fast as possible and being as productive as possible while minimizing downtime. That’s why we make simple things like grease points as accessible as possible. At the start of the day, an employee should spend no more than 20 to 30 minutes greasing bearings and checking belts, filters, clutches, knives and air pressures – and safety equipment. If it takes an hour to an
work. That’s max,” he says, noting that a bearing replacement can take 45 minutes to two hours, excluding the cost of labor and downtime. “It’s a matter of pennies worth of grease and 20 minutes, versus hundreds to thousands of dollars for parts – plus labor – depending on the damage.”

Sarver concluded that there should be little excuse not to perform maintenance when there’s a manufacturer’s list of daily and scheduled maintenance – often printed on the machine – and programs where dealers will actually go to the field or your shop or take the unit in for regular servicing.

Tom Gross, president of Dynamic Manufacturing, maker of the Conehead, touts chipping and fuel efficiencies and low maintenance of his machines in the $25,000 to $60,000 class. “We build them so they’re easy to work on. If you can, you will do maintenance. Everything is open and easy to get to.”

“It’s pretty simple,” he says. “If you don’t maintain your chipper and keep the edges sharp, you will have downtime, the machine will plug up and you will have a poor product quality, which will restrict what you can sell your product for.”

The simple, continued use of blunt knives will produce excess vibration and fatigue causing accelerated wear out, he says. “If the blades aren’t sharp, you’ll be using more horsepower and you’ll be burning more fuel ... nipping away quietly and silently at your profits,” he says.

“If you don’t keep all your filters changed, it wears on the engine and the hydraulics, and you wind up overworking the machine,” chimes in Don Stack at Bandit. He says the easiest thing is to check to see that the chipper knives are clean and sharp daily or more often, depending on use. The knife is the backbone of the machine and is easy to keep dressed. “If you prolong maintenance, instead of a $200 cost, down road you’re looking at $1,500 or $2,500 or more depending on the damage you do.”

When asked if he concurred with the double-the-lifetime possibility of a well maintained unit, Stack responded, “At the very least. Heck. We have a lot of our original units still running, all because they were maintained properly, and that’s a lot more than six years.”

“Bad maintenance is a trigger point,” says Stack. “It just triggers nothing but problems...”

At some point, a diligent owner will ask, “Which maintenance should I do, and what’s left best to the dealer?”

Vermeer points to a tree care/landscaping contractor and his dealer in Portland, Ore., for one view that works for them both. The customer handles preventive maintenance on job sites and at the shop and turns to the dealer for more complicated fixes, sometimes even in the field.

Chris Nash, owner of Northwest Arbor-Culture Inc., says of the local Vermeer dealer, “The fact that they’re about an hour away, yet we still rely on them, tells you something about service,” he says.

Nash started his own tree care business about five years ago (he expanded into landscaping last year) and has always handled routine service himself. He estimates that he saves thousands of dollars annually by changing oil, adjusting chipper knives and stump cutter teeth, and doing daily greasing of machine components. But, even that requires someone on staff who knows what they’re doing, he stresses. And, he has hired the right people specifically for that. Then, he turns to the dealership for major work.
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Events & Seminars

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Snow and Ice Management Association
Spokane, Wash
Contact: (814) 835-3577 or www.sima.org

June 11 & 12, 2004
Arizona Community Tree Council Inc. Conference
Prescott Resort & Conference Center
Prescott, Ariz.
Contact: Doreen L. Orist, (602)-909-9190 or dlorist1@aol.com, or visit www.aztrees.org

June 12-15, 2004
ISA Florida Chapter Annual Meeting
Along with TreesFlorida meeting
The Casa Marina Resort
Key West, FL
Contact: www.floridaisa.org

June 26-29, 2004
North American Commercial Real Estate Congress
and The Office Building Show
Royal York Hotel and the Metro Toronto Conv. Ctr.
Toronto, Ontario, Canada
Contact: www.boma.org

July 16, 2004
2004 Conference on Woody Plants
The Scott Arboretum, Swarthmore College
Swarthmore, Pa.
Contact: Kelly Ronafalvy (610) 328-8025
Brochure: (610) 388-1000 Ext. 507

August 7-11, 2004
ISA Annual Conference & Trade Show
Pittsburgh, Pa.
Contact: Jessica Marx, (217) 355-9411, ext.24
jmarx@isa-arbor.com, www.isa-arbor.com

Sept. 15-17, 2004
Texans for Trees ISAT/TUFC Annual Convention
Round Rock, Texas
Contact: Mike Walterscheidt (512) 281-4833

September 22-23, 2004
Multi-State Plant Materials Conference
Stillwater, Okla.
Contact Mike Schnelle, (405) 744-7361 or mas@okstate.edu

September 25-28, 2004
ISA Pacific Northwest Annual Training Conference
Coeur d’Alene, Idaho
Contact: (503) 874-8263 or www.pnwisa.org

October 19-20, 2004
ISA Illinois Chapter Annual Conference
Holiday Inn
Tinley Park, IL
Contact: (817) 617-8887 or www.illinoisarborist.org

October 20-21, 2004
Garden Expo
Canada’s Fall Buying Show for the Green Industry
Toronto Congress Centre,
Toronto, Canada
Contact: Landscape Ontario Horticultural Trade Assoc.,
(905) 875-1805; fax: (905) 875-3942;
showinfo@landscapeontario.com

October 28-30, 2004
TCI EXPO 2004
Pre-conference workshops Oct. 27; EXPO Oct. 28-30
Tree Care Industry Association
COBO Conference/Exhibition Center
Detroit, Mich.
Contact: Carol Crossland, 1-800-733-2622, Ext. 106;
crossland@treecareindustry.org
or www.treecareindustry.org

Oct. 29-31, 2004
New Jersey Shade Tree Fed. 79th Annual Meeting
Hilton Philadelphia/Cherry Hill
Cherry Hill, N.J.
Contact: Bill Porter (732) 246-3210,
njshadetreefederation@worldnet.att.net

November 3, 2004
Tree Care Issues Workshop
Stillwater, Okla.
Contact Mike Schnelle, (405) 744-7361 or mas@okstate.edu

February 6 -10, 2005
Winter Management Conference
Tree Care Industry Association
Los Cabos, Mexico
Contact: Carol Crossland, 1-800-733-2622, Ext. 106;
crossland@treecareindustry.org
or www.treecareindustry.org

Send information on your event to:
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Please circle 6 on Reader Service Card
Letters

Let's speak clearly and correctly

A couple of things jumped out at me while reading the April (2004) issue of TCI. First, the picture of the holly on page 29 (Flowering Trees in a Landscape by Lakshmi Sridharan) is not Ilex opaca. Ilex opaca has a spiny margin; the picture does not. I'm not positive of what it is, but I know what it is not!

Secondly, I believe the picture on page 58 (Poison Ivy Season: Don't Let the Cursed Poison Get on You) of the poison ivy should have been clarified. The top picture not only contained poison ivy, but Virginia creeper (Parthenocissus quinquefolia) as well. Many people confuse the two and a clarification would be in order.

I enjoy and learn much from your magazine. Keep up the good work.

Glenn Herold, professor
Illinois Central College

Lakshmi Sridharan responds:

It is not holly. It is Pyracantha, a member of Rosaceae. I just do not know why I did not take a closer look at the plant, especially when I know how a holly looks. The red berries are the culprits. American holly has spines on the leaf margin, just as I described. The fruiting branches usually have leaves with smoother margins. I apologize for the mistake. However, Pyracantha is a gorgeous plant to be included in any landscape. I am glad that people are reading the articles. My thanks to the reader.

Editor's note:

The poison ivy are the reddish, more rounded leaves in the picture referred to by Mr. Herold. Dr. Sridharan was kind enough to point out that the poison ivy has a leaf with three leaflets while Virginia creeper has a compound leaf with five leaflets. Poison ivy has aerial roots for clinging on while the other has tendrils.

The difference between callus and woundwood

I was interested to read Mary McVicker’s article on valuing a business (Using the Appraiser’s Eye to Assess Your Business, TCI April 2004). I wish I had this sort of knowledge 20 years ago when I sold my business. We are all going to retire someday and building a business should include considerations of building its worth.

I’d like to point out what appears to be a wording error on page 57. The article discusses Discounted Cash Flow or Present Value methods. It then goes on to note the value of $1 received in one year and five years, at a 14 percent discount rate. The article describes this as the “net present value.” Actually, the discounted amount is the “present value.” Net present value, by contrast, is the discounted future cash flow (present value) minus the initial investment paid for the right to receive that cash flow. So if you are buying a future cash flow of $1 and it has a present value of 52 cents (the five year example in the article) and you pay 52 cents for it, it has a net present value of zero. You might pay that, if you feel you are also buying good will and untapped market potential. You might pay less than that, if you apply an additional “key man discount” or are otherwise uncertain of that future cash flow.

This may seem like a trivial difference. In valuation, however, it is a very real and important difference. Arborists appreciate an important distinction between terms like “callus” and “woundwood.” We should learn to appreciate the importance of terms in other disciplines, especially if we need to rely on them.

Scott Cullen
Consulting Arborist
Greenwich, Conn.

Mary McVicker’s response:

Reader Scott Cullen is, indeed, right and I appreciate his taking the time to respond. Net present value is equal to present value minus the investment. I apologize for the oversight on my part in not clarifying this, and I hope it hasn’t caused difficulties for any reader.

Note of Encouragement

I always enjoy Cynthia Mills’ articles that open each issue. They always show her authentic caring for this industry and the people involved. Thank you, Cynthia, for sharing stories about your life. They bring a sense of belonging to an otherwise very impersonal world. In the March 2004 issue, I particularly thank you for your witness to family as well as Christian values. Your pleas for professionalism and safety do not always fall on deaf ears.

Although I work for a municipality and am not so directly tied to the pressures of “bottom-line profits,” the information contained in these publications is quite helpful and informative. Tell the advertisers that their money is not spent in vain. I keep the magazines for months and use the ads to make my “wish lists.”

Keep up the good work.

Steve Scott
Superintendent, Property Maintenance
City of Graham
Graham, N.C.
Trees – A Threat to Homeland Security?

By Dr. Bonnie Appleton

While countries around the world scramble to deal with the looming threat of terrorism, a potentially catastrophic problem populates the landscapes that surround our homes, schools, offices and other places of daily life. Sound like the opening for a sequel to Planet of the Apes, War of the Worlds or some other Hollywood creation? Sadly, it’s the real world scenario all too common in urban, suburban and even rural portions of our country.

While extra measures are taken to safeguard the facilities that produce electricity against a threat from people, trees – the main focus of our industry – are also a threat to homeland security. This threat is real and imminent and needs to be recognized and dealt with as quickly as possible.

Need recent examples? How about the three trees blamed for the Aug. 14, 2003, power outage that blackened the world of 50 million people in the northeastern portion of the United States and eastern Canada for up to four days.

Or Hurricane Isabel, which only slightly more than a month later, in September 2003, caused thousands of trees along the mid-Atlantic Coast to lean, break and uproot, snapping utility poles, ripping off transformers and pulling down hundreds of miles of utility lines. In her aftermath, 1.8 million customers of Dominion Virginia Power (82 percent of that company’s customers) were at the mercy of more than 14,000 utility workers and arborists from 18 states and Quebec for the restoration of electricity. Dominion renamed Isabel “the storm of trees,” and this storm obviously made strategically important areas such as Washington, D.C., and southeastern Virginia, with its heavy military concentration, very vulnerable.

While human terrorists are hard to uncover and predict, hazard trees are neither hard to find nor are their potential targets or consequences difficult to envision. Trees are especially a threat to homeland security when paired with uncontrollable acts of nature such as hurricanes, ice and snow storms, tornadoes, floods and fires.

Tree contributions

Far be it for anyone to deny that trees are invaluable assets in commercial, private and public landscapes. Trees add aesthetic beauty, modify and enhance our environment, serve architectural and engineering functions, and increase property and community economic values. These same trees
that enhance landscapes, however, are a major challenge for utility companies. Most people have grown accustomed to reliable, uninterrupted electric, telephone and cable service to their homes and offices. Unfortunately, trees are one of the major causes of power outages in areas with overhead utility lines due to direct tree contact with lines (approximately 15 percent of outages), or to trees or tree limbs that are outside the utility easement falling on the lines (approximately 85 percent of outages).

Trees vs. live wires

When trees contact live wires they become conductors of electricity. Fires and power outages often result, or dangerous situations are created for anyone coming in contact with the trees. Utility companies spend at least $2 billion annually on labor and materials for tree pruning, removal and cleanup. This maintenance work is necessary to protect both the public and utility company employees who service the lines, and to insure safe, reliable electrical service.

While none of us want to risk losing this service, most of us dislike seeing trees removed or pruned in form-compromising ways in order to provide that service. The practice of planting tree species with potentially inappropriate mature heights, or erecting utility lines where tall trees already exist, greatly increases these problems. In addition, utility companies incur public relations problems and costs due to public criticism of tree management within easements.

Conflict resolution options

Line-clearance methods for existing utility line vs. tree conflicts, such as natural, lateral and directional pruning, have been developed to minimize the impact of pruning on tree health. Unfortunately people very often find this necessary pruning to be aesthetically unacceptable.

Options in addition to, or in combination with, pruning for dealing with utility line/tree conflicts include the use of tree growth regulators, tree height control by pollarding (yearly pruning back to one trunk or branch area) and initiation of tree pruning far in advance of tree-line interception. Another option – whole tree removal – often preferred by utility companies, eliminates the conflict but frequently impacts the environment and community negatively. Though each of these options aids in preventing future conflicts, they still represent costly maintenance.

The best option to the tree vs. utility line conflict is to prevent those conflicts in the first place. Where practical or economically feasible, new utility lines can be...
installed underground or routed to avoid existing trees. Always an option, however, is the selection of appropriately sized trees under or near overhead lines. This option is available to anyone involved with landscape design and installation – city planners, landscape architects, designers and contractors, arborists and private homeowners. Proper selection and planting of trees under or near overhead utility lines can improve the appearance of our landscapes, prevent safety hazards, improve electric-service reliability, and reduce line-clearance expenses for utility companies and their customers.

Virginia’s MTRP

In part to address the tree vs. utility line conflict, we’ve started an MTRP – Municipal Tree Restoration Program – in Virginia. Our program was initially inspired and modeled after an MTRP in Pennsylvania. Public and private partners in Virginia’s MTRP include the Virginia Department of Forestry, Virginia Tech, the Virginia Design Assistance Center, Virginia Cooperative Extension, Scenic Virginia, Mid-Atlantic Chapter/ISA, Virginia Nursery and Landscape Association, National Arboretum,
Virginia’s three major utilities – Allegheny Power, American Electric Power, Dominion (Virginia Power) – coop Rappahannock Electric, and several towns and cities.

One of Virginia MTRP’s major projects is the development of utility line arboreta. What’s a utility line arboretum? It’s what I started in 1992 at Virginia Tech’s Hampton Roads Agricultural Research and Extension Center (HRAREC) in Virginia Beach. Tired of topped and improperly pruned trees under or near overhead utility lines, former graduate student Barbara Touchette and I set out to develop a display planting that would trial and highlight more appropriately sized small trees and large shrubs. Dominion Virginia Power, the local service provider, installed three poles and two spans of uncharged lines on the HRAREC property, and Barbara and I began obtaining and installing small to medium trees and large shrubs for evaluation.

Over the past 10 years, more than 150 small- to medium-size trees and large shrubs have been planted and observed. Some, having grown too tall, too slowly, or too wide for street-side planting, have been removed. Others still stand, reflecting desired characteristics, including:

- not more than 20 to 30 feet at maturity, relatively low maintenance (no frequent pruning, no major pest problems, no major litter or messy fruits, leaves or twigs), tolerant of adverse urban conditions (limited soil volume and moisture, compacted soil, air pollution, etc.), and having a slow to moderate (never fast) growth rate.

Funding to obtain the trees and shrubs has been provided by the Virginia Agricultural Council, the Virginia Nursery and Landscape Association, and the Virginia Urban and Community Forestry Assistance Grant Program. A new sign was recently constructed and donated by the city of Virginia Beach. Now that most of the more commonly available trees have been planted at the HRAREC utility arboretum, a search is on for more unusual trees. This year many new trees were purchased from mail order nurseries.

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Introducing one of the ONLY TRULY PROVEN SYSTEMS For Turning Your Tree Service Business Into A Mega-Profit Money Machine - If you intend to stay in the Tree Service business, this will be the most important Report you will ever read.

Listen: There is a “dirty little secret” about making good money in the Tree Care Service business… and… it doesn’t have a whole lot to do with how good of a job you do. You can be, technically, the very best Tree Care Service in your area, use only the highest quality products, know more about tree removal and pruning than anybody else, always do a super job… and still starve to death! You’re busy one week and lonely the next, and always worrying about where your next job is coming from. DREADING WINTER! I know… because… at one time, I nearly starved myself right out of the business by stubbornly believing that… being good ought to be good enough; that by getting better and better at the technical aspects, I’d automatically succeed. Wrong!

I nearly went broke copying the ways everybody else seemed to get customers… plus… wasting money on all kinds of dumb advertising… plus… trying the “cheapest price approach”… which is actually the worst thing you can do. The only way I was able to survive was by begging for just about anyone… plus… doing cold call prospecting which I literally hate!

Then a few discoveries (and a lot of money spent learning) changed my life. They can change your life, too. In fact, if you order my special report… you’re going to learn, too…

How To Make More Money Each Week Than You Now Struggle To Earn In Your Best Month… And… Do It Easier Than You Can Imagine… And… You Will Even Start To Enjoy Being In The Tree Service Business!

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3. You detest “week-end bandleaders and fly-by-nighters” and would prefer to promote your tree service differently.
4. You’re a great Arborist, climber or tree person, but you don’t know beans about marketing and getting customers to make your phone ring.
5. You’re sick and tired of all the so-called advertising experts from Val-Pak, Money Mailer and the Yellow Page company’s that sell advertising that never works.
6. The thought of another winter with no work makes you sick to your stomach.

If you know in your heart you should be making more money, I’ve got the PROVEN, very different, tree care secrets that can blow the lid off your income almost overnight.

It doesn’t matter if you’re a “little guy” dragging a trailer around like I used to, working from a pickup, a one crew operation or a good-sized company. These systems will work for you to as much as triple your income in just a few months no matter how small your company. It’s also worked with many big companies to dramatically improve profits. My system is valuable even if you’re a franchise. It works anytime, anywhere, for anybody. Period. It’s proven, and I’ll send you the PROOF with my free report.

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As a size reference, I designed our utility line arboretum with one red maple and one London planetree, trees that are normally too tall for direct planting under overhead lines. We planted each directly under one of the two spans as reference trees and reminders of how quickly trees will grow tall and interfere with the lines and electrical service. Signage explains this inappropriate height situation to anyone visiting our arboretum. Every few years at our HRAREC annual nursery/landscape field day, Dominion Virginia Power and Asplundh have co-sponsored a pruning demonstration using these “too big” trees. The trees are pruned according to ANSI (American National Standards Institute) standards for utility pruning to illustrate to the landscapers and arborists present what proper directional pruning should look like if the wrong tree is selected for planting in a utility easement.

Our HRAREC utility line arboretum, where poles and uncharged lines are erected specifically to develop a demonstration area, is an example of just one type of utility line arboretum that MTRP is helping to develop in Virginia. We are also developing two other types. In several cities the local utility company is working with city employees and citizens to identify and remove inappropriately tall and hazardous trees in or near utility line easements along main streets. The trees are removed and compatible small trees are planted. The first utility line arboretum of this type was developed in the southwestern Virginia town of Abingdon. In several other towns and cities we will be developing a third type of utility line arboreta in parks or other public areas where lines already exist but where there are no trees currently planted underneath. For these unique efforts, Virginia’s MTRP won Scenic Virginia’s 2003 Most Creative Scenic Improvement award.

The following is a list of some of the small- and medium-size trees and large shrubs currently being evaluated at the HRAREC utility line arboretum.

- Acer campestre ‘Royal Ruby’
- Acer cincinnatum
- Acer fabri
- Acer glabrum
- Acer henryi
- Acer maximowiczii
- Acer monspessulanum
- Acer mandshuricum
- Acer negundo ‘Sensation’
- Acer opalus obtusatum
- Acer pseudosieboldian
- Acer robustum
- Acer sinensis
- Acer sterculaceum (franchetii)
- Acer tataricum
- Acer triflorum
- Acer ukurunduense (caudatum)
- Aesculus woolrichensis
- Amelanchier asiatica sinica
- Amelanchier laevis ‘Snowcloud’
- Carpinus turczaninovii
- Cercidiphyllum japonicum
- Cercis canadensis ‘Appalachian Red’
- Cladrastis lutea ‘Rosea’
- Crataegus ambigua
- Crataegus kansuensis
- Crataegus pinnatifida
- Crapegonespius dardarii ‘Amidensis’
- Diphtheria sinensis
- Fraxinus excelsior ‘Aurea’
- Fraxinus excelsior ‘Aureafolia’
- Hamamelis ‘Firecracker’
- Hovenia dulcis
- Magnolia ‘Butterflies’
- Magnolia cylindrica
- Magnolia ‘Wada’s Memory’
- Magnolia sieboldii
- Magnolia wilsonii
- Malus kansuensis
- Parrotia persica ‘Vanessa’
- Parrotiopsis jacquemontiana
- Phellodendron chinense
- Phellodendron japonicum
- Phellodendron lavallei
- Prunus incisa
- Prunus nigra
- Prunus pennsylvanica
- Prunus sargentii ‘Columnaris’
- Prunus serrulata ‘Amanogawa’
- Prunus ‘Spirer
- Prunus virginiana ‘Shubert’
- Prunus x yedoensis ‘Akebono’
- Pterostyrax psilophylla
- Rhus potaninii
- Sorbus cashmiriana
- Sorbus discolor
- Sorbus x thuringiaca ‘Fastigiata’
- Stewartia rostrata
- Stewartia sinensis
- Styrax japonicum ‘Snowcone’
- Sympogarrotia semidecidua
- Ulmus parvifolia ‘Evergreen’

For more details about the conflict between street trees and utility lines, and to see lists of appropriately and inappropriately sized trees, consult Dr. Appleton’s extension publication. (Virginia Cooperative Extension 430-029 – Trees and Shrubs for Overhead Utility Easements – available through the VCE Web site at http://www.ext.vt.edu/pubs/trees/430-029/430-029.html).
the site of other activities. It is used for woody landscape plant identification for a class taught through Tidewater Community College’s (Chesapeake) Horticulture Program, and by the Virginia Beach Tree Stewards (through Virginia Cooperative Extension) as a volunteer activity (pruning, weeding, etc.). Recently, students in the Norfolk Botanical Garden’s new Arborist Training Program, which targets at-risk youth, planted some of the newly obtained trees. These students will also be helping with pruning maintenance.

The HRAREC and other utility line arboreta in Virginia will bring additional attention to the need for “right plant/right location,” and will enable tree and shrub evaluation under the various environmental conditions that exist across four hardness zones in Virginia. It will also be a place that industry and citizens alike can view small trees that will fit many urban landscape sites. The HRAREC utility arboretum was mentioned in the local newspaper after Hurricane Isabel, with many people subsequently visiting to get ideas of more appropriate replacement trees. Virginia MTRP hopes to share its utility line arboreta projects, and others, via its Web site, www.utilitywisetrees.com, which is under construction.

Dr. Bonnie Appleton is a professor of horticulture for Virginia Tech, based at the Hampton Roads AREC in Virginia Beach, Va.

Cornelian cherry (Cornus mas).
As someone who has been exposed to the tree care industry since birth, I have closely observed its evolution during the past 30 years. I remember my father telling stories of using DDT and having mosquitoes die on his arm as they bit him 15 years later. I can also remember my older brother coming home from pruning work covered with tree wound dressing from head to toe. I recall my first experiences spraying trees during a gypsy moth outbreak, where people would run out in the street to get us to stop and spray their property. I remember dumping 50-pound bags of 30-10-10 fertilizer into 200 gallons of water and root fertilizing all of the trees and shrubs on a property.

Today, DDT is banned, tree wound dressing is only for cosmetic use, and we have to notify neighbors 48 hours in advance of a pesticide application. However, we are still dumping 50-pound bags of 30-10-10 into 200 gallons of water and fertilizing all the plants on a property. Obviously, fertilization has been slower to change than other practices. The 1998 ANSI A300 standard for tree fertilization still calls for 2 to 4 pounds of nitrogen per thousand square feet. Yet the evolution has begun as certain states may make these rates illegal.

In the last decade, biostimulants have hit the market. For me, the transition to these products began in 1993. We began mixing 30-10-10 with biostimulants to “cover all bases” for general fertilization. When mycorrhizae came on the market, we began mixing it in for the clients who were willing to pay for it.

While we used these products, we did not really possess a specific philosophy on biostimulants. We did not have all of the information on these types of products, and we therefore could not educate our clients. What exactly was a biostimulant? If nitrogen was so bad, then why were we using it?

Biostimulants are basically bacterial and fungal food sources. Included are materials such as sea kelp and humic acid; soil conditioners, including yucca extract; species of nitrogen-fixing and phosphorus-solubilizing bacteria; beneficial fungi; and, sometimes, mycorrhizae.

These food sources exist naturally; the process began billions of years ago and remains the same today. On the forest floor, plant parts fall and are decomposed by microscopic animals and fungi. The activi-
ties of these microbes create available nutrients for plants to take up through their roots. This process works so well that individual plant species use energy to release exudates into the soil to keep a specific set of these microorganisms next to their roots. The result is an endless supply of nutrients and protection from soil pathogens.

Once we obtained this information, we began to explain to our clients that this complex food web exists in the forest, but does not thrive on our properties. Because we surround our trees with turf and rake our leaves away, the system is incomplete. We need to add biostimulants to rebuild the soil and try to recreate the forest floor environment. This process sounds simple until you add in other factors, such as compacted soils, infrastructure, pesticide and fertilizer use, and irrigation using chlorinated water.

As a plant health care professional, I was willing to fight for healthy trees and shrubs in sustainable soils not addicted to nitrogen. For years we bought and injected thousands of pounds of biostimulants and sometimes mycorrhizae on client properties. Our best results with biostimulants came when plants were treated at least twice a year. If we could get all of our clients to pay for multiple applications, we could get the results that would keep us on the property.

During this dilemma, I kept hearing about compost tea. I wondered if soil biology was the real answer to soil fertility and pondered the possibility of inoculating soil with microbes found in a compost pile.

In order to get answers to my questions, I called James Sottilo of Treewise Organic Experts. Sottilo had been brewing his own compost tea since 1996. Our entire staff (four people at the time) met Sottilo at a restaurant where he gave us a presentation and showed us pictures of plants treated with compost tea. I then met Paul Wagner.

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of Soil Foodweb New York. Wagner runs a soil testing facility specializing in providing microbial analysis. Sottilo uses the analyses from SFNY to determine the essential microbes needed for the completely organic programs he provides to his clients using only compost tea and microbial foods.

We later saw Wagner’s presentation and it made a great deal of sense. We learned that in addition to creating nutrition, the correct soil biology also provides soil structure, increased field capacity, pore spaces and competition to disease pathogens.

Actively Aerated Compost Tea is made from compost specifically mixed from decomposing plant parts, earthworm castings, sea kelp and humic acid. After agitating in an aerated brewer for 18 to 24 hours, the brew becomes a concentrate of beneficial bacteria, fungi, protozoa and beneficial nematodes. The protozoa and nematodes are the organisms responsible for feeding on bacteria and fungi, with their waste then cycling nutrients to plants. These organisms – protozoa and nematodes – are missing from bio-stimulants.

Since I have DDT in my DNA, it was impossible for me to think of going organic. I dealt with too many borers and leaf miners to think it possible. However, we were intrigued by the thought of brewing our own compost tea and being able to make multiple applications throughout the season, keeping it affordable to our clients.

Last year, we bought a 110 gallon compost tea brewer. The brewer is a cone shaped tank in a metal frame with an air pump, an air diffuser inside the tank, and a heater. The price for this machine is approximately $2,200. The 110 gallons of compost tea will make 1,100 gallons of useable material, at 10 gallons of tea per 100 gallons of water. It costs about $70 to make a 110-gallon brew, so it costs about $6.36 per hundred gallons of useable material.

Those numbers sound incredibly affordable, but you also have to consider other factors. Brewing tea takes a whole day, so you have to plan ahead. It takes about 45 minutes to take the tea out of the brewer, put it in five gallon pails, and start the brew for the next day. The tea will last in the pails for about 10 hours before it goes anaerobic and spoils. It has to be used the day it is produced.

Our plant health care programs now use compost tea as another tool to treat trees and shrubs. In general, trees grow best in fungal-dominant soils, so we brew our teas accordingly. Our motto is “caring for plants from the soil up,” and compost tea is a good fit for this philosophy.

Although research has proven that foliar applications of compost tea work like fungicides, EPA laws currently prohibit its use in this manner. Compost tea microbes out compete and inhabit places on leaves where fungal disease pathogens would like to reside. This use would subject compost tea to EPA registration as a fungicide. Thus, we use it only as a great biological soil amendment. Our clients love the concept and are very receptive to it. We still offer fertilization as a service, but we do it with new microbial inoculums and compost tea with a fungal food source such as liquid humus.

We will always continue to keep insecticides, fungicides and tree growth regulators in our toolbox. However, we would like to reduce their overall use while addressing all of a plant’s environmental needs. If we can enable the plant to fend for itself as its ancestors have for millions of years, then we have achieved two goals: servicing our clients and helping the environment.

Peter Felix is president of Tree Health Management Inc. in Farmingdale, N.Y., a TCIA member since 1993 and an ISA certified arborist.
Washington in Review

By Peter Gerstenberger

When the Lights Came Back On

A push is on for greater control and standardization of vegetation management practices in utility corridors

In the wake of last summer’s massive power blackouts, the Federal Energy Regulatory Commission (FERC) has handed utilities a whopper of a homework assignment. The Commission ordered all entities that own, control or operate designated transmission facilities in the lower 48 states to report on the vegetation management practices they now use for those transmission lines and rights of way. The reports are due June 17.

The information collected from the reports will be reflected in a FERC report to Congress. With the information, the Commission will strongly advocate legislative reform to provide a clear federal framework for developing and enforcing mandatory reliability rules.

This order is driven by the findings of the Joint U.S.-Canada Task Force Final Blackout Report, issued April 5. The order benefits customers because better understanding of utility vegetation management practices on transmission lines will help to support improvements to overall grid reliability.

Section 311 of the Federal Power Act authorizes FERC to conduct investigations in order to secure information necessary or appropriate as a basis for recommending legislation. The law makes clear that the Commission’s authority in conducting such investigations extends to entities otherwise not subject to the Commission’s jurisdiction – basically to any entity that generates and sells electricity and that maintains transmission lines of 230 kV or higher.

Failure to adequately maintain vegetation within transmission line rights of way has been identified as a major cause of the Aug. 14, 2003, electric power blackout and as a common factor contributing to many previous regional outages. Last August, a blackout occurred over large portions of the Northeast and Midwest United States and Ontario, Canada. The blackout lasted up to two days in some areas of the U.S. and longer in some areas of Canada. It affected an area with more than 50 million people and 61,800 megawatts of electric load.

The Task Force identified FirstEnergy Corporation’s failure to adequately trim trees and manage vegetation in its transmission rights of way as one of the four primary causes of the blackout. In the hour before the cascading blackout occurred, three FirstEnergy 345 kV transmission lines failed as a result of contact between the lines and overgrown vegetation that encroached into the required clearance height for the lines.

Trees weren’t entirely to blame. The other primary causes identified by the Task Force were: inadequate system understanding by FirstEnergy and the East Central Area Reliability Coordination Agreement, inadequate situational awareness by FirstEnergy, and failure of the interconnected grid’s reliability organizations to provide effective diagnostic support.

The Task Force emphasized that vegetation management is critical and that many outages can be mitigated or prevented by managing the vegetation before it becomes a problem.

In an Oct. 15, 2003, letter to the chief executive officers of all entities operating control areas or serving as North American Electric Reliability Council (NERC) reliability coordinators, NERC listed six categories of “near term actions,” including vegetation management, that would promote reliable operations of the bulk power system. A copy of the letter is available on the NERC Web site at: www.nerc.com/~filez/blackout.html. While a list of entities that voluntarily responded is also available on the NERC Web site, the actual responses are not posted there.

In March, the Commission made available to the public a 128-page vegetation management report (Final Vegetation Report), prepared to support the blackout investigation. The report details problems with vegetation management relating to the August 2003 blackout, and the impact of vegetation management on electric reliability. The report recommends specific practices that would reduce the likelihood of tree and power line conflicts and provides recommendations for the oversight and enforcement of utility vegetation management activities. The Final Vegetation Report is available on the Internet at www.ferc.gov/cust-protect/moi/blackout.asp.

It is clear from these reports that a higher standard of performance of vegetation management is critical to minimizing the risk of regional power outages and ensuring the uninterrupted flow of electricity in the nation’s interconnected bulk electric systems.

Peter Gerstenberger is TCIA’s senior advisor for safety, compliance & standards. He can be reached at peter@treecareindustry.org.
Gold Faucets in the Bath?

By David Hucker

Very commonly tree appraisers are asked to offer a value for a tree, or for trees, that would have a greatly different value in a nursery than they do in their current location. This example could include trees in a dense forest or woodlot setting, or a large tree in good condition in a location that will not support its size, or perhaps a very valuable cut-leaf Japanese maple in the rear yard of a tiny row home. Although I see it commonly, trees like these should not be appraised at their replacement value or any amount that begins to suggest the value of the tree without adequate consideration for its location.

The condition I am describing can be expressed as “superadequacy” and is described as a feature of a property that is not fully valued by the marketplace. The most common illustration I have read was in the realm of real estate, and offers that “if a house had a marble sink with 24-karat gold faucets, the market would probably not add the cost of the sink and faucets to the value of the home.”

In plant appraisal we have an even more interesting potential twist. Let’s imagine that we perform an appropriate thinning of a dense woodlot, or perhaps we replace a…
65-foot-tall blue spruce in the front yard of a small house with a 25-foot-tall tree. In the first example, we would be removing trees that, while it may be argued that they have value, the end result is the increased value of the property. In the second example, while we would all agree that generally a 65-foot-tall spruce should have a greater value than a 25-foot tall tree, the result in this case is probably an increase, or at least no depreciation, in the value of the property containing the little house.

A fellow appraiser recently related a case in which he was involved where a person went onto a neighbor’s property and cut a number of small understory trees in order to improve his view. The neighbor responded by hiring an arborist to estimate the cost to replace the trees cut and then held out that amount as an appraisal of damage. In fact, the value of the property previously enjoyed by the owner of the land that can be justified and appraised, (i.e. loss of screening); otherwise it might not be reasonable for the owner to pursue a claim.

Do I have a simple solution for situations like the ones I have posed above? Unfortunately, issues regarding the appraisal of the oldest and largest living things on the planet rarely allow for simple solutions. I do hope, however, that after reading this article you will consider the possibilities described and pursue plant appraisal with blinders off. Get the big picture when approaching a project and consider the value of the property and the effect the tree (or trees) has on the value of the property. It is standard methodology to reflect that the value of individual plants and the whole landscape be reasonably dependent upon the value of the land they occupy.

David Hucker, owner of David Hucker Consulting in Berwyn, Pa., is TCIA's representative to the Council of Tree and Landscape Appraisers.
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David Marren – legislative and regulatory advisor

David G. Marren, vice president of safety and regulatory affairs for Bartlett Tree Experts, has been appointed legislative and regulatory advisor for the Tree Care Industry Association. At Bartlett, Marren is currently responsible for ensuring regulatory compliance for all of the company’s operations in the United States, Great Britain, Ireland, and Canada.

He has testified before the U.S. Congress’ Committee on Government Reform on behalf of TCIA’s membership. He has contributed to the development of several federal and state laws that impact the tree care industry. As the tree care industry’s representative to the Occupational Safety and Health Administration, he meets routinely with key members of the agency in order to share information and make progress with safety issues on behalf of the industry.

In just the past year, he worked with officials in a number of states on behalf of TCIA.

“We’ve been in contact with the legislature in New York over pesticides issues and in Connecticut with the Department of Environmental Protection,” he reports. “We offered input on New Jersey legislation regarding crane use and revisions to the New Jersey Tree Expert license law. In Maryland, we met with the secretary of the Department of Natural Resources, which enforces their tree expert regulations and roadside regulations. We have a continuing relationship with Maryland officials where they recently tightened the licensing rules in order to increase professionalism. We offered assistance in creating these standards and in providing educational materials.

“In North Carolina, we met with their state plan OSHA officials to discuss some of the ways they had previously regulated the tree care industry in that state,” Marren continues. “They are now looking for appropriate standards, other than the logging standard, to regulate tree care. In California, we were successful in rewriting a proposed regulation on how to conduct a tree risk assessment prior to climbing. Their initial language could have been taken to require the use of a bucket in every situation. We are also working through some of Cal-OSHA’s issues regarding ground work for line clearance crews.”

He has also worked with officials in Massachusetts regarding water quality issues on Cape Cod and in Texas where Department of Agriculture representatives are looking at pesticide issues. He is looking forward to becoming involved in water use questions in the Southwest in upcoming months.

He is working with authorities in Indiana, Ohio and Michigan regarding the emerald ash borer management plan and their timeline to sanction a treatment.

Most recently, Marren was in Richmond meeting with Virginia OSHA to help them understand what TCIA is doing with its Alliance with federal OSHA. With all of the association’s dealings with federal OSHA on behalf of members, the states are now coming to TCIA for help in understanding commercial tree care and in writing regulations for the industry.

“In the past,” notes Marren, “they wrote regulations with no regard for how it would affect our businesses. Often, the rules didn’t make things better or safer. The environmental regulations didn’t make the environment cleaner; they just made it more difficult to do business. Now, we’re starting to see people come to us and make adjustments in their plans.”

State plans still look to federal OSHA for guidance and interpretation and enforcement. Once TCIA signed an Alliance with federal OSHA, calls started coming in from the states. “Many regulators have expressed an interest in better understanding how tree care operations function,” says Marren. “They can look at a crew at work and not know whether the crew is working safely. In many instances regulators would think a crew was working unsafely when they were following appro-
Read the signs

Twenty-five forward thinking commercial tree care companies have. They’re participating in the Tree Care Industry Association’s limited pilot for our comprehensive new Accreditation Program. When they complete the process, these companies will be the first accredited tree care companies in America. One requirement for TCIA Accreditation is that companies follow ANSI Z133 and A300 standards. Your company may be well on the way to qualifying. Check out the Accreditation checklist at www.treecareindustry.org today and begin to prepare your company for tomorrow.

After completion of the pilot (June 2004), the full-fledged TCIA Accreditation Program will be rolled out to the public.

To learn how your company can become Accredited, please call 1-800-733-2622 and ask for Bob Rouse, Director of Accreditation. E-mail him at rouse@treecareindustry.org. Prepare your company today.

Do good work, get recognized – It’s that simple

Participate in the Excellence in Arboriculture program and the awards ceremony at TCI EXPO 2004.

Companies large and small can enter the best examples of their work to be judged by an industry-leading panel of experts. The Excellence in Arboriculture program is a time-honored, peer-review process to recognize and promote the best tree care projects in the industry. The entry requirements are simple and flexible and there are many categories in which work will be judged. If you think you can’t compete with larger firms for Excellence Awards, think again! Most past recipients are mid- and small-sized firms.

Entries are not judged against all other entries, but against standards of quality tree care. Expert judges determine whether or not the entry meets the criteria established for recognition, not whether it is the best in its category. So think of that one project you are particularly proud of and invest the small amount of time to enter. The rewards are well worth it.

Excellence Award recipients are presented with a handsome plaque and benefit from exposure in Tree Care Industry magazine and on the TCIA Web site. Good luck!

Download entry forms at: www.treecareindustry.org/content/yourassn/excellence.htm.

Marren (continued from page 68)

Marren stresses that he and the TCIA staff are doing everything possible to monitor state and federal issues, but it is very difficult to monitor local ordinances. Members are asked to keep TCIA aware of what is happening in their areas.
Sometimes trenchless construction methods can contribute to a project in a small way and have a big impact. Such was the case recently for Telliard Construction of San Diego, Calif., on a project for the city of San Diego.

Solving the traffic congestion problem in San Diego is one of the top priorities of the city’s mayor. In an effort to relieve congestion, the city decided to reconfigure a major intersection in La Jolla (a suburb of San Diego). The area is well known for the magnificent and rare Torrey pine trees that tower above motorists from the intersection’s island. The intersection needed to be reconfigured and the Torrey pine trees moved.

“The two major roads that run through La Jolla merge at the island intersection,” says Dave Telliard, construction manager for Telliard Construction. “The island between the roads was home to 17 rare and protected Torrey pine trees.”

The city did not intend to sacrifice the 50-plus-year-old trees. “The city wanted the trees removed and relocated,” Telliard says. “Some could be re-planted immediately, but some would have to wait until a new island was constructed. Upon accepting the project, we became responsible for the trees for three years.”

Telliard Construction has a good deal of experience handling and moving trees. Telliard says, “I was fortunate to work on several complex tree moving projects in the past. My father also worked for some prominent hotels and moved palms, some of which were the largest ever moved, at the time. We are still primarily a general contractor, but we do have our landscaping license and a good deal of that type of experience.”

As part of the bid package, Telliard was required to hire a consulting arborist for the project. The arborist, E. Robert Bichowsky, provided on-site consultation in terms of how the trees should be removed, i.e. which roots to cut, how they should be cut and how to contain them, and how the trees should be cared for after they were moved.

“Thearborist’sjob was to consult with us and report to the city. He tells them how the trees are doing and, early in the project, evaluated the trees’ chances of survival. He provides recommendations for care of the trees as well.”

Telliard Construction created a grid composed of 4-inch diameter, 15-foot long steel drill stems under the root ball. This allowed a large crane to lift the trees and place them on a transport vehicle.

Root ball
As the crew prepared to remove the trees, it became apparent that the project was going to be more difficult than anticipated. According to Telliard, the trees were planted very close to the curb and gutter, and accessing enough of the trees’ root systems to remove them successfully was going to be a challenge.

Telliard says, “We needed to dig down and collect the tree’s roots into a ball. Because of the curb and gutter issue, we had to have the arborist on site, helping identify which roots to cut. We had to be very careful during this process and make sure we could get to enough roots for the trees to survive.”

Telliard and his crew chose to gather each tree’s roots in a circular root ball that measured 16 feet in diameter, a radius of 8 feet from the trunk of each tree. Telliard carefully dug around the tree, using a minie-excavator, exposing the tree roots to a depth of approximately five feet. Once the roots were exposed and cut, they were encased in landscape-grade burlap and secured with a wire mesh. At this point, the root ball was complete and the trees were then prepared for moving.

The plan
Removing the 50- to 70-foot-tall pines proved even more challenging than preparing the root balls. Telliard, however, had a plan. He created a grid composed of 4-inch
diameter, 15-foot long steel drill stems under the root ball. This allowed a large crane to lift the trees and place them on a transport vehicle. The problem arose in getting the drill stems in place to form the lifting grid.

“We tried many different methods to get the pipe through the ground and in place under the trees,” Telliard says. “We tried pre-drilling. We tried pounding them in with a Bobcat breaker. We tried a pneumatic hammer, but we just weren’t getting the results we wanted until we talked with TT Technologies.”

TT Technologies of Aurora, Ill., manufactures trenchless technology tools. Product specialist Collins Orton arranged to have several pneumatic piercing tools taken to the job site. They came down with all kinds of different tools and Telliard tried to figure out which one worked best. The tool he selected was the 7-inch diameter Grundomat-P 180 ground-piercing tool.

Piercing tool

Telliard didn’t intend to use the piercing tool for boring; instead he wanted to use it as a pipe rammer to drive the steel rods under the trees. Instead of taking all day to pound one or two stems in place, it took a matter of minutes.

Orton says, “Each tree required up to 15 rods to complete the grid. Between 10 and 12 rods were rammed under the root ball running north to south, spaced approximately six inches apart. The last two were put in place manually, one rod on the north end and one rod on the south end. The final configuration appeared similar to a wood-raft. With the Grundomat, we were able to get the steel pipes in place in two or three minutes per stem.”

Ramming the steel rods in place with the piercing tool was a simple operation. The rods were placed at the base of the root ball and the Grundomat secured to the end of a rod with straps, similar to the ones used in pipe ramming. Once the air was turned, ramming was under way.

Remove, relocate & replant

The crew worked in a two-week rotation. The crew spent two weeks preparing a group of trees. Then came moving day and the crew would move seven to eight trees at one time. A 300-ton crane was used to lift the trees, which Telliard estimates weighed between 70,000 and 100,000 pounds each. The trees were then placed on a lowboy trailer and relocated until they could be re-planted.

“We tied the pipes that made up the grid together, but when the crane lifted the trees the weight alone was enough to keep everything in place,” explains Telliard. “Before the cranes got there we would go up on lifts above the canopy of the tree and drop what we called messenger ropes to the ground. When the crane came, we would attach the ropes to the crane’s straps and guide them through the tree to keep them from breaking any branches.”

Over a period of one month, all 17 trees were successfully removed. Telliard was very pleased with the results of the project. He says, “We didn’t invent these methods for removing the trees, but we saw so many ways to improve upon the techniques.”

Jim Schill is a technical writer in Mankato, Minn.
An Organizational Blueprint for a Small Business

By Howard L. Eckel

As a volunteer in TCIA’s Business Management Advisors Program, occasionally I receive a referral from TCIA of someone who wants to sell a business. My usual procedure is to ask questions about volume, workforce, market area and reasons for selling. I’ll render what advice I can, but I always send them my Information Outline, which they use to organize their business data in a logical format. The information outline can also serve as an organizational blueprint for an ongoing business. A plan, a blueprint to follow, can organize efforts and time and relieve worry.

Making a living operating and managing a tree care, landscape and line-clearing operation was an all-encompassing effort for me that left very little time for family and friends. I can’t say that I solved the time problem early on in my career. However, in subsequent years as my operational responsibilities expanded, I realized that I needed to organize my thoughts and activities in such a way that I was occasionally free of worry.

The task of developing this information outline turned out to be easy. I simply took the accountant’s profit and loss (P&L) statements as a beginning. Why? The P&L statement, line by line, is your scorecard. It lists everything you do or should do in operating your business. As such, it can also be used as an organizational guide for managing your business and time.

Whether you are selling your business or trying to get a better handle on how to run it more efficiently and profitably, a typical information outline would look like this:

Generating revenue

Sales by service category: Do you know where your sales volume comes from? You should keep sales volumes separate by service and activity:

- Tree Pruning and Removals
- Plant Health Care (Insect Control)
- Fertilization
- Lawn Maintenance
- Landscaping
- Other (Snowplowing, Stump Grinding, or a particularly large job)

If you know and track your sales volume by service, you should also separate variable production costs by each service, enabling a gross margin before overhead (fixed costs) to be determined by service. Knowledge of where you are making money – or better yet, where you are losing money – should be readily available. If you are not receiving operational P&L statements that detail the variable production costs by the separate sales activity, as listed above – hire the accountant! At least have someone list on the bottom of each invoice copy for contract work and the time and material extension, just as if it was a T&M job. You can find out if it was bid correctly or if there is a pattern by crew or job type that consistently loses money or comes in over expectation. Solving that one can bring relief and piece of mind. You will also see which services are the most profitable.

Sales by type of contract: Do you know where your sales leads and jobs landed come from? You must track the types of contracts you have. You also should be tracking how sales are generated. What percentage is from cold calling, canvassing, referrals or advertising? Where do your leads come from? Are you receiving requests and spending time pricing the type of work you really don’t want or are not equipped and qualified for? Take control of your sales leads! Refer the type of work you are not interested in to someone who does that work. Take the time to review last year’s sales by type. Is this the business you want?

- Hourly, time and material
- Contract – residential
- Lump sum bidding – commercial/municipal
- Unit price

Forecasting: Looking into your financial future prompts you to think ahead to plan for next year. Forecasting is a key format for planning the future. If you don’t know where you are going, any road will do. Part of this exercise is to develop monthly and long-term projections. Ask yourself where you want the firm to go in two years, five years and 10 years. Then, determine how you will get there. If you don’t have a semblance of what you want as the business grows, how will your staff develop confidence in their own future?

Performance tracking: You can’t just write a long-range plan and put it on the shelf. The key to being a good manager is asking the right questions. The hard part trying to be a good manager is figuring out the right questions to ask! Forecasting prompts some of the correct questions as you begin to compare what actually happened with what was forecast. Find out what happened and why. You don’t have to have an MBA to know that profits in any
and every business can only be positively affected by action in five areas:

1. Increasing sales volume
2. Increasing sales price
3. Altering the sales mix
4. Increasing productivity
5. Reducing costs

Tracking expenses

Personnel: Have you planned your staff needs well prior to when they are needed? Are you going to place help wanted advertisements in the trade publications in the spring along with everyone else? A smart potential hire has already figured out that a firm that waits until spring to hire does not do much long-range planning or thinking ahead, has not developed a marketing plan to smooth out the workload, thus has a choppy employment-stability record. A potential buyer will want to know the number of year-round employees, number of seasonal additions, and the seniority of various personnel.

Equipment use: Efficient use of capital equipment can make or break a tree company. How good are your records? Do you have equipment cost records – monthly and yearly. Can you produce records on the type of equipment you own, the age, individual unit cost, and monthly and yearly hours of utilization? If you can’t, how will you ever know if you have too much equipment? Are you equipped to do your specialties or equipped to do everything? Smart business people realize they can’t be all things to all clients – and it is a losing proposition to try. Old and seldom used equipment costs you money.

Equipment purchasing: Keep records on what you buy (new or used equipment) and how you financed those purchases. If you buy used equipment, have the item inspected thoroughly and updated so the life of the unit is extended. Roll these costs into the original purchase price. Depreciate the total over a new expected useful life of the unit. Always remember that you can include and incorporate depreciation in the billing rates. Repairs represent costly down time, so don’t become emotionally attached to old junk. Junk eats into profits.

Equipment maintenance: Who is assigned to check the oil and water? Does he know when he should? Do you have a safety checklist for each type of equipment? Do you wash down aerial lift booms weekly? Inspect them daily? Do you have all of your records confirming regular maintenance and inspection schedules? When a unit reaches a certain age, a constant repair era commences. If the unit has potential life but keeps breaking down, have it thoroughly rebuilt and all costs spread over the new useful life of the unit. For example, a rebuilt engine is installed and is re-capitalized, but two months later tires are needed and the transmission is ready to go. Rebuild, replace the entire drive train, repaint and install new tires all at the same time, re-capitalized the entire cost on your operating statement.

Equipment depreciation: Don’t use the depreciation schedule your accountants use for tax purposes if it does not coincide with a unit’s actual life expectancy. Set the depreciation schedule based on the anticipated useful life of the unit for your operating statements. What you don’t want is a worn out unit with high repairs and still carrying depreciation. For example, if a lawn mower or a brush hog mower meets accounting criteria for a depreciation life over a period longer than you think the unit will last in real life, use a shorter actual-life framework. The accountant can, if need be, make an adjustment on the general statement after a gross margin from operations is established.

Office and business procedures

Table of organization and paperwork: Do the existing employees have a clear idea of...
what their specific duties are? Does everyone know what the other job categories are supposed to be doing? Does everyone hoe his or her own garden? Is everyone aware of new hires coming on and how they can help them assimilate? Do you have job descriptions and a management systems manual? Do you use time clocks or time reports? Do crew leaders use time reports listing production and equipment time for each job by service so variable production costs can be tracked? Are people assigned to one crew or interchanged?

Performance reviews: How are wage increases handled at your company? Do you do performance reviews at raise time or on some other time schedules? (An employee shouldn’t find out you are not happy with performance when he is expecting a raise!) How do you handle the reviews results with the employee? Do you sit down with each and review their efforts and where you’d like improvement? Do you help them improve, or do you not do reviews at all and yell a lot? How do you encourage employees to upgrade and become more proficient in areas where they do not do well? Do you have a written training program? Which “Golden Rule” do you use with the employees? The “Do unto others …” or the “I’ve got all the gold so I rule” or “I don’t have all the gold yet so out of my way!”

Wage Schedule: Does everyone know the wage schedule at your company? Are you competitive with the average wages of skilled local professional craftsmen? Are wages increased annually, upon merit, or when you feel like it?

Benefits: What is your vacation/holiday schedule? What are the total benefits offered to employees and how much do they cost the company? How much do they cost the employee? Remember that people make more per hour than just the value of their dollar income. At raise time, do you convert your share of the cost of furnishing benefits to additional dollars and cents per hour the employee is actually receiving over and above their actual wage rate?

New hires: Where do you place new hires? Have you designated a trainer and a training program? Did you enlist the aid of your key production people in developing what a new hire should learn, step-by-step? Does the new hire know what he or she needs to learn step-by-step before they hire on? Who oversees their progress? Do you hire from other tree companies? Why? Do you find out why people left their previous place of employment? Who hires replacements, you or the staff?

Safety record: Any potential buyer will want to know the company’s accident history, details on the safety program and insurance costs. There is no such thing as an accident! Accidents are caused. They seldom occur by some fluke. Accidents are a result of one or both of two conditions being present: an unsafe condition or an unsafe act. The insurance industry determined that for every 30 unsafe acts or conditions people will “dodge the bullet” about 26 times, have three minor accidents and one major one.

Subcontractors: Do all of your subs have insurance? Do they have a “Hold Harmless Clause” covering you and your company? Don’t just ask, then accept a verbal answer. Have copies in your files.

Client history: Do you keep a client history folder, which in this age can be computerized and organized easily? Track the type of work performed and when. Keep a property inventory of key plantings, when you are on a property, make a quick notation of key plantings and trees. Why spend time reinventing the wheel every time a client calls?

Advertising and promotion: Do you use an ad agency or do you try to do everything yourself? Either way, your goals must be
clearly defined – both in the short term to
general sales and in the long term to pro-
mote a general awareness of our industry
and your specific place within. Part of this
defining process is deciding what types of
business you want and where to allocate
your resources. Should you spend more
money and have a larger yellow pages list-
ing? If you are working around the clock
and don’t have the time to keep up with all
the requests coming in now, the answer is
“no.” Does your listing highlight and pro-
 mote the type of work you want to do? 
Maybe there are enough leads coming in
from referrals and customer servicing.
Perhaps you could reduce the yellow page
advertising space, save money yet not suf-
f er a loss of leads. Instead of chasing all
over, bidding work you’re not even sure
you want, you could save time developing
work you want to do. To define these goals,
have copies of:

► Newspaper advertising.
► Other types of advertising
► Other types of promotion and involve-
ment (with garden or civic clubs)
► Any civic project, such as Little
League sponsorships

Direct mail: What kind of return do you
get? Did you know that a return of more
than 2 percent is considered great? Did you
know that a prospect that receives three
mailings from you is more likely to respond
to the fourth mailing? Did you know that
concentrating your prospect mailings in the
areas where you already work brings a
higher return? Word of mouth and “saw
your equipment in the neighborhood”
results in an even higher return. Prospect
mailings to new homeowners after they
have settled in for a few months can bring a
return as high as 7 percent.

Have copies of:

► Sample brochures
► Past mailings
► Prospect mailings
► Client mailings
► New homeowner listings
► Rate of returns
► Rate of closures

“I learned a long time ago
not to worry about
something incessantly,
especially if it is far in the
future. Put a call up in the
tickler file on it for the
appropriate time and for-
get about it until it is time
for action.”

Outside relationships: You probably don’t
have a board of directors to give you per-
spective and help, so make friends with
your banker. Ask your banker, insurance
agent and the equipment repair facility
service manager for advice and counsel.
Utilize the assets of TCIA; it is one of the
most proactive industry association groups
I have ever encountered. Used properly, the
staff at TCIA can become your “corporate
staff.”

Succession/Retirement: What changes are
you willing to accommodate as you make
the transition toward retirement? Does
your current organization have the coping
skills to accommodate growth and change?
Do you?

Howard L. Eckel was executive vice
president and general manager of the
Davey Tree Company’s parent and
Canadian Company. In retirement, he
operates a management consulting and
coaching service, Howard L. Eckel
& Associates.
Do trees grow taller in space?

Astronaut Rick Searfoss to speak at TCI EXPO

Do trees grow taller or faster in space? How do you water plants in space? Would OSHA consider a spacesuit proper PPE for tree work in orbit?

Astronaut Rick Searfoss may not have the answers to those questions, but that doesn’t mean you can’t ask them—in person—this fall.

As an astronaut with three missions in space, Colonel Richard A. Searfoss shares with only a handful of people in history some of the most unique human experiences possible. And this October, Searfoss will share those experiences with attendees at TCI EXPO 2004 in Detroit, where he will be the keynote speaker.

As one of fewer than 100 people who have commanded a human space mission, Colonel Searfoss, now retired, speaks on leadership, teamwork and personal performance with authority born of in-depth personal experience. He piloted two space shuttle missions and commanded a third, with more than 939 hours in space and 5,400 hours flying time in 61 different types of aircraft. His first space flight, in 1993, set the record for the longest duration space shuttle mission. In 1996 he piloted Atlantis to the Russian space station MIR. With the STS-90 “Neurolab” mission on Columbia in 1998, Searfoss commanded the most complex scientific research space mission ever flown, with unparalleled mission success.

Commitment and character

Searfoss was the number one graduate in his United States Air Force Academy class. He earned a master of science degree in aeronautics from the California Institute of Technology on a National Science Foundation Fellowship in 1979.

He is a distinguished graduate of the U.S. Air Force Fighter Weapons (Topgun) School and U.S. Naval Test Pilot School. Searfoss brings that same dedication to enthusiastically sharing the principles of success with his audience.

Searfoss graduated in 1980 from Undergraduate Pilot Training at Williams Air Force Base, Arizona. From 1981-1984, he flew the F-111F operationally at RAF Lakenheath, England, followed by a tour at Mountain Home AFB, Idaho, where he was an F-111A instructor pilot and weapons officer until 1987. In 1988 he attended the U.S. Naval Test Pilot School, Patuxent River, Md., as a USAF exchange officer. He was a flight instructor at the U.S. Air Force Test Pilot School at Edwards AFB, Calif., when selected for the astronaut program.

NASA experience

Selected by NASA in January 1990, Searfoss became an astronaut in July 1991. A veteran of three space flights, Searfoss has logged more than 39 days in space. He served as pilot on STS-58 (Oct. 18 to Nov. 1, 1993) and STS-76 (March 22-31, 1996), and was the mission commander on STS-90 (April 17, to May 3, 1998). Searfoss retired from the Air Force and left NASA in 1998. For the next few years he worked in private industry, then was a research test pilot at NASA’s Dryden Flight Research Center. In February 2003, Searfoss left Dryden to pursue private business interests.

Searfoss served as STS-58 pilot on the seven-person life science research mission aboard the Space Shuttle Columbia, launching from the Kennedy Space Center Oct. 18, 1993, and landing at Edwards Air Force Base Nov. 1.

Launching March 22, 1996, Searfoss flew his second mission as pilot of STS-76 aboard the space shuttle Atlantis. During this nine-day mission the STS-76 crew performed the third docking of an American spacecraft with the Russian space station Mir. STS-76 included the first ever spacewalk on a combined space shuttle-space station complex.

Searfoss commanded a seven-person crew on the STS-90 Neurolab mission that launched April 17, 1998. STS-90 was the last and most complex of the 25 space lab missions NASA has flown. Neurolab’s scientific results will have broad applicability both in preparing for future long duration human space missions and in clinical applications on earth. Completed in 256 orbits, STS-90 landed at Kennedy Space Center, Florida.

Searfoss says that his wife and three daughters keep him focused on what’s truly important: faith, family and service beyond self. With firsthand examples from professional and personal experiences, Searfoss speaks from the heart to teach, motivate, enlighten and uplift audiences and fulfill his personal mission: “Sharing the achievement, teamwork and leadership lessons of human space flight while bringing the wonder of space to earth for all to enjoy.”
On October 28-30, 2004
Motor City will become the center of the tree care universe.

Join Us For
The World's Largest
Tree Care Industry
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TCI EXPO™
The Tree Care Professionals' Trade Show

Thousands of tree care professionals. Hundreds of leading vendors. The latest tools, equipment and techniques in conjunction with one of the finest educational seminar tracts in the industry. All at the world-class COBO Conference/Exhibition Center in Detroit, Michigan. If you’re in the business, mark your calendar. On October 28-30, the Motor City will become the center of the tree care universe. **Call 1-800-733-2622.**
We find ourselves looking beneath the surface for answers to tree problems more and more. We find ourselves having to prune roots often, either for a construction project or for trees with girdling root syndrome (GRS). When is the “best” time of year to perform this service?

Andrew Ross, president
RTEC Treecare
Falls Church, Va.

Roots can be pruned safely any time on young trees. Roots on mature trees should never be pruned! The only exception is advanced pruning before moving.

If a tree you have pruned damages property or injures people because of fractures or failure, you will be liable. If a person demands root pruning on a mature tree, get it in writing! Protect yourself.

You can prune girdling roots on young trees. Do not prune girdling roots on mature trees.

The subject of root pruning is extremely broad and variable. Learn some tree biology before you even think about it.

If you want further details, let me know.

Do you have a question on tree biology? Chemistry? Do you know the difference between elements and nutrients? Do you understand why we can’t feed a tree, or why trees don’t heal? Is a lichen algae or fungi? What about questions on the parts and structure of the tree system?

Dr. Alex Shigo

Each month in the pages of TCI magazine, Dr. Alex Shigo will discuss your questions on trees and their associates. He will not discuss any consulting-type questions.

Base your treatments on understanding rather than myths. Send your questions for Dr. Shigo to Tree Care Industry, 3 Perimeter Rd, Unit 1, Manchester, NH 03103; E-mail staruk@treecareindustry.org, or fax: (603) 314-5386.
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Top 8 Ways to Survive a Day at the “Timber Tailors”
(Hints from the Owner’s Daughter)

By Leah Falciola

So you want to be a Timber Tailor. Ha. It was always a sort of sick adventure when we found out that dad was hiring a new employee. In fact, it was a family ordeal.

Mom would bring the poor unsuspecting creature in, sit him down and try to make him comfortable, all the while asking him all the sorts of questions that have nothing to do with a job interview and everything to do with unabashed nosiness. “Just trying to feel him out a little bit, honey,” she would say. “Women have intuition you know.”

Then there was dad. He would just stare at the poor guy, and then after a couple of minutes of this kind of senseless silence he would say something like, “If you are going to work for us, that beard is going to have to go. We have a certain image, you see, that commends us to our faithful customer base.” This always confused the kind of scruffy looking muscle men that dad’s work always attracted. Contrary to what the name of the business might make you think, the “Timber Tailors” has nothing to do with tailoring and everything to do with timber.

These were lumber guys who came looking for a job, the kind of men who were used to going hunting and gutting deer with their penknife, and dad was telling them that they had to shave everyday before they came to work! It was almost fun for us kids to listen to the guys sing their own praises about how in shape they were, or how they just adored outdoor labor. Obviously, we thought, they had never met dad’s kind of outdoor labor. I didn’t try to be negative when I listened to these interviews – I like to think of myself as a positive person – but I loved to bet with my brothers at how long these guys would actually last on the job. If a guy made it for four days consecutively we had a party for him. On average all we could hope for was one day – if they ever showed up in the first place, that is. Yeah, it was sad.

Surviving the first day was the biggest sign that a guy might have some potential. Dad wasn’t dumb either. He wanted to get the most out of his workers and, since he knew that they would most likely not last out the first day anyway, he would schedule the hardest days whenever he got a new worker, just so he’d have an extra hand on these “days of death.” Even if the guy was lucky and got an “easy” first day, there were always other things to look out for.

Sometimes I just felt that I should write up a little manual for the prospective workers who fancied themselves ready for the challenge. Though I never got to write it then, or during the many years that I worked alongside my father in the business, I know now what I would have written as a child had I ever had the guts. I flew the cage only this past summer, so I think I might just still be qualified to add my two cents about the joys and pitfalls of Timber Tailoring:

1. Watch out for the timber. When it falls on you it hurts. Oh yeah, and when dad shouts “Headache!” he’s not asking for Tylenol, though you may need some if you don’t get out of the way. Same goes for the word “Timber!”

2. The all black uniforms are no fun but, hey, at least they have an oak leaf – “our nation’s grandest species don’t you know it” – on the left sleeve, and our motto, “Distinctive Tree Care” across the back. Try and keep our tree care distinctive by resisting the urge to take off your shirt when it reaches 110 degrees. I guess we could always just carve the motto on your back with the chainsaw if you really don’t like the shirt.

3. Always wear your gloves (except cuffed gloves of course, since the cuffs could get stuck on a limb and pull you into the chipper). Sure, they might not be your accessory of choice, but get rope burned once and you’ll thank me.

4. If you get cut with the chain saw while up in the tree, never tell dad. You’re life isn’t worth getting the crew off schedule. My brother, Mike, actually thought it would be a good idea to call mom once when this happened. Dad graciously conceded but told Mike just to tell mom that he needed a ride home and not to tell her what happened so as not to scare her. One hour later mom showed up with pink lemonade. I love pink lemonade.

5. Always listen to the boss’s little kids. Yeah even me, the girl. I know which saw is the 020 and which is the 066 – I’ve been doing this since I was 5. I also know how to make that back cut just right so the tree doesn’t fall on Mr. Sawyer’s newly finished roof, or better yet – you.

6. Don’t take off your helmet. Believe me, you look good in it.

7. Don’t give my father attitude. He’ll take away your lunch break.

8. Above all, never lose hope. OK. Sometimes you have to lose hope. Don’t just lose it, but hack it up into little pieces and feed it through the chipper until it becomes little sawdust chunks of a past memory. Just move on with your life. Hey, you just might not be cut out (no pun intended) to be a Timber Tailor after all. Don’t cry. Big logger guys aren’t supposed to cry. I told you not to cop an attitude. You should have listened to the little girl with ponytails and the protective eye gear.

Leah Falciola is a former member of The Timber Tailors of Stanhope, N.J.
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