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Running a small commercial or utility tree service presents challenges to growing a profitable venture. From finding qualified employees to complying with government regulations, improving customer relations, managing safety and training issues, raising sales closure rates, competing against unscrupulous operators, understanding new science, integrating technology and elevating the stature of the profession, it’s amazing any company can prosper.

We can take comfort in the fact that the challenges you face today are the same obstacles your predecessors met and conquered. And with them every step of the way has been the industry’s trade association. What began as a concept – a committee – at the National Shade Tree Conference in 1938 evolved into the National Arborist Association and then the Tree Care Industry Association. Our purpose then and now is to advance tree care companies.

Read the quotes from association communications below and try to pick the year they were written. You will see that you aren’t alone out there in the business world. You have kindred souls fighting the same fight, tackling the same challenges – and you have had an ally for 75 years.

1. Tree service firms in the high insect incidence areas (gypsy moth) are all anticipating continued growth and good profits. In other areas, optimism is running pretty high as well. Weak spots seem to be in areas affected by the automotive industry, as well as those firms who are not accustomed to working for sales. Year: ___

2. [The author] mentions the desirability of biological control and the use of materials of low toxicity, but says practically nothing about the great benefits of pesticides and the work being done to make their use safe. The articles will be used very effectively as propaganda by the organic cult and those who hate pesticides and are ready to believe any suggestion that such chemicals are so dangerous that their usage should be completely prohibited. You are sure to hear more about this. Year: ___

3. As business managers we welcome and seek out specialists to help us become competent in our multiple areas of responsibilities. Admittedly there is a need for continuing health and safety education in all industries, particularly in a profession such as ours. This law does not promote cooperative effort on the part of government through competent advisors cognizant of the unique problems of various businesses. Rather, it promises further harassment by more incompetent government drones. Year: ___

4. NAA advertisements are now running in Newsweek and will continue at two week intervals through September. The purpose of our national advertising is to familiarize both the general public and the utility industry with our association and position NAA members in the minds of potential customers as professional arborists. Year: ___

5. Never ignore complaints and it is better to go and see the complainer personally than to settle with him on the phone. Of course all of this is for the complainer who is worth it; you are better off without some of them as clients. Year: ___

6. Suggested new association activities for the upcoming year: National advertising and publicity to stimulate tree care; Spray manual; A uniform and effective system of training; Sectional meetings for members; Sponsor research; Group insurance for employees of members. Year: ___

7. NAA and ISA are planning a series of joint venture seminars with ISA chapters. We will offer Tree Care Safety, Electrical Hazards and Trees, and Professional Pesticide Application. By working together it is hoped that a large number of tree workers will receive excellent training. Year: ___

8. Members have reported cases in which commercial tree firms in San Antonio, and New Jersey have misrepresented themselves in the Yellow Pages as being members of the NAA. Members should report such instances, providing copies of any advertising which can in turn be furnished to the Federal Trade Commission so that appropriate proceedings may be initiated under its Trade Practice Rules. Year: ___

9. Our greatest danger, in my opinion, is within the country rather than from any external enemy attacking us. The enormous expansion of the federal government with the resulting increased control over people and their activities, lack of integrity in high offices, and the seemingly gradual shift toward a Socialist State constitute enemy No. 1. It is this that free and thinking people must fight more vigorously. Year: ___

10. The committee chairman emphasized that sales letters should be short, dignified, explain the service and invite an inquiry. Have a service you believe in, be fair with your clients, make frequent contacts by letter and telephone, become well known in the community – then selling will be no problem. Year: ___

Quiz answers on page 28.

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TCI’s mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the non-profit Tree Care Industry Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.

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Outlook

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Tree Care Industry

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Circulation
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Mark Garvin
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4 TREE CARE INDUSTRY – FEBRUARY 2013
New from RAYCO is the RG27 Super Jr, the latest addition to the Super Jr line of compact stump cutters. Packed with user-friendly features, this machine is designed to make the chore of removing unwanted tree stumps as easy as possible. The swing-out control station gives operators a better look at the cutting action and swings in-line for travel through gates. The slewing-ring pivot design lowers the center of gravity and provides a low-maintenance alternative to pin-style pivots. It also means that maximum cutting depth can be maintained across the entire width of cut, unlike competitors who only achieve maximum depth in the middle. Wider tires improve flotation and traction while providing a more robust appearance.

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For many regions of the United States, 2012 was remarkable weather wise because it was the warmest year in recorded history. While the causes for global warming and man’s contribution to these changes remain the topic for debate, there is general agreement in the scientific community that the temperature of the world is increasing, particularly so in land regions of the Northern Hemisphere (Hansen et al. 2006). This warming trend will have profound effects on animals and plants around the globe.

Temperature regimes drive patterns of rainfall, humidity and soil moisture. Insects and mites that attack trees and shrubs are dependent on many environmental conditions, but temperature is one of the prime movers of their development and activity. Insects and mites are ectotherms; that is, they depend mostly on ambient temperatures to warm their bodies and power the processes of growth, development, reproduction and movement. For insects and mites there exists a lower developmental temperature, a lower threshold, below which growth and development cease. As temperature rises above this threshold growth, development and activity generally increase until an upper threshold is reached above which continued exposure results in death.

This strong dependency between temperature and the development and activity of insects and mites portends important changes for plants and insects in a warming world. While no one can predict the exact outcome of climate change on pests and their damage, this article explores some of the patterns and processes associated with climate change that are already underway.

Range expansions of pests

Insects are adapted to exist within a range of ambient temperatures. Some can withstand the heat of desert environments while others thrive in the chill of frigid glaciers. However, the geographic range of many insects is limited by their ability to endure low hibernal temperatures. Temperatures below a critical lower threshold kill overwintering stages of insects and prevent them from inhabiting regions at higher latitudes and altitudes even if their host plants are present. As temperatures have risen, range expansions and outbreaks of insects have been observed in forest pests such as winter moth in Europe, and spruce budworm in North America (Klapwijk et al. 2012).

The unprecedented outbreaks of mountain pine beetle in Canada and the western United States are thought to be related to warmer winters that lack cold snaps lethal to overwintering pine beetles. As a result, mountain pine beetles are marching into coniferous forests further north and those higher in elevation on mountainsides that were once uninhabitable due to lethal cold temperatures (Klapwijk et al. 2012). There is a growing concern that the mountain pine beetle will escape the confines of western North America and become an important pest in central and eastern regions.
Chili thrips, a tropical and subtropical pest, was first detected in the continental United States in the 1860s where it became a major pest of citrus. This pernicious scale insect typically resides in southern states including California and Florida, but in 2008 it was observed in Washington, D.C., and Maryland on elm, holly and nandina in landscape plantings. Its appearance early in the growing season suggests that winters are now mild enough in parts of the mid-Atlantic region to permit survival of cottony cushion scale at least in some years (Gill et al. 2008).

Chili thrips, a tropical and subtropical pest, was first detected in the continental United States damaging roses in Florida in 2005, but it has now spread across states bordering the Gulf of Mexico. Chili thrips is known to feed on more than 100 species of herbaceous and woody plants including camellia, cherry, holly, oak, pear, photinia, pieris, pittosporum, pyracantha, rhododendron, rose and viburnum (Osborne 2011). A recent study suggested that Chili thrips may complete as many as 18 generations per year in warm states including Florida and California. In cooler states to the north, fewer generations are predicted and in regions that experience five or more days with a minimum temperature of ~ 25 F, chili thrips is unlikely to survive (Nietzchke et al. 2008). However, in spring of 2012, chili thrips was detected damaging hydrangea on Long Island, New York. Although the hydrangea had overwintered in hoop houses prior to discovery of the thrips, there is concern that this pest might have survived the mild winter of 2011-2012 outdoors (Gilrein 2012).

Street trees in northern cities may be disproportionately affected by elevated populations of cold-sensitive pests. Cities can be as much as ~18 degrees F warmer than surrounding suburban and natural areas (Raupp et al. 2010, 2012 and references therein). Mimosa webworm is a key pest of honeylocust, a tree native to North America widely planted along streets and as specimens in landscapes. In studying honeylocust and webworms in cities in Iowa, Hart et al. (1986) discovered that damage to honeylocust was significantly less following cold winters and much greater following warm winters. During cold winters many overwintering pupae died. The following spring fewer adults emerged, fewer eggs were laid, and fewer caterpillars were present to damage trees.

The converse happened following mild winters. In mild winters, more pupae survived and more adults were produced. This translated into more caterpillars that caused significantly more defoliation. Hart et al. (1986) suggested that because cities are warmer than the surrounding suburbs and natural areas, they may provide a thermal refuge for overwintering mimosa webworm in the northern part of its range. Hence, honeylocust in cities are likely to suffer more damage from mimosa webworm than those in cooler suburbs or natural areas. To what extent other cold sensitive insect and mite pests find winter refuge in the warmth of cities remains unknown.

Changes in plant and insect phenology

An additional outcome of a warming environment is the seasonal advancement of phenological events in plants in temperate zones. In recent years many plants have broken bud, flowered, and produced fruit surprisingly early. Advancement of phenological events in plants can work to the favor or disfavor of pests. Many early season defoliators such as gypsy moth and cankerworms depend on nutritious young foliage to survive. If larvae hatch too early in spring, foliage may not be present and caterpillars may starve. If larvae hatch too late, leaves may be tough and lower in nutritional value. Insects consuming older foliage may be smaller, less vigorous and unfit.

If plants respond to warming temperatures by producing leaves earlier, pests that might have starved due to emergence at a time of food scarcity may gain an advantage and survive. Conversely, if warming temperatures allow leaves and other plant parts to grow and develop rapidly, then associated pests may find these physiologically older plant tissues less nutritious and less suitable as food. The effects of climate change on the phenological asynchrony between plants and their pests are another rich area of largely underexplored research (Raupp et al. 2012 and references therein).

Warming means more generations for multivoltine pests

Many key insect pests of trees and shrubs have but a single generation each year. This life history pattern is termed univoltine, or one generation. Examples

Wax scales, a large group of tropical and subtropical species, now regularly overwinter in New Jersey, Pennsylvania, and Maryland. Photo by Mike Raupp
include some of our most damaging caterpillars including gypsy moth, eastern tent caterpillar, cankerworms and winter moth; beetles like Japanese beetle, emerald ash borer, and Asian longhorned beetle; and sucking insects including calico scale, tuliptree scale, oak lecanium, obscure scale, juniper scale, honeylocust plant bug and many others. However, more than a hundred species of insects and mites that attack trees and shrubs have more than one generation each growing season and are called multivoltine pests (Davidson and Raupp 2010).

For univoltine insect pests, development is sometimes linked to a critical environmental cue such as day length or a period of chilling. For example, eggs of the gypsy moth must undergo a period of cool temperatures before they will begin to develop and hatch into caterpillars. This period of arrested development is called an obligate diapause. For insects with this type of life cycle, it is unlikely that climate change will affect the number of generations realized in a given year (Klapwijk et al. 2012). By contrast, many species of small sucking arthropods including spider mites, armored scales, aphids, lace bugs, thrips, and many bark beetles are multivoltine. The number of generations realized in a growing season in a location will be strongly influenced by ambient temperatures, with warmer temperatures producing many more generations of pests.

A prime example of this phenomenon is the cosmopolitan two-spotted spider mite, a ubiquitous and damaging plant pest worldwide. In managed landscapes it is a common pest of many shrubs and trees including cotoneaster, burning bush, buddleia, redbud, ash and tulip poplar. Research has shown that at a temperature of 59°F it takes two-spotted spider mite 36 days to develop from egg to adult. At a temperature of 86°F, this transformation takes place in a mere seven days (Sabilis 1981). For two-spotted spider mite an increase of 27 degrees translates into a fivefold increase in generations in the same period of time. For other species of spider mites, including those found on linden, higher temperatures also translated into greater survival and elevated reproduction (more eggs laid per female) (see Raupp et al. 2012 and references therein).

Effects of a warming climate on predator and prey interactions

There is little doubt that natural enemies, predators and parasites, play an important role in reducing pest populations on trees and shrubs (Davidson and Raupp, 2010; Raupp et al. 2010, 2012). As mentioned previously, elevated temperatures enable insects and mites to...
complete their growth and development more rapidly. Many insect pests have specific windows of vulnerability, times in which they are more susceptible to attack by natural enemies.

Frank and Shrewsbury (2004) discovered that predators including ground beetles, rove beetles and spiders were able to subdue and kill small caterpillars but not larger ones. They demonstrated that once prey obtained a certain size they were no longer vulnerable to some predators. In a similar way, early stages of lace bugs were more vulnerable to predation by lacewing larvae than were older more active nymphs and adults that could defend themselves from these formidable predators.

If climate change enables insect and mite pests to race through windows of vulnerability and escape death from natural enemies, then we might expect greater levels of pests and associated damage as a consequence of global warming (Raupp et al. 2012). Conversely, if predators and parasitoids are more sensitive to increasing temperatures than their herbivorous prey, then the balance may tip in favor of the beneficial insects and less plant damage and fewer pest outbreaks may occur as the world warms (Berggren et al. 2009).

The world has undergone several periods of warming and cooling over its 4 billion year history. Historically, as the world warmed and cooled distributions of plants and animals changed. Although there is much concern that the current increase in global temperatures will lead to greater amounts of damage to trees and shrubs associated with greater numbers or activity of insects and mites, empirical evidence to support these concerns is limited. We are in the midst of a great experiment and only time will tell how a warming world affects woody plants and their associated arthropods.

References


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This article was based on his presentation on the same subject at TCI EXPO 2012 in Baltimore last November. To listen to the audio recording of that presentation, go to the digital version of this issue of TCI online at www.tcia.org and click here.
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October 2012 was a very exciting month for all of us who are involved in tree disputes, claims, and lawsuits in California. A California Court of Appeal reviewed, in detail, the methods arborists use to appraise trees and the amount of money a tree owner may recover for damage to his or her trees.

The Court made its finding in a case entitled Rony v. Costa. Tree owner Rony (“tree owner”) lived on her property for over 30 years. A Monterey cypress tree grew in the northwest corner of the property and another in the northeast corner of the property. She regularly had the trees professionally pruned and maintained.

Tree owner’s property was separated from her neighbor’s property by a fence. The neighbor wished to clear branches that encroached into his property in order to build an outdoor pizza oven in his backyard. The neighbor knowingly hired an unlicensed day laborer to cut the branches for approximately $500.

The day laborer did not cut the encroaching branches back to the property line that tree owner and neighbor shared. Rather, the day laborer placed a ladder from neighbor’s property, over the fence, and into tree owner’s property. He made 32 cuts on the tree that were not of professional quality. Tree owner filed a lawsuit against neighbor. She did not sue the day laborer.

At trial, tree owner’s expert testified that it was necessary to remove the tree and replace it with a tree growing in a 108-inch box. He followed the 8th Edition of the Guide for Plant Appraisal and determined that it would take 10 years before the replacement tree could serve a similar role in tree owner’s landscape as the tree that was damaged. Tree owner’s expert added 5 percent per year to the replacement cost for the 10 year period.

The neighbor’s expert utilized the “Trunk Formula Method” contained in the 9th Edition of the Guide for Plant Appraisal to appraise the tree. He determined that the day laborer had removed 30 percent of the tree’s canopy. Therefore, he testified that the value of the damage to the tree was 30 percent ($7,500) of the tree’s total value.

The Trial Court rejected the opinion of tree owner’s expert that the tree needed to be removed and replaced. It believed that the opinion of neighbor’s expert, based on the Trunk Formula Method, was the more compelling of the two appraisals of the damage to the tree.

However, the Trial Court ruled that the figure did not fully compensate tree owner for the damage she sustained. It stated that amount “does not fully compensate plaintiff for all the detriment proximately caused by defendant’s trespass because she is left with a tree that is less of a prominent feature in her yard with less character and some diminished amount of shade.” In addition to the $7,530, the Trial Court awarded tree owner $15,000 for the loss of prominence and shade. The Trial Court then doubled the total award of $22,530, to $45,060, pursuant to one of California’s doubling statutes for wrongfully damaging or destroying another’s tree. (California Civil Code section 3346.)

An Appellate Court carefully reviewed the rulings of the Trial Court and in a detailed written opinion expressly approved of them. The Appellate Court’s opinion will be published in California’s official state reporter of California Appellate Court cases. Unless successfully appealed, the Appellate Court’s opinion in Rony v. Costa is now a California case that other California courts will follow.

Randall S. Stamen is an attorney and an ISA Certified Arborist in Riverside, California. He practices arboriculture law throughout California, is a consultant to other attorneys, and lectures throughout the United States and internationally on arboriculture law. He is also the author of the book California Arboriculture Law.
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**Cutting Edge - Products**

**Vermeer BC900XL brush chipper**

Vermeer’s BC900XL brush chipper processes material up to 9 inches in diameter. A large 9-inch by 14-inch feed opening reduces the need to trim heavily branched material before feeding it into the chipper. A 33-inch-diameter (83.8 cm) disc rotates at 1400 rpm and features two steel chipper knives with two usable cutting edges each. Two shear bars each have two usable edges to help extend wear life. The patented SmartFeed system monitors engine rpm and automatically stops and reverses the single horizontal feed roller when feeding larger, hardwood material, also helping enhance productivity. A 40-hp (29.8 kW) Kohler Command CH1000 gas engine provides the power to pull and process difficult branch material. The engine also offers a no-spill oil-filter-change feature for ease of serviceability. Safety features include a long feed-table design, a four-position feed control bar, and a bottom feed stop bar strategically located to make it possible for the operator’s leg to strike the bar and shut off the feed, either intentionally or automatically, in an emergency situation.

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**Bandit ArborVAC yard vacuum**

The new Bandit ArborVAC is a heavy-duty yard vacuum and a blower. It is also a compact processing machine that pulls in debris ranging from leaves to wood chips and stump grinding mulch, chops it, and sends it out the directional chute with all the force people expect from a Bandit. A discharge tube is also available, allowing the processed material to be deposited wherever it’s needed. Easy to operate, low on maintenance and big on production, the ArborVAC is available with gas engines from 14 to 27 hp, highly mobile and easily towable. A lightweight machine, the ArborVAC can remove piles of leaves, wet or dry. Used as a leaf blower, the ArborVAC can move considerably more debris as compared to typical industrial backpack blowers. The large intake tube is easy to handle. The ArborVac’s simple, durable design means it will continue to work hard year after year.

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**Echo CS-355T top-handle chain saw**

Echo’s new CS-355T Top Handle Chain Saw features a compact design that combines light weight, easy starting and powerful cutting performance at an affordable investment. Weighing in at 8.0 pounds, the CS-355T features a 35.8 cc professional-grade, two-stroke engine that delivers 25 percent more power than the Echo CS-360T. The CS-355T features a palm rest – adjustable to three hand sizes – that provides greater control by supporting the operator’s hand and preventing it from sliding. The contoured handle is angled for a natural wrist position so there’s less wrist movement and better balance. A reduced-effort starting system makes for nearly effortless in-tree starting. Other features include a G-Force Engine Air Pre-Cleaner that pulls dust and chips from the air box; an easy-access, rear-mounted air filter; cut-outs on the dual-post chain brake handle for a clear view of the bar and chain; and a new style chain providing up to 9 percent faster cutting efficiency and better anti-vibration characteristics.

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**Jarraff Tier III engine option**

Jarraff Industries recently unveiled a new engine option for its Jarraff All-Terrain Tree Trimmer. The new Jarraff will now be available with a Tier III Cummins liquid cooled, 130 horsepower electronic controlled engine. The increased horsepower will improve the unit’s grade climbing abilities and current emissions rating. Customers will also benefit from an increased service network for the Cummins product.

The Tier III engine option is available in the 4x4 wheeled Jarraff configuration only. A Tier II engine option, a 97-hp Deutz diesel, is still available in both wheeled and track configurations. A track Jarraff with a Cummins engine will be available later this summer. The Jarraff All-Terrain Tree Trimmer provides ROW maintenance contractors a dynamic field of operation, offering a 360-degree range of motion, 40-degree lateral tilt and 75-foot cutting height. Two four-way joysticks and fingertip controls offer optimal precision. Jarraff’s cab is completely ROPS, FOPS and OPS certified. Full panel, tinted lexan windows prevent distortion and provide a clear view of operations. The cab also comes with a heating and air conditioning option. The Jarraff adds safety to every job because workers never leave the ground.

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Morbark acquires Boxer Equipment from Mertz

Morbark, Inc., in January completed the acquisition of Boxer Equipment, a product line of Mertz Manufacturing, LLC that manufactures a full line of compact loaders, or mini skidsteers, and attachments.

The Boxer acquisition enables Morbark to continue to solidify the company’s strategy to build equipment that creates opportunities for their customers, dealer network and employees in Morbark’s existing tree service and rental markets, and to expand their market presence and current equipment offerings to a broader range of industries and end users.

Manufacturing of the Boxer Equipment line is currently being moved to Morbark’s 1.1 million-square-foot factory and corporate headquarters in Winn, Michigan. Manufacturing of the Boxer line begins in the first quarter of 2013.

Commenting on the acquisition, Jim Shoemaker, Jr., Morbark, Inc. president, said, “The strong strategic fit between our companies, combined with Morbark’s expanded capabilities in product development, manufacturing and dealer distribution will enable us to efficiently maximize the value and long-term potential of the Boxer product line, allowing it to become one of the market leaders in the compact utility loader category.”

In other news, Morbark in December added Cobb County Tractor Company as a dealer for the Morbark Tree Care Products line for customers in the metro Atlanta, Georgia, area.

Phillip Chambers made CEO at Townsend Corporation

TCIA Board member Phillip E. Chambers was appointed chief executive officer for The Townsend Corporation effective January 1, 2013. Chambers joined the company in 2007, leading daily operations as president and chief operating officer for the past five years.

During Chambers’ tenure, the company has enhanced its corporate structure to better focus on safety, customer service, profitability and growth. The company has grown its relationships with current clients and its customer base by focussing on client needs. Chambers has emphasized employee development and a climate of teamwork while preserving the Townsend family culture that has endured for more than 65 years. Gary Townsend will continue in his capacity as the company’s executive chairman.

Bandit adds dealers in South, Midwest and Northeast

Bandit Industries has new dealers serving customers in the South, Northeast and Midwest. These include: Miner’s Equipment and Truck Repair – Oklahoma City; Bobcat of Bowling Green – Southern Kentucky; Huntsville Tractor and Equipment – Northern Alabama; Knickerbocker Russell Company – Western Pennsylvania, Northern West Virginia; Tri-State Bobcat – Minnesota and Western Wisconsin; CJ Logging Equipment – New York and Connecticut; and The Oliver Stores – New Hampshire, Vermont, Maine.

Bandit also has partnered with Southwest Bobcat to provide Bandit parts and service support at all five Southwest Bobcat locations throughout Southern California and Nevada. Southwest Bobcat has locations in Los Angeles, Orange County, San Diego, Riverside, and Las Vegas. Bandit Tree Care Products of Southern California is located in Anaheim.

Terex adds Pacific Northwest dealer

Terex has signed a distributor agreement with FMI Sales (Fiber Marketing International) to sell Terex Woodsman chippers. FMI will be a full-service distributor servicing Eastern Washington, Northern Idaho and Montana. FMI is an authorized Compact Terex Dealer.

Dave Kopp, president of FMI, said, “The addition of the Terex Woodsman chippers compliments the Terex PT-100G Forestry products and will allow us the opportunity for cross-selling to our existing customer base.”
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Contact: (757) 523-4734; www.mahsc.org

February 6-8, 2013*
New England Growers
Boston Convention & Exhibition Center, Boston, MA
Contact: www.newenglandgrowers.org; (508) 653-3009

February 10-12, 2013
Ohio Tree Care Conference
Dayton, OH
Contact: www.ohiochapterisa.org; (614) 771-7494

February 10-14, 2013*
Winter Management Conference
St. Kitts Marriott Resort
Contact: 1-800-733-2622; dcyr@tcia.org

February 13-15, 2013
ISA Ontario Chapter Annual Meeting
Crown Plaza, Niagara Falls, Ontario, Canada
Contact: info@isaontario.com; (888) 329-4726

February 18-19, 2013
Great Plains Tree Conference - NAA Annual Meeting
The Cornhusker Hotel, Lincoln, NE
Contact: www.nearborists.org

February 19-20, 2013
Delaware Arborist & Tree Care Seminar
Hagley Museum Library, Wilmington, DE
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February 19-20, 2013
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February 20, 2013
ISA Exams (All Exams & Tree Worker Written/Skills)
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February 24-26, 2013*
PennDel Shade Tree Symposium
Lancaster, PA
Contact: www.penndelisa.org; (717) 412-7473

February 27 & 28, 2013
Certified Treecare Safety Professional/CTSP Workshop
McConico Building
Round Rock, TX
Contact: 1-800-733-2622; peter@tcia.org

March 6-8, 2013
The Work Truck Show
Indiana Convention Ctr.
Indianapolis, IN
Contact: 1-800-441-6832; www.ntea.com

March 15, 2013
Tree Care Equipment Auction
Rayco Mfg. facility, Wooster, OH
Contact: Alan Chenevey (to sell) 1-800-392-2686

March 20-21, 2013
Certified Treecare Safety Professional/CTSP Workshop
Hilton Garden Inn, Bradley Int’l Airport
Windsor, CT
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March 24-26, 2013*
Southern Chapter ISA Annual Conference
Memphis, TN
Contact: www.isasouthern.org

April 12-14, 2013
Midwest Urban Tree Care Forum (MUTCF)
Chicago, IL
Contact: www.midwesturbanstreetreeforum.com

April 17-18, 2013
Certified Treecare Safety Professional/CTSP Workshop
Baldwin Office
Arcadia, CA
Contact: 1-800-733-2622; peter@tcia.org

May 7-10, 2013*
WCISA 79th Annual Conference & Trade Show
Hyatt Regency Indian Wells
Indian Wells, CA
Contact: www.wcisa.net; (866) 785-8960

May 16-17, 2013
Certified Treecare Safety Professional/CTSP Workshop
Lansing, MI
In conjunction w/ five-state tree climbing competition
Contact: 1-800-733-2622; peter@tcia.org

June 9-11, 2013*
Trees Florida
Ft. Lauderdale, FL
Contact: www.treesflorida.org

July 31-August 1, 2013
PANTS Penn Atlantic Nursery Trade Show
Pennsylvania Convention Center, Philadelphia, PA
Contact: (732) 449-4004; www.pantshow.com

August 3-7, 2013*
ISA Annual International Conference and Trade Show
Toronto, Ontario, Canada
Contact: www.isa-arbor.com

November 14-16, 2013*
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* Indicates that TCIA staff will be in attendance
You may be getting solicitations and messages that are misleading, at best, about “new” training requirements for employers under OSHA’s revised Hazard Communication Standard. Here is what a tree care employer really needs to know and do.

OSHA’s Hazard Communication Standard (HCS) – sometimes referred to as the “right-to-know rule” – was promulgated in 1994 as a performance-oriented standard that provides guidance for defining hazards and for performing hazard determinations for “hazardous substances” that employees encounter in the workplace.

If employees use gas out of a can, the employer is subject to this rule. In fiscal 2011-12, the Hazard Communication Standard was the third most frequently cited standard among tree care employers.

In OSHA’s view, HCS 94 did not specify an approach or format to follow for classification and presentation of hazard information.

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) has certain aspects that are performance-oriented, but the key provisions are a uniformity-oriented approach for the classification and presentation, through labeling and safety data sheets, of hazard information.

The HCS12 is written as a modification to the existing standard, and those parts of the standard that do not relate to the GHS, or are already consistent with it, remain unchanged. Additionally, some minor changes to terminology have been made in order to align this rule with language used in the GHS. For example, the term “hazard determination” has been changed to “hazard classification” and “material safety data sheet” has been changed to “safety data sheet.”

If employees use gas out of a can, the employer is subject to this rule. In fiscal 2011-12, the Hazard Communication Standard was the third most frequently cited standard among tree care employers.

This rules change is inconsequential unless you’re a chemical manufacturer or distributor. As one moves downstream to the employers – at least those in TCIA’s membership – the only change of any significance at all is the aforementioned name change from material safety data sheet (MSDS) to safety data sheet.

To view a side-by-side comparison of the old law and new law, type the following URL into your Web browser:

www.osha.gov/dsg/hazcom/side-by-side.html

There is no need for the typical tree care employer to change a thing, unless of course they never implemented a HAZCOM program in the first place. TCIA has a HAZCOM guide available for its members under Compliance Resources in the resources section of www.tcia.org. OSHA has fairly good resources on its website. Employers should make sure they meet at least minimum compliance requirements.

Peter Gerstenberger is senior advisor for safety, compliance & standards for the Tree Care Industry Association.

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**WASHINGTON IN REVIEW**

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Spray technologies have come a long way in a decade or so. For the 30 years or so leading up to the recent evolution in spraying, it was sufficient to be able to shoot a jet of nutrients, pesticides or herbicides onto woody vegetation or turf. But with pressure from the government, the environmental movement and, ultimately, economics, the spray industry has adjusted rather well.

Systems and materials are more efficiently used, which of course saves time and money and also reduces the impact of control agents on localized ecosystems and neighboring environments.

Whereas a generation ago advancements in spray technology may have been largely in tank capacity, pressure and distance of application, today things are more sophisticated. Perhaps it can be as simple as bypassing a truck’s power systems in favor of a dedicated “pony motor,” which can be gasoline or electric powered, to run sprayers, or as intricate as employing satellite global positioning systems (GPS) and soil analyses to ensure not only exact placement of the spray materials, but the amount and exact type required.

Also moving up from a generation ago, government controls forced many out of the business, especially smaller companies, encumbered by licensing and insurance. That left the field open largely to larger companies that had the wherewithal to overcome the economics and politics of spraying.

Now, those same advancements that made liquid applications green and economical have also served to put spraying back into the hands of smaller operations, albeit those with business savvy. One manufacturer actually claims that a well-planned, one-person spray operation on any given day can have the capability to generate more profit than a two-person chipper/bucket crew.

Generally, spray units today are custom-designed for the user. They can be a rack-type, better known as skid sprayers, which typically are used in pickup trucks. They are slid or lifted on the spray unit’s rack frame into position using a fork lift or loader. Then there are what are known as modulars, usually installed in larger van or box type trucks or on flatbeds or truck chassis. They are “modular” in the fact that key components such as the pump, engine, hoses and tank can be installed in an endless variety of ways to accommodate the business needs and the truck platform.

Also, when one talks of spray equipment today, the discussion often includes equipment capable of ground injection of plant care materials.

Rhett Clark is president of Gregson-Clark Spraying Equipment headquartered in Caledonia, New York (between Rochester and Buffalo), and he explains how his company is on the cutting edge of this new age of arbor spray technology.

“The majority of tree spray systems we sell are multi-tank units that provide our customers with the ability to make very specific, targeted applications utilizing an IPM (integrated pest management) approach,” Clark says.

“Gregson-Clark Spraying Equipment has been manufacturing innovative spraying systems for 18 years. We manufacture primarily for the professional lawn and tree care industry,” he says. “Our customers range from one-person operations to national franchises.” The company offers everything from skid sprayers and modular systems to open or enclosed custom spray trucks, accessories, injector systems, hitch sprayers, roadside vegetation control to application products.

According to Clark, “Record-keeping has become increasingly important for pesticide use reporting and also to evaluate the control products, fertilizers and the methods of applying them. Many of today’s control products are very expensive and are applied at a very low rate, so accuracy is extremely important.”

He touts what he calls an emerging...
application technique and cutting edge for the tree care industry. “We have done extensive work with component manufacturers to develop and test systems to record specific location by GPS, date and time as well as type and amount of materials used. It has been a challenge to find flowmeters that can perform consistently for tree care applications,” he says. (GPS technology like this has been used for more than a decade in farming, where even small-scale agribusiness owners can utilize GPS to track with pinpoint accuracy usage of fertilizer, pest control and irrigation, recording where, when and what was done.)

“We have also seen a dramatic increase in the percentage of customers using organic products.” Clark says. “The organic products themselves and the methods of storing and applying them have improved significantly to where dependable results can be achieved. Many of these products contain living organisms so they are typically applied at lower pressures. Diaphragm pumps and coarse strainers are most commonly used for organic products. Special accommodations for decontamination and rinsing may also be necessary,” he concludes.

What should be attractive to arbor care professionals would be systems such as his company’s V-line of sprayers. They start with an economical unit, the V-50ST, featuring a 50 gallon tank that will slide into most small-size pickups. It features 200 feet of ⅜-inch PVC hose and a manual rewind. Next comes the 100-gallon V-100ST for mid- and full-size pickups. Allowing for the re-positioning of power hose re-wind to beneath the pump and engine also makes it utilitarian for the same-size vans with sliding doors. This unit features 300 feet of ½-inch hose.

Clark says its most popular model is the V-200ST, a 200-gallon unit sized for full-size pickups, which can be upgraded with accessories such as a 50- or 100-gallon add-on modular tank and the Eco-505 Spray Injection System. At the high end of the line is a 300-gallon system that can be used in full-size trucks or on flatbeds. It can accommodate two hose reels.

Gregson-Clark uses 3-D modeling systems to design custom modular systems, typically found in vans, enclosed trucks and flatbeds. The object, according to company literature, is not only versatility but also maximum use of space. Modular tanks range in size from 35 to 300 gallons.

Tom Duffy is spray equipment sales manager for SherrillTree, one of the nation’s oldest and leading suppliers of arbor care gear, products and supplies. Duffy, a SherrillTree employee for more than a decade, has nearly three decades of spray experience to his credit, having run his own company in Massachusetts. Tree health is a considerable portion of the SherrillTree business, and Duffy is their expert in the technology.

The company’s involvement in the spray side of arbor care came more than 15 years ago when a customer asked SherrillTree to build custom spray equipment. According to Duffy, “It was a natural fit for our clientele. We did so well with this the first year, the customer bought several pieces of equipment. We immediately saw a going business,” he says. “Now, everything we sell is custom built, to fit specific customer application needs.”

“We start at 50-gallon spray rigs. (Options include 100, 150 and 200-gallon units as well as dual tank setups with 500-gallon capacities, and commercial

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configurations up to 1,000 gallons.) All skid-mounted units are designed to slide easily into a truck,” he says.

On the truck-mounted side, spray rigs start with a chassis supplied by the customer or more likely from a SherrillTree source. Examples such as fuel-efficient Isuzus, Fords, International or GMC chassis are fitted with a custom SherrillTree body. “The chassis have to have the right wheelbase to manage the weight,” Duffy says.

Features typically include welded aircraft-grade aluminum bodies, smooth finished corners, no exposed seams or welds, rear-mounted high-visibility safety strobes, sealed LED lights & flashers, high strength 3-inch tubular steel bumpers, custom interior shelving and storage, solid structural decking for maximum load capacity, curbside operator controls, commercial grade, locking roll-up doors and epoxy primer coats with aviation grade poly finish paints.

Duffy dwells on these enclosed truck units for reasons one might not think of first: Advertising and promotion.

“The skid-mounted unit is very portable using a forklift. But the major change we see in the business right now is users who want to go with fully enclosed trucks. They are marketing to the customer,” Duffy explains. “By taking the extra step to provide that piece of equipment, the truck becomes a traveling billboard around town. You can put all sorts of messages on your truck. This is not only an equipment item, but also a marketing budget item,” he says.

One of the benefits is that, with customers becoming more responsive to brand name lawn care services that promote in the same way, the rolling billboard gives the tree care pro an advantage with respect to tree health. And there is the potential for a new profit center – lawn care.

Duffy explains that truck bodies are all made of aluminum so they won’t rust. Some with larger pumps run the pumps off the truck PTO. “Some run with a pony engine. We have customers who will run a large 60-gallon tank off the truck PTO for jobs requiring high pressure and high GPM (gallons per minute), then they can convert to low pressure, needed for soil injection.”

For example, he says, “When liquid-fertilizing trees, pressure needs to be at about 200 pounds pressure with not a lot of material flowing. The operator may use an injector that feeds 5 gallons of fertilizer per inch of tree trunk diameter. We have a root feeding needle for which the operator needs to squeeze a lever to apply a pre-calculated amount, in most cases 5 gallons per inch of trunk diameter is the normal recommended rate for most fertilizers, typically in five or six holes around the tree depending on trunk diameter. This provides for more injections sites, so no high pressure is needed,” Duffy notes.

As the popularity of the equipment grows, so does the demand for related products. “We continue to expand our plant and tree health care product line,”
Duffy adds. That includes fertilizers and soil amendments, shrub and tree insecticides, fungicides and plant surfactants.

“We definitely see a trend toward favoring spraying. But we all have to keep in mind federal, state and local laws,” Duffy says. He recalled the spray environment decades ago when mounting taxation, licensing, controls and insurance, largely based on environmental fears, led many in the tree care business, mostly small to mid-size companies, to conclude spraying capabilities were not worth the hassle. So they left it to larger companies that could better absorb mounting costs because of their size.

“Things have swung around a lot in the last 10 years,” Duffy maintains. Some of that, he says, is due to the proliferation of spray technologies among landscaping companies and a growing acceptance of integrated pest management. “Governments have backed off a little,” he says, “but there are still strong sections, for example in New York State, where laws are by county.”

“There, you need a license, make application requests and notify neighbors within a few days of when you intend to spray,” Duffy says. “It is the company, not the property owner who has to make the notification, and if it rains the day you plan to spray and cannot do the job, you have to start the process all over. And there are pockets of special interest, such as on Long Island where you cannot use things like phosphorous-based materials. And we are finding that customers are asking for organic compounds, like compost tea,” Duffy says.

All that said, Duffy maintains that as far as spray technology goes, “It is by all means worth it! Put out two employees with a bucket truck and chipper and charge what you can get. I say you can send one employee with a spray rig who will generate more than two times the income.” He warns that, “You do have to have the clientele so you can move house to house. I can see doing as many as 15 jobs and generating $3,000 a day.

“The point is that one of the most profitable parts of any tree care company can be plant health care,” Duffy says.

Taking a slightly different approach is Green Pro Solutions, LLC, headquartered in Dillsburg, Pennsylvania.

According to Gary Maurer, Green Pro president, the 40-year-old company has three divisions: equipment, products and soil testing. Very little marketing is direct-

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SherillTree’s truck-mounted spray rigs include solid structural decking for maximum load capacity, curbside operator controls and commercial grade, locking roll-up doors.
ed to the consumer. Agriculture is the major exception. Most is to professional services firms such as turf and arbor care professionals.

“Right now, there are only a handful of companies doing nutrient-availability soil testing, what we refer to as horticultural soil testing. This replicates how the plant roots communicate with the soil,” he says, and can be significantly different than a standard agricultural type soil test. The objective is to assess soil and plant together to determine the most efficient and effective way of applying health care materials. Maurer explains that simply spraying or injecting a compound does not mean it will do the job. Soil conditions, the plant biology and the compound itself work as a system.”

“We believe that no tree can grow better than the soil it is planted in, so we focus on soil-based nutritional programs and products. Nutrition is based on putting something into the soil and having the tree find it and pull it into the tree. When soil is not functioning, it is not a transmission agent. We can custom-blend products to alter soil characteristics and function based on the horticultural analysis.”

He also notes an alternative. “We can actually bypass the soil and obtain 100 percent absorption with foliar application (spraying), which does not leach out of the soil and affect ground water or streams, nor does it volatilize into the atmosphere,” he says. “It is very efficient.”

“On the soil side we can do soil analysis to figure out what the tree can find. Most tests reveal what is in the soil but not...
whether a plant can use it. Our test looks at soil as the plant does and determines what nutrients are available,” Maurer maintains.

By way of illustration, he also refers to the phosphorous ban in sections of New York. “If you take a regular soil test you will find phosphorous. Yet, a tree may be starving for phosphorous and needs it in another compound to make it accessible to the tree,” Maurer explains. “Our test can tell exactly what can be done to make the soil an agent of transmission for nutrients to the tree.”

There are other tests available from Green Pro, such as what kind of and how much material would be needed to adjust nutrients in the soil. Ultimately, the recommendations are to target specific uses and amounts, using an informed approach to spray and injection technologies. “This is not guessing. It is a diagnostic approach,” Maurer maintains.

Looking at the future of the market, the economy, he says, will control whether activity is focused on residential and commercial properties. “For the most part, our industry is dependent on discretionary spending. If a family has to choose between food on the table and feeding a tree, right now a family may not choose to feed the tree or manage the diseases. It’s the same for commercial clients with businesses under stress in this economy.”

“Sprayers have changed considerably,” he maintains. “Thirty years ago, a 60-gallon-per-minute (gpm) sprayer could shoot 100-foot trees for gypsy moth and that was sufficient,” he says, noting that we are dealing with not only a host of new sprayer products and materials but also concepts such as injectables. “What I see in the future is a balance between the two, spraying and injections. For some tree diseases there are currently no injectables,” he maintains.
TCIA is celebrating its 75th anniversary this year. Founded in 1938 as the National Arborist Association, the name changed to the Tree Care Industry Association in 2003.

We need you to help us put names with the faces in many of our older photos. We have begun posting these photos on our website, www.tcia.org/75th, where you can view them and follow the directions there to provide us with IDs. We’d also like you to share your memories, anecdotes and photos of the people/characters, events, equipment and/or practices from the past 75 years and we will post them on the website or share them with TCI Magazine readers.

To share photos or otherwise contribute to our archival research, email 75th@tcia.org or call Amy Tetreault at 1-800-733-2622.

In keeping with what Mark Garvin started in his column on page 4 in this issue (answers to his “quiz” are below), see if you can identify and name the year of the two old spray pics on the cover of this issue and those on this page. For the answers to this quiz, visit www.tcia.org/75th.

**Garvin Quiz Answers**

1. NAA Arbor Action newsletter, 1982
2. NAA newsletter on writings of Rachel Carson, author of Silent Spring, 1961
3. NAA Member letter to Congress on the new OSH Act, 1972
4. NAA Arbor Action newsletter, 1966
5. NAA Newsletter, 1940s
6. NAA member survey, 1950s
7. NAA Reporter, 1988
8. NAA Arbor Action newsletter, 1970
9. NAA Executive Director Paul Tilford, 1951
10. NAA Annual Meeting, 1947
Sure, tree guys were cool back then, but 75 years later... we’re a lot safer and successful. And yes, we’re still cool.

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2013 will be full of special events, contests, giveaways, and promotions to commemorate TCIA’s 75th anniversary

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Regulatory requirements governing fuel economy, emissions and safety have turned today's work trucks into rolling computers. At the same time, pressure to reduce operating costs has led manufacturers to add even more electronics to vehicles and truck equipment to improve operational efficiency. The net impact of these technological advancements is that fleet managers need to re-think every aspect of how they design, maintain and manage their fleets.

**Embedded technology and beyond**

Much of the technology that fleet managers are exposed to on a daily basis is embedded in the vehicles and equipment that they purchase. This technology offers numerous opportunities to improve the way work trucks are designed and managed. For example, data that can be retrieved from vehicle powertrain control modules (PCMs) can be useful both in vehicle maintenance and in helping fleet managers design better, more efficient replacement vehicles.

By adding telematics to vehicles, fleet managers can get real-time or near-real-time information on how their trucks are performing and can use that information to define individual vehicle drive cycles. The GPS tracking and geo-fencing features associated with telematics systems can be used to improve the operational efficiency of a fleet and to reduce fuel consumption, both of which directly help the bottom line. Telematics systems can also be used to influence driver behavior.

Other available technologies, both electronic and mechanical, may allow fleets to limit idling time, reduce rolling resistance, improve vehicle aerodynamics and reduce vehicle weight – all of which will improve a fleet’s fuel economy and may reduce maintenance costs.

**Vehicle upfitting**

The productivity of a work truck is directly tied to the way it is designed and built. In many cases, truck equipment and component manufacturers now find it advantageous, if not necessary, to interface their products with the truck chassis. In the process, they can often provide features and capabilities that were prohibitively expensive, or even impossible, in the past.

Likewise, truck equipment upfitters are discovering that OEM components and system capabilities, which are often accessed through the vehicle’s multiplex wiring system, can help them upfit a vehicle more efficiently. The knowledgeable fleet manager leverages these capabilities when specifying new work trucks to both reduce upfitting costs and to improve vehicle productivity.

Most chassis manufacturers offer multiple upfitter component packages. One popular example is pre-installed switch packages in the dashboard that can be programmed to provide specific functionalities. This eliminates the need for the upfitter to work under the dash of a truck or to cut into the vehicle wiring system. Remember that upfitter package availability and multiplexing capabilities vary between manufacturers, and from model to model. Fleet managers need to be knowledgeable of these variations and should evaluate the impact the variations may have on final upfitting costs.

**In the maintenance shop**

Technology makes it possible to track
every replacement part that goes into a vehicle; a vehicle’s mileage and/or number of operating hours accumulated between failures; vendor part numbers for replacement parts; and very accurate maintenance labor costs. This data gives fleet managers the ability to:

- Accurately track failures by vehicle make and model.
- Track failures by both application and operating environment.
- Determine the mean time between failures for various components, tracked by vendor, part number and operational conditions.
- Optimize replacement parts inventory.
- Establish an accurate predictive maintenance program.
- Easily and accurately track maintenance costs by specific vehicle, make and model.

This information can then be used to further optimize vehicle specifications and make better purchasing decisions for chassis, vehicle-mounted equipment and replacement parts.

Let’s go even further

As a fleet manager, it’s important to review your maintenance program every year. In the process, you will probably discover that you need significantly different maintenance schedules for vehicles based on their age. But again, computer technology can make it an easy task to generate multiple maintenance schedules based on individual vehicle requirements. In the case of vehicles classified as “commercial,” government-mandated service intervals may become the controlling factor. The technology-driven improvements in equipment have led industries such as aviation and railroads to petition the government for adjustments in required maintenance and inspection schedules. There may be a similar movement in the commercial truck segment in the coming years as suppliers provide better and better equipment.

Be proactive

The technology to improve your fleet’s operations is out there. Take the time to learn what is available and then determine how you can utilize it in your fleet. This means reading articles in trade magazines, attending trade events and talking to your peers. In many cases, you will have to sell your ideas to upper management, so be sure to do your homework before approaching them.

Keeping up with the latest technology developments and how they can improve your fleet operations is not easy. However, if you make the effort, you will likely discover that you need significantly different maintenance schedules for vehicles based on their age. But again, computer technology can make it an easy task to generate multiple maintenance schedules based on individual vehicle requirements. In the case of vehicles classified as “commercial,” government-mandated service intervals may become the controlling factor. The technology-driven improvements in equipment have led industries such as aviation and railroads to petition the government for adjustments in required maintenance and inspection schedules. There may be a similar movement in the commercial truck segment in the coming years as suppliers provide better and better equipment.

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cover that in the long run, it will make your job easier, reduce your costs and improve your operational efficiency. All in all, that is not a bad return on your time.

Robert “Bob” Johnson is a former fleet manager and currently serves as director of fleet relations for NTEA, the association for the work truck industry and host of The Work Truck Show 2013. The technology applications mentioned in this article and much more will be addressed in educational sessions at The Work Truck Show 2013 and the associated Green Truck Summit in Indianapolis, Indiana, next month. The Work Truck Show runs March 6-8, with educational sessions, including the Green Truck Summit, kicking off March 5. For a complete Work Truck Show schedule, visit www.ntea.com/worktruckshow/. In addition to the educational sessions, more than 550 companies will exhibit the latest vocational trucks and technologies on the show floor.
A new advanced plug-in hybrid system by Odyne Systems, LLC is designed to cut maintenance and fuel costs for tree care trucks, and reduce engine use, extending truck life, according to Matt Jarmuz, director of sales at Odyne.

The plug-in hybrid system by Odyne, a Waukesha, Wisconsin-based developer of hybrid drive systems for medium and heavy duty vehicles, is now available on bucket trucks. The systems can reduce fuel use by up to 1,750 gallons per year, depending on application, and significantly reduce chassis and engine maintenance over the vehicle life, according to Jarmuz.

“The engine remains off ... at the worksite in typical applications, also reducing lost time for refueling,” says Jarmuz. “Run your truck attachments through the hybrid system for a quiet, safer worksite as well. Your trucks will have more power when accelerating and turning, and regenerative braking helps repower the battery as you drive.”

Odyne’s technology is proprietary and patented, combining reliable electric power conversion, power control and energy storage technology with robust, automotive quality components. The system does not affect the chassis warranty, according to the company.

Odyne’s advanced plug-in hybrid technology are for trucks over 14,000 pounds. The company sells its modular hybrid system for new and retrofit applications direct to truck manufacturers and through a global distribution and service network.

Odyne Plug-in Hybrid System Can Reduce Engine Use, Extend Truck Life

Odyne’s plug-in hybrid system does not affect the chassis warranty.
30 YEARS OF INNOVATION...
As we look back on 30 years of success, we are extremely grateful to all the hard working professionals in the tree care industry that have—and continue—to make us the company we are today. The first Bandit chipper was built in 1983 by just six people in a small mid-Michigan shop; today that shop is part of 240,000 square feet of manufacturing space, staffed by a workforce of over 400 to produce nearly 50 innovative wood processing machines sold all around the world.

We’ve stayed close to the professionals who use our equipment, asking for your input into making these machines even better. As a result you’ve helped us grow through the years, from hand-fed chippers to whole tree chippers, horizontal grinders, stump grinders, forestry mowers, and the expansion continues for 2013.

Made possible by partners like you.

We couldn’t be more proud of this industry and the dedicated people who show up every day to suit up, rope in, climb, cut, chip, grind, then get up early the next morning to do it all again. It’s a tough job, and we thank you for trusting us to help you do it. From everyone at Bandit Industries, thank you for 30 great years. Trust us when we say the best is yet to come.

Bandit INDUSTRIES, INC.
Celebrating 30 Years

Circle 7 on RS Card or visit www.tcia.org/Publications
A nyone reading the “Accident Briefs” in TCI Magazine, the monthly summary of fatal and serious non-fatal injuries among tree workers, must at some time think, “How was someone killed doing _____?” It doesn’t add up, just how did that incident end up killing the guy? You seem to remember a similar circumstance that happened to one of your buddies and either no one was hurt or someone just needed a little first aid – how come this guy died?

People often think there is a linear path to an incident: first, you do ‘x’; next, ‘y’ happens to you; and third, you die. But it is not nearly as simple when you start dissecting an incident. There are multiple paths to follow from beginning to end with each fork leading to a different outcome ranging from nothing happening to a near miss to a non-fatal injury to a death.

The multiple paths are described in the Haddon matrix, a framework for viewing an incident and breaking it down into phases and factors that allows you to examine why an incident unfolded the way it did. The matrix was developed by William Haddon in 1970 and has improved our understanding of an incident’s complexity, why similar events can have very different outcomes in terms of injuries. I’ll start with a brief description of the configuration of the rows and columns in this matrix.

First there are three phases to an incident (the rows): 1) pre-incident, 2) the incident, and 3) post-incident. We tend to focus on the incident itself – what happened – but forget that what happens before and after the incident can have a significant influence on the outcome. There are also a number of factors (the columns) that may be a part of the matrix: a) human, b) agent, c) physical, and d) social.

The Matrix: It’s Not Just a Movie, It’s a Safety Tool

Pre-incident

The factors in the first phase, the pre-incident, can have a significant impact on the outcome. The human factor, such as the worker’s attitude and behavior, can be a significant factor in having an incident even occur – staying as a pre-incident rather than an incident. A common “statistic” often quoted in incident prevention papers is that 90 percent of the root cause of incidents is unsafe acts by workers. While this is not a well-documented number, it probably is in the ballpark. The majority of incidents I have examined show that unsafe acts – a worker doing something they knew, or should have known, was not proper – was the root cause of the incident. Did Pat have a safe attitude toward the work? Was safety part of the company’s culture, or was it just given lip service and production was paramount? Pat’s attitude toward safety and the company’s safety culture plays a big role in whether an incident even occurs.

The physical factor in the pre-incident for this electrical example is the separation workers must maintain when working in the vicinity of electrical conductors. Obviously if the proper separation is maintained then there is a lower possibility that Pat could contact the line. The social factors are our regulations and standards that, again, if followed can prevent an incident from occurring.

The incident

However regardless of the factors in place during the pre-incident, let’s say contact was made and now we are in the second phase – the incident itself. Surprisingly, among tree workers electrical contact is often direct contact and by the hand or back or shoulders. Why would anyone touch a conductor? They didn’t know it was there. Why? Pat and the crew ignored the social factors in the pre-incident and did not do the required job inspection and briefing. If they had, they would have noticed the conductors and not any fall protection), makes contact with the conductor and falls. Whether Pat survives, and the severity of the injuries, depend on what occurs in the individual cells within the matrix.
A human factor that has a major influence on the severity of the injuries in an incident is the first-aid knowledge and skills of the crew.

Injuries becoming more serious. The same injury can have different outcomes depending upon the speed at which EMS is summoned and their response time.

Post-incident

Finally the third phase, post-incident, what can happen after the incident to reduce its severity. A human factor that has a major influence on the severity of the injuries in an incident is the first-aid knowledge and skills of the crew. They are the first ones to respond to the incident. One interesting factoid is that the majority of fatalities occur on crews that had little or no first-aid training. While this does not prove causation, it stands to reason that if the crew does not know how to react to an injury, there is the higher likelihood that the injury will become more serious and possibly fatal. Every crew should receive first-aid training specific to the industry and cover in detail the big three serious non-fatal injuries; bleeding, burns and fractures.

A physical factor that can alter the outcome is EMS access to the patient – will the emergency medical technicians (EMTs) be able to pull the ambulance up to Pat or is Pat going to have a long carry around brush piles, trucks and other equipment? On every job site there should be given some though to the possibility that EMS may need to respond to an incident. Plan the job with access open to the road or drive, even better have space so the ambulance can turn around rather than have to be backed in or out. Serious burns may require an air lift to the nearest burn unit, rather than the nearest hospital so even a landing zone may have to be considered in the access question.

Finally there are social factors that need to be considered and in this example it’s the location of the nearest hospital burn unit to the site. Burn units are very specialized and not in many hospitals (perhaps only one or two in many states) and we are losing more due the expense of maintaining them. As an interesting side note, manufacturing methamphetamine, particularly “shake and bake,” can quickly go wrong, resulting in severe burns and requiring extensive care that ties up resources and – surprise, most meth users do not have insurance to pay for their treatment (average cost for meth patients in burn centers is $130,000); and currently one in four beds in burn centers are occupied by a meth user.

As you can see, the outcome of an incident can vary considerably depending on each one of these cells. This means there are multiple potential outcomes to an incident, but it also means there are multiple ways to prevent one or reduce its severity.

Let’s look at how the individual cells filled out in this example of an electrical contact.

The Matrix

<table>
<thead>
<tr>
<th>Phases</th>
<th>Human</th>
<th>Agent</th>
<th>Physical</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-incident</td>
<td>Attitude &amp; behavior</td>
<td>Approach</td>
<td>kinetic</td>
<td>Safety regulation &amp; standards</td>
</tr>
<tr>
<td>Incident</td>
<td>Age and condition</td>
<td>electrical</td>
<td>cell phone</td>
<td>EMS resources</td>
</tr>
<tr>
<td>Post-incident</td>
<td>First aid knowledge of crew</td>
<td>EMS access to site</td>
<td>Burn unit</td>
<td></td>
</tr>
</tbody>
</table>

Safety and incident reduction involves everything from creating a safety culture within a company to working to improve the EMS resources for a community. We need to work on all aspects, all the phases and factors, in our quest to reduce incidents and their severity in our industry.

John Ball, Ph.D., CTSP, is a professor of forestry at South Dakota State University in Brookings, S.D., where he conducts research on tree worker safety. Dr. Ball is also an emergency medical technician and lectures EMT courses at the University.

This article was based, in part, on his presentation, “Arborist Safety Update: What Happened in 2012?”, at TCI EXPO 2012 in Baltimore last fall. To listen to the audio recording of the entire presentation, go to the digital version of this issue of TCI online at www.tcia.org. and click here.
Tree worker injured in fall from roof
A worker for a tree care service in Wauwatosa, Wisconsin, was injured December 5, 2012, when he fell off a garage roof in Wauwatosa while assisting with a removal of a tree that was hanging over the roof. He suffered several broken ribs and a punctured lung. Police notified OSHA and a citation is expected.

Reported to Peter Gerstenberger, senior advisor for safety, compliance & standards for TCIA.

Man hurt in fall trimming branches
A 60-year-old man was hurt December 14, 2012, when he fell 20 feet out of a tree while trimming branches in Litchfield, South Carolina. The man suffered head and upper body trauma that were considered to be life-threatening. An ambulance took him to Grand Strand Regional Medical Center, according to a WPDE News Channel 15 report.

Man, 83, killed by cut tree
An 83-year-old Oldtown, Maryland, man was killed December 16, 2012, when he was struck by a tree he was helping take down. Kenneth David Richard Jr. was cutting down trees on private property with some associates when the accident occurred. First-responders reportedly administered CPR before the victim was pronounced dead at the scene, according to a Cumberland Times-News report.

Climber killed when limb fails
A climber was killed December 24, 2012, in Haverhill, Massachusetts, when a limb of the tree he was felling broke, dropping him about 15 feet to the ground and then landing on top of him. Merle R. “Rick” Wilbur IV, 32, of Hampton, New Hampshire, was pronounced dead at Lawrence General Hospital after the accident.

Wilbur was working to remove a storm-damaged tree at a home when the large limb on which he was “tied off” gave way.

Wilbur, who operated his own Oaklands Tree Service in Newfields, New Hampshire, was working for a local landscape and tree service when the accident occurred, according to the Hampton-North Hampton (New Hampshire) Patch.

Trimmer rescued from palm
A tree trimmer who became trapped in a palm December 27, 2012, when a frond skirt collapsed on him in Echo Park, California, was rescued by firefighters and taken to a local hospital for evaluation.

The unidentified man, wedged in a cluster of fronds high in the tree,
remained conscious, but complained of pain, apparently from the pressure of the fronds on his chest. Fire crew rescuers using an aerial ladder got the man out of the tree. He complained of back pain, but had no obvious injuries, according to an echopark.patch.com and City News Service report.

**Trimmer dies in fall**

A tree trimmer died after falling 30 feet out of a tree December 29, 2012, in Maili, Hawaii. Venancio Domingcil, 48, was taken by paramedics from an empty lot where he’d been cutting the tree to the hospital in extremely critical condition, and where he later died, according to a Star-Advertiser report.

KHNL/KGMB reported that the accident occurred on a small farm, that the farm’s owner had hired the man, a friend with a tree-trimming business, to trim back a kiawe tree on the property, and that the farm owner found the man on the ground.

*Sent in by Carol L. Kwan, president and

**Accidents in the tree care industry that occurred during the month of December 2012.**

Graphic compiled from reports gathered by, or submitted to, TCIA staff.

Certified Arborist, Carol Kwan Consulting LLC in Mililani, Hawaii.

Send your local accident reports to editor@tcia.org.
TCIA last fall published the Best Practices for Single Rope Technique (SRT) in Arboriculture manual, and an article about SRT ran in the November issue of TCI Magazine. While both answered many questions about SRT climbing, some people had other questions about SRT that the manual didn’t really get into. TCI Magazine posed some of those same questions to Donny Coffey, CTSP, the lead author of the SRT manual. Following here are his answers.

TCI: Why would someone consider using the SRT, especially if they are doing just fine with their DdRT system?

Coffey: Here’s a short explanation to begin with: SRT is considered a static rope system in which the rope is anchored to the tree and the climber moves along the rope. In a traditional DdRT system, the rope is dynamic, meaning the rope is in constant movement over branches and branch unions, creating friction. This friction is an “energy leak” for the climber. Energy leaks are parts of a climbing method that expend a high concentration of energy compared to the actual vertical/horizontal gain accomplished.

Let’s look at an “energy leak” in a typical vertical ascent DdRT system. The actual vertical gain is lost when pulling a doubled rope over a limb while climbing. A climber pulling two feet of rope doubled over a limb will only gain one foot in vertical distance in a DdRT system. Even though there is a mechanical advantage of about 2:1, it can become like pedaling a bike in too low of a gear – a lot of movement with very little forward progress. In an SRT system, the vertical gain is more of a 1:1 mechanical advantage – the amount of rope taken in equals the distance climbed.

Another benefit is that SRT climbing takes advantage of the construction of the human body, allowing the longest, strongest muscles to do most of the “hard” work. The climber generally will see less muscle fatigue and loss of breath, especially on long vertical ascents. For example, during long vertical ascents the climber will use his/her leg muscles to “power” the upward movement along the rope, using hands and arms for support. The more vertical the climber can get while ascending, the less fatigue it will place on his/her body. Learning to keep your body in an upright position takes time, and the climber switching over from DdRT to SRT may need to “re-train” their body mechanics. Other climbers take to this vertical positioning like a duck to water.

TCI: What, generally, are the important things someone will need to know regarding SRT for tree climbing? Isn’t it just the same technique as rock climbing or high-tower access?

Coffey: Single rope tree climbing employs many of the same techniques and equipment used in vertical rope disciplines – but with one distinct difference. Rock and tower climbers climb on a fixed structure that usually changes very little. Tree climbers are climbing on a dynamic living...
organism without fixed anchor points. It is a challenge to accurately examine and assess every aspect of the tree for decay or other strength-reducing deformity.

For this reason alone, climbers using single rope techniques need to be more aware of the forces, angles and loads placed on the tree. There are methods used in SRT that could allow you to ascend and work in a tree that would be inappropriate for DdRT systems. Using SRT to spread the weight of the climber out over several SPs (suspension points) in a questionable tree permits movement and work-positioning in the canopy where it otherwise would be uncertain.

TCI: How much is this going to cost me and my company? I don’t want to have to buy a bunch of new equipment. Can I use what I already have? Is there specific SRT-only equipment?

Coffey: Depending on the single rope system, the company/climber will not have much up-front cost. For example, a climber switching over from a traditional DdRT system to a single rope work positioning (SRWP) system may only need a device that dissipates heat and adds friction (Unicender, Hitch Hiker, or Rope Wrench) as well as a foot ascender. There may be no need to purchase new ropes or any other equipment to get started and to see production increase. Other more elaborate systems can be purchased, but tend to be more gear intensive and should not be used by a climber just getting into SRT.

Let’s look at this question this way. Compare the up-front cost your business may have to endure vs. the long term benefit of increased productivity and longevity of its climbers. Usually, the upfront cost of purchasing “SRT-only” equipment is minimal compared to the overall gain in productivity.

Take this real-life scenario: A tree company has won a bid of $45,000 to deadwood 165 “forest-grown” trees in a wooded apartment complex. The specifics are to remove deadwood two inches and larger in diameter as well as any potential hazards over walkways and parking lots. The company deploys two climbers with one ground person between them. One climber is climbing traditional DdRT with a split tail/tending pulley system. The other climber is using SRWP system. Most of the work requires ascending 40-60 feet and removing three to four branches. On average the climber using SRWP is climbing twice as many trees as the climber using traditional DdRT. This is possible because SRT systems don’t always require branch isolation when installing the climb line as in DdRT, so the time between rope installation and ascent is much shorter.

If the company deployed two climbers, both using SRWP systems, the job could have potentially been completed in half the allotted time. When you look at the overall bid of $45,000 compared to a couple hundred dollars of equipment you might have to purchase for SRT systems…doesn’t that seem like a good investment?

TCI: Speaking of specialized equipment, let’s talk a bit about rope ascenders used in SRT. Aren’t all hand ascenders essentially the same?

Coffey: Most hand ascenders on today’s market function the same way. They use some form of grabbing mechanism to attach to the rope. They can come in a wide range of styles, from left- or right-handed to double-handed units, and most ascenders come with multiple attachment holes for tethers, slings or foot straps, which are usually attached to the climber’s harness. All ascenders are intended for a straight-line pull and, if used for life support, they need to have some form of separate back-up system. The climber needs to have a clear understanding of the ascenders’ capabilities on rope before use aloft.

“Toothed cam ascenders will destroy a climbing rope if the sheath is exposed to a dynamic load. The climber’s access line must be of Kermantle construction when using toothed ascenders.” – Best Practices of SRT in Arboriculture

TCI: Is it necessary to always use a foot ascender in SRT?

Coffey: No, you do not need a foot ascender. Will it drastically increase your efficiency? Yes. Foot ascenders maintain tension on the rope in sit-stand SRT systems. This provides easier advancement up the rope and promotes better use of body mechanics by keeping the climber’s body in an upright position. They have also become a staple in many “rope walker” style ascent methods. Foot loops made from nylon webbing straps are also valuable additions to the system. This is not to say that the climber cannot use traditional
foot-locking to ascend to the canopy. Footlocking is a climbing staple that should never be thrown away, but other versatile, easier foot ascension styles are being used more and more.

TCI: What would a climber look for in a harness used mostly for SRT climbing? Can a climber use the harness he/she is already using with DdRT? What are good features of an SRT harness?

Coffey: When I’m choosing a harness that I will use primarily for SRT, I look for light weight, comfort and adjustability. These features would be the same for a harness that I would be wearing using DdRT.

There currently is not an “SRT-only” harness on the market because you can adapt your current harness with developed add-ons. There are companies that are adapting their suspension-style harnesses to accommodate the SRT climbing style. The most notable addition to harnesses is multiple attachment points both dorsal (back) and ventral (front). The attachment points allow the climber to add a chest harness or similar lanyard/tether, allowing for two distinct advantages when climbing single rope. One, it promotes better technique by allowing the climber to stay more upright during ascents, and two, it gives the climber two separate attachment points. This is beneficial when using a chest ascender or a similar style of rope grabbing device. Keeping the system components adequately separated and properly aligned can greatly increase the climber’s efficiency.

The second feature that I look for in a harness that will be used for single rope is an adjustable bridge and rise. The adjustable bridge of the harness allows the climber to move the attachment point(s) higher or lower on the harness, thus manipulating the climber’s center of gravity. Many attachment points are rated rings, or “D”s. Every climber’s body type is different. Some climbers like a longer bridge for increased mobility while working the tree, but the longer bridge will become a disadvantage when ascending the tree, limiting the “stroke” of the ascent. A shorter bridge will accomplish the exact opposite. I like to find a happy medium of mobility and vertical efficiency.

The rise of the harness is the distance from the leg loops to the attachment points of the bridge of the harness (usually a ring, small rigging plate, or front “D”s). This is different than the attachment point on the bridge. Manipulating the rise will also affect the center of gravity and the height of attachment points. Finding a happy medium with the rise and adjustable bridge should allow the climber to be in a comfortable, seated position while suspended.

The final feature that I look for in a harness is its capacity for gear storage. I like to have ample space for gear such as: extra carabiners, light-duty rigging slings, belay device, throw ball and light-duty pulleys. At the same time, I do not want to have too many gear loops. I find that this works on the same principle as a garage. If you have the extra room, chances are you will find...
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HTP ropes are designed to handle the rigor of professional use. The tightly braided sheath of the HTP creates a rope that is compatible with gear and keeps dirt and debris out of the core.

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Is there a special rope required for SRT?

Coffey: This question has about as many variables as a high school algebra equation. When choosing a rope that will be used for SRT, the climber needs to ask two very important questions: What is my intended use for the rope and what components will be used? If the climber will be using the rope for ascent only, then they may want a rope with very little “stretch” or dynamic properties. This will allow the climber to maximize the efficiency of their SRT system and capture every possible vertical gain.

Now that one variable is solved, the next is what type/construction of rope will you need? This question now opens the equation up to even more variables. The short answer is that it all depends on what the climber is using for ascent (climber’s configuration). For example, many toothed ascenders that are being used for life support (supporting the climber’s weight) have to be used in conjunction with a kernmantle constructed rope. If the climber is using a friction hitch as his/her primary life support, then many of the same ropes that are used for DdRT can be used.

Variable three, what diameter is appropriate? This also depends on what the climber is using. Many equipment manufacturers have a specific rope diameter range the equipment can accept. If the climber is using a friction-hitch based system, then the diameter of the rope can be more of a personal choice. Many climbers like the feel of a larger diameter rope in their hands, thus reducing hand fatigue. Other climbers bypass the hand fatigue for weight reduction, going with a smaller diameter rope.

Now that we solved many of the variables for ascent only systems, we have to look at SRWP systems and still function correctly. If the climber is using a friction-hitch based system, then the diameter of the rope can be more of a personal choice. Many climbers like the feel of a larger diameter rope in their hands, thus reducing hand fatigue. Other climbers bypass the hand fatigue for weight reduction, going with a smaller diameter rope.

TCI: Is there a special rope required for SRT?

Donny: Ascent-only SRT climbing systems only allow for the vertical movement within the tree’s canopy. Ascent-only systems are limited by the equipment being used in the configuration. Many equipment manufacturers do not allow for side-loading of their equipment, which would take place during horizontal movement. Those components must only be used for vertical ascent.

Once the climber reaches the PSP, he/she will need to switch to another climbing system that will allow for horizontal movement within the canopy. At this point, some climbers choose to use traditional DdRT climbing systems, while others will continue to utilize SRT techniques to “work” the tree. This transition has many safety issues that need to be taken into consideration. A great “call and response” system is to have the climber and ground person call out every step of this process, with the ground person checking and calling back to the climber. It may be a bit time consuming, but a good habit to get in.

TCI: Is there special training or a certification in SRT?

Coffey: Anyone trying SRT for the first time should work with a qualified trainer before attempting a solo climb. TCIA has qualified trainers available through the CTSP program. Some of those trainers will be presenting SRT workshops in the upcoming SRT Climbing Workshop series to be offered in different parts of the country in 2013. There are other qualified trainers available, through North American...
Training Solutions and ArborMaster, Inc., as examples.

You don’t need a certification to use SRT, but the workshop series will offer an Advanced Climber certificate as part of TCIA’s Tree Care Academy training program. It could help out that resume!

**TCI:** What are the current regulations for SRT in arboricultural operations?

**Coffey:** Like other methods of tree access, follow the guidelines of the ANSI Z133 standards regarding the selection and use of equipment and PPE. The *Best Practices for SRT in Arboriculture* is an additional resource that presents important information regarding SRT climbing systems. Just train low and slow on every aspect and you will soon see the benefits of using this production method.

Donny Coffey, CTSP, is a foreman and climber with 22-year TCIA member Meek Tree Service in State College, Pennsylvania. This article was based, in part, on his presentation, “Best Practices for Single Rope Technique: Anchors,” at TCI EXPO 2012 in Baltimore. To listen to the audio recording of that presentation, go to the digital version of TCI online at www.tcia.org and click here.

*SRT Best Practices for Tree Climbing,* co-written with Tchukki Andersen, BCMA, CTSP, staff arborist with TCIA, is available from TCIA via the online store at www.tcia.org, or by calling 1-800-733-2622.

An SRT base anchor with Sterling’s green HTP line.
Here’s a fact that may surprise you: compared to 100 years ago, Grosse Pointe Park, Michigan (adjacent to Detroit), today has many more trees and an infinitely greater “crown cover.”

According to noted Detroit historian Nick Sinacori, Grosse Pointe Park was a Grand Marais, or Great Marsh, with hardly any trees at all. As Detroit developed, dirt from excavations was dumped here. That effectively reclaimed land that could support subdivisions. Before houses were built, land was platted out, roads created and trees planted; American elm (*Ulmus americana*) almost exclusively. By 1950, we had 5,000 street trees, 4,000 of which were American elm.

While our forefathers had the foresight to plant trees, they could not have predicted what would happen the following year. In 1951, Dutch elm disease was discovered in Grosse Pointe Park. Tree populations went down slightly in subsequent years but were offset somewhat by replanting. In the 1980s, casualties due to Dutch elm disease began to taper off. This was due to the fact that most of the elms had already been cut down.

Unfortunately, during this period, a common mistake was repeated. The overwhelming replacement tree was the ash. This tree was cheap, readily available and resistant to gypsy moth, an Asian invader feared to be the next major tree epidemic. It turned out gypsy moth did not become a major problem to our urban forest. Although still monitored annually, usually few if any gypsy moth egg cases are detected. Instead it was another Asian invader in the past decade that killed over 1,000 trees in our city – the emerald ash borer; its only known North American host is ash.

Despite that heavy hit during a period of decreasing budgets, today we have almost 9,000 street trees in Grosse Pointe Park; more than ever before. This was made possible due to cheaper tree costs, in-house plantings, volunteer mass plantings and grants. Now we regularly plant a diversity of more than 20 species of trees, with nearly 100 various cultivars within our city limits.

Planting different types of trees help protect against epidemics, because when a pest is introduced, it is usually species-specific. For example, Dutch elm disease only affects elms and emerald ash borer only kills ash. While we are greener than ever, there are still a lot of trees to plant. Our ultimate goal is to achieve a full stocking in all appropriate tree sites.

Brian Colter is a certified arborist and city forester in Grosse Pointe Park, Michigan.
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We asked TCIA associate member companies that manufacture stump grinders to tell us about the latest and greatest features on their equipment, and why these features make a difference to the tree care company owner and or operator using them.

The responses varied in a number of areas, touting everything from reduced wear of teeth, to easier maintenance and greater production, etc. But a common theme seemed to echo a point discussed in another article in this issue, the Management Exchange article by Jill Kelby on page 52. In that piece, Kelby quotes Peter Drucker, Austrian-born American management consultant, educator and author, as saying, in part, “... the guiding principle of business economics is not the maximization of profit, it is the avoidance of loss.” It’s another spin on the old maxim of “it’s not how much you make but how much you keep.”

And that is what came to mind in compiling the features and benefits of the latest stump grinders – that you may not have to increase your rates to make more profit.

“Our line of direct-drive, beltless stump grinders are making huge strides in the tree care industry,” says Jason Morey, sales manager at Bandit Industries. “The main reasons for this are, it eliminates belts, bearings, jackshaft and clutches typically associated with a stump grinder; reduced maintenance costs are achieved; a lower center of gravity (provides) more stability; less downtime, and no loss of horsepower.”

These units can be equipped with Bandit’s, “New Revolution cutter wheels, allowing for a smoother, more aggressive cutting action with maximum chip containment,” says Morey.

Morbark’s new D-52 SPH stump grinder comes standard with a diesel engine ranging from 34 horsepower to 62 horsepower, says Casey Gross, tree care products sales manager for Morbark Inc.

“The D-52 will save you time and money,” says Gross. “A proportional drive system with two-speed ground travel reaches speeds up to 290 feet per minute, getting you to the stump faster, and a 52-inch boom arc means less positioning at the stump.

“Long Boom Technology maintains full boom arc swing regardless of the cutting depth,” adds Gross. “Piloted flange bearings increase bearing life and minimize exposure to dirt and debris, and an articulating front axle maintains stability on uneven terrain.”

“Other standard features include 4.6-cubic-inch hydrostatic motor, a chip resistant, high gloss Morthane paint system, and electronic toggled control panel functions.

“In short, this unit will burn less fuel as you will be moving less around the stump,” says Gross.

“The Vermeer SC30TX stump cutter features a dependable, 27-horsepower
Kohler electronic fuel injection (EFI) gas engine, which provides excellent fuel economy,” says Jay Sunderman, tree care strategic business unit manager at Vermeer Corp.

“Two individually controlled tracks enable a zero turning radius and easier maneuverability, plus reduced yard disruption,” says Sunderman. “The Vermeer exclusive Yellow Jacket cutter system offers extended life of cutting teeth and easy maintenance. Each tooth provides two full wear cycles while its universal design can fit any position on the cutter wheel.

“The optional AutoSweep system monitors engine speed and automatically adjusts cutter wheel sweep to reduce engine and structural stress.”

“Rayco’s next generation Super Jr is here,” says J. R. Bowling, vice president of sales and marketing for Rayco Manufacturing, Inc. “The new RG27 (27 hp) and RG35 (35 hp) Super Jr stump cutters bring revolutionary design changes to the ever popular Super Jr.

“These machines are designed to give wider cutting dimensions, lower center of gravity, more traction and floatation, and better visibility while cutting,” says Bowling. “Their slewing-ring pivot design eliminates the maintenance associated with pin-style pivots, and allows the machine to achieve maximum cutting depth across the entire width of the cut.

“A swing out control station provides visibility while cutting and swings in-line for travel through gates. The 35-hp model RG35 also features two-speed ground travel, and optional dual wheels provide a wider stance for operation on slopes.”

Other notable features, according to Bowling, include powerful Vanguard Big Block engines, a hydraulic backfill blade and wide floatation tires with bar tread.

“Carlton has a long list of industry innovations that are now considered must-haves, including wireless remote controls, suspension for tow-behind grinders, high-horsepower self-propelled machines, a patented swing and pivot arrangement and the highly efficient Razor Cutting System – all first brought to the industry by Carlton,” says John Bird, factory representative with J. P. Carlton Company, Div. DAF Inc.

“In their tradition of innovation, Carlton has recently introduced more power to their self-propelled line of stump cutters – giving them the most cutting power through a backyard gate,” says Bird. “Carlton’s patented cutter-wheel drive system coupled to the highly efficient Kubota engines gives the Carlton self-propelled stump cutters the most cutting power in the industry.

“An example of this is Carlton’s SP7015TRX – mating the ultra-efficient Tier IVi Kubota V2407 Turbo Charged, 4 cylinder diesel engine to Carlton’s patented drive system, yielding a machine with unmatched cutting ability;” says Bird, adding “This highly efficient use of engine horsepower lowers operating costs along with grind times.”

“The compact design and the carbide steel cutting teeth of the Echo Bear Cat SG340 stump grinder makes getting rid of tree stumps a breeze,” says Kurt Kainz, marketing manager and direct sales with Echo Bear Cat, Crary Industries Inc. “The 12 hardened, carbide-steel cutting teeth rotate at engine speed for faster grinding, smooth cutting and smaller chips and debris.
“With the compact body width at only 23 inches, getting close to buildings or fitting through gate openings to access stumps is quick and easy,” says Kainz.

Other features on the SG340 include a 340cc Honda OHV engine; 22-inch, 4-ply pneumatic tires; a double-banded belt drive; and a fully enclosed housing.

“Its unique horizontal cut allows you to shave unsightly tree roots, without cutting them,” according to Kainz, adding that it “also helps operator friendliness by reducing machine kick back.”

“However, the Husqvarna SG13 removes stumps even in tight spaces,” Sean Dwyer, global product manager for Husqvarna, says of his company’s compact contribution to the market. “This professional stump grinder features a powerful Honda engine and carbide teeth to ensure superior results. The versatile construction allows the user to work in glide, lower center of gravity, more traction and flotation, and better visibility while cutting.
passages as narrow as 700 mm (27½ inches). And the ergonomic, adjustable handle and four lifting handles make it as easy to transport as it is to use.”

“The newest feature would be the M1 cutting head,” says Dwyer. “It utilizes industry-proven M1 technology, normally reserved for much larger stump grinding machines. The reduced wheel weight and unique tooth design provide faster, smoother cutting, reduced load on the engine and faster engine recovery in heavy conditions.

“Cutting teeth are available for various soil conditions and feature three independent edges to effectively triple the use of the tooth,” says Dwyer. “The teeth can be rotated or replaced in a matter of seconds using a 9⁄16-inch wrench.”

Compiled by Don Staruk, TCI Magazine editor.

The Husqvarna SG 13 features a powerful Honda engine and carbide teeth to ensure superior results.

The Husqvarna SG 13 features a powerful Honda engine and carbide teeth to ensure superior results.

The ECHO SG340 Stump Grinder’s unique horizontal cut allows you to shave unsightly tree roots, without cutting them. It also helps operators friendliness by reducing machine kick back.


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By Jill Kelby, PT, CEA

“Productivity (and safety) is never an accident. It is always the result of a commitment to excellence, intelligent planning and focused effort.” – Paul J. Meyer (author’s addition)

What immediately comes to mind if you were asked, “What are the normal, expected costs of doing business for your tree care company?” The most obvious ones not only apply to tree care but to all businesses – labor, facility and equipment costs. But what about the other expected costs that are expense line items in your budget year after year? The costs I am referring to are related to the following:

- Client property damage
- Company property/equipment damage
- Employee injuries
- Workers’ compensation insurance

Those four items and their related costs for tree care companies are accepted as the “normal” cost of doing business. But why? Is it because these losses are seen as unpreventable? Or, are they part of the “we’ve always done it this way” syndrome that affects nearly every business to some degree? (more on this later...)

As you read on you will learn why these “normal” costs should not be expected or accepted; the initial steps you can take to change the system; and the tools you can use to improve your operational efficiency and safety. My hope is by the time you are done reading this article I will have challenged your thinking about “accepted” business costs and you will have gained a healthy, questioning attitude when it comes to your business operations.

“Normal” costs of doing business?

The challenge for balancing productivity and safety exists for all industries, but especially in the tree care industry where there are many variables that impact both. Tree care companies experience costs related to incidents involving damage to their own property and/or that of the client as well as employee injuries. Unfortunately, these incidents are often accepted as “normal, bound to happen” events. The costs associated with these incidents are included in the yearly expense budget. When an incident happens, the bills are paid and business continues as usual. But should the incidents and their costs be accepted so easily and treated so nonchalantly?

A single one word answer is “No.”

One company’s journey to optimize productivity and safety

I want to share one company’s journey, Rainbow Treecare, a TCIA member located in Minnetonka, Minnesota, to optimize their operation efficiency and safety with the target goal of preventing incidents and significantly reducing losses due to visible and invisible costs. The initial reason Rainbow decided to evaluate their production work practices was to reduce injuries and thereby reduce workers’ compensation insurance costs. However, as we began this journey it became obvious that safety, productivity and quality were clearly intertwined. The focus expanded to find process gaps/weaknesses and implement improvements that would increase the safety of their employees while at the same
time optimize productivity, improve efficiency, minimize discrepancies between the sales work order specifications and actual work needs, and reduce client/company property damage. Their “normal” budget cost/loss of doing business (damages and injuries combined) was thousands of dollars each year.

The following are the top 7 reasons that Rainbow started this journey:
- Minimize Loss!
- Improve efficiency and productivity
- Position for company growth
- Employee engagement and satisfaction
- Customer satisfaction
- ESOP company – employees responsible for company success
- Bottom Line

Initial phase
The ultimate goal is to transition from a reactive process that evaluates incidents after the fact to a proactive process that evaluates the work system for potential risks for incidents to occur. A company can’t move directly to a proactive process before improving and refining the reactive process. This meant the first phase for Rainbow was to focus on their reactive process. There were five steps taken in this phase:

1. Identify where the losses were occurring, i.e. gaps in the current work processes
   This involved observations and evaluations of crews, fleet/equipment maintenance, sales, and scheduling operations and data. The main areas that were identified to address first revolved around the incident reporting, investigation and prevention processes, the incentive program and crew modifications.

2. Define where changes needed to occur
   Here are two examples of some of the identified changes:
   Example 1: Incident reporting process found the following six items: 1) development of one form that would be used for all incidents; 2) tightening up of the return-to-work process; 3) development of incident investigation process; 4) formation of committee whose purpose was to review; 5) investigate, define/implement action steps; and 6) follow up evaluation of improvements.

   Example 2: Crew modifications were needed to improve performance and flexibility. This included assigning standardized crews (same people assigned to each other according to skills, abilities, and licenses), establishing crew size expectation based on job type, foremen training to improve their leadership, delegation and mentoring skills, and revamping of crew training content.

3. Outline the actions that needed to get done and the timeline for completion
   A person or persons were assigned to each action along with a timeline for expected completion. A Web-based project tracking system was used so everyone had easy access to the information and could enter/modify their progress.

4. Define goals and metrics for each action
   Rainbow established overall goals and metrics to track progress and improvement. In addition, a goal and metric were developed for each incident investigation that needed an action step to prevent its reoccurrence. Examples of Primary Goals/Metrics (may also be called “Key Performance Metrics”) See Figure 1.

5. Understand and apply Systems Thinking to business operations
   In essence, systems thinking is a way of helping a person to view systems from a broad perspective that includes seeing overall structures, patterns and cycles in systems, rather than seeing them as only specific events in the system. For example, it was important for Rainbow to realize that what occurs within sales, scheduling, maintenance and production were not divided, individual silos but instead were greatly interdependent. One process change in production can affect sales and scheduling and vice versa.

Primary challenge
It would be great to say that there were no bumps along the way during this journey but, of course, that wouldn’t be the truth. There are always going to be challenges or, as I like to view them, “opportunities” that present themselves when doing something new. I’d like to highlight that one of the most pervasive issues that comes up when attempting any kind of change is what I alluded to earlier in the article – the “We’ve always done it this way” syndrome.” This syndrome can prevent companies from seeing the issues that are holding their company back and it can get in the way of making the changes necessary to do things a new and different way. When you ask someone why they do something a certain way, the most common answer is “because… I was taught this way” syndrome. This syndrome can prevent companies from seeing the issues that are holding their company back and it can get in the way of making the changes necessary to do things a new and different way.

<table>
<thead>
<tr>
<th>Overall Goals</th>
<th>Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower injuries (DART rate)</td>
<td>Lower DART rate from 11 to &lt;=7 by end of 2012</td>
</tr>
<tr>
<td>Lower amount of client damage</td>
<td>Lower client damage costs by 50% at end of 2012 compared to 2011</td>
</tr>
<tr>
<td>Lower amount of property damage</td>
<td>Lower property damage amount by 50% at end of 2012 compared to 2011</td>
</tr>
</tbody>
</table>

Figure 1

Take something as simple as crossing your arms – yes, go ahead and cross your arms. Which arm did you cross over the other? Why? Probably because you’ve always done it that way. Now try crossing your arms the opposite way – how does that feel? It usually feels a bit awkward. Why? Because you never do it that way. Did you notice how you crossed your arms before now? Probably not. Why? Because it never was an issue…or so you thought. Now apply this same thinking to your busi-

TREE CARE INDUSTRY – FEBRUARY 2013
ness operations. Why are things done the way they are? Is that the best way or the comfortable way?

Benefits and value of change

Rainbow is still on their continuous improvement journey to optimize their operations for productivity, quality and safety. Actually, their journey or your company’s journey should never end. Improvement is a continuous process that needs to happen on a continual basis in order to maximize a company’s performance. However, the principles and steps to learn the improvement process are learned once but used many times over.

According to Ben Cooper, production manager of Rainbow Treecare, he “can’t imagine not having this (new) system in place.” The benefits that he’s seen from the changes to date are the following:

- Actually coming up with actions for improvement to prevent incidents (not just talk about them)
- Having a safety/productivity committee that has grown beyond OSHA compliance standards to being a true asset to the company
- Overhaul of the sales bid process
- Increase employee satisfaction – feel heard, noticed and empowered because they see action happening
- Actual statistics outside of OSHA stats that allowed them to accurately budget/plan for 2013 and beyond
- Bottom line $$ – seen an increase in RPH (gross profit) because it has exposed weakness and gaps in processes

Tools to use to improve operational efficiency and safety

The fundamental business “tools” and methods that are used in this process can be summed up in this saying: “Do more with L.E.S.S.” – which stands for Lean, Ergonomics, Six Sigma and Systems Thinking. A full description of these tools and their principles are not possible in this article so here is a brief summary of each:

- Lean: Is the set of management practices based on the Toyota Production System (TPS). It is based on two principles: 1) Eliminate waste and non-value-added activity (NVA) through continuous improvement; 2) Practice respect for people
- Ergonomics (synonymous with Human Factors): To optimize human well-being and business system performance
- Six Sigma: Is a continuous improvement methodology that is used to reduce defects (errors, variation) in products and services
- Systems Thinking: In essence is seeing inter-relationships rather than linear cause-and-effect chains, and in seeing processes of change rather than snapshots

You do not need to be an expert in these methodologies or use them in their “defined, true” way to get the benefit out of them. There are four main points that summarize L.E.S.S.:

1) All processes should be evaluated for “waste” or non-value added activities such as over crewing, idle equipment, excessive inventory/supplies, etc. and changes should
be made to streamline and remove as much “waste” as possible for every process.

2) All processes and equipment should “fit” the humans who do the job – physically, cognitively and organizationally, in order to prevent injury and errors and optimize work system performance.

3) All processes should be assessed to see if they are meeting expectations and, if not, changes should be made to improve them.

4) All changes should be given consideration for the impacts and effects on other aspects and processes of the company/departments before purchase/implementation of new equipment, processes, software, etc.

These main points will help you uncover gaps within your company’s work practices and lead you to systems-based solutions that are effective, sustainable, repeatable and rarely rely on “good” behavior and habits of your employees.

Conclusion

In closing, I hope I have convinced you that the “normal” costs of doing business should not and do not have to be “normal” if your company is focused on improving and optimizing its operations. Given the economy, can your company afford “we’ve always done it this way” and the “normal” costs of doing business? Taking the time and effort to evaluate and improve your operations will result in tangible benefits of reduced costs, increased customer satisfaction and improved employee morale, which are bottom line results.

Jill Kelby, PT, CEA, is president of Kelby Ergo Design, LLC in Eden Prairie, Minnesota. KED optimizes human and business performance in the workplace to improve quality and workplace performance, reduce injuries, save money and engage employees.

This article was based, in part, on her presentation on the same subject at TCI EXPO 2012 in Baltimore. To listen to the audio recording of that presentation, go to the digital version of this issue of TCI online at www.tcia.org and click here.
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Hang around for the next 75, and see just how far you’ll go!
Sometimes, you find yourself in a situation off the job where you are called upon to use your professional knowledge and experience. It happened to me a few months ago. I was at a local restaurant getting ready to have lunch with Tim Womick. We were in between one of his Trail of Trees performances (teaching children about trees, tree planting and tree care) at a nearby elementary school. We were seated at a table near the window. After ordering, we were casually chatting when Tim looked out the window and commented that the trees outside in the parking lot were being pruned.

All of a sudden, Tim shouts, “Look at what this guy is doing! He’s standing on the back of his (mule-type) cart, and pruning with a pole pruner! Not only is he unsafe but he is pruning improperly by leaving big stubs. He doesn’t know what the heck he’s doing!”

I’m sitting with my back to the window. I’m thinking that Tim is super passionate about trees, way more than the average person. I’m hungry and figure that our food will be here soon. I’m wondering if I changed the subject, would Tim just go along with the conversation. Or maybe we could trade seats and Tim won’t be able to see what is going on outside.

Tim says the words that I was hoping he wouldn’t vocalize: “We have to stop him!”

I’m thinking, yes, someone should do something. Then, I remember that I am a certified arborist and an Extension educator. The city has a tree ordinance and I know the urban forester. But, if I do something, my lunch might get cold. I know that I am not usually an activist type of person. All of this is running through my head when Tim says the next dreaded words: “Can’t you do something?”

Tim’s passion for trees wins out. I figure that the least I can do is go out and talk to the guy. So with a big sigh, I said, “I’ll go out and see what I can do.”

It turns out that the guy is a landscaper with no tree pruning experience. He was told to prune the trees so the shopping center sign could be more visible.

After finding this out, I ask to speak to his supervisor. He makes a call. On the phone, I tell the supervisor that this gentleman is pruning unsafely and improperly. The supervisor suggests that I go to the property manager’s office to complain.

I point out that this city has a tree ordinance and perhaps this is a violation. I hinted that I know who in the city to call. The supervisor magically appears and says there is nothing he can do. He is just doing what he was told to do. I ask to speak to the property manager and tell him that I am making the call to the urban forester.

The property manager quickly appears. After explaining to her what was going on, she was very nice and she said that she is interested in pruning the right way. (It turns out that this property has had a few run-ins with the urban forester before.) After I give her my business card, I tell her about the pruning classes we have at the Extension office. I recommend that she should at least have a certified arborist supervise the tree pruning – better yet, have one to actually do the pruning. She agreed, the tree pruning stopped for the day, and the trees were not subjected to any more damage.

You can see that I was hesitant to say or do anything. If Tim hadn’t been there, I am certain that none of this would have ever happened. But once Tim motivated me to act, I learned that a little education goes a long way, and perhaps these three people are more aware of the importance of proper tree pruning. Maybe they will even tell others. If you found yourself in a similar situation, what would you do?

Note: Tim posted the whole incident on Facebook immediately with many likes. He also asked the server to hold our food until everything was resolved so I didn’t have to go hungry!

Celeste White is an ISA Certified Arborist and a commercial horticulture extension agent at the University of Florida/Institute of Food and Agricultural Sciences Orange County Extension in Orlando, Florida.
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Ash dieback spreads in Europe

The North American Plant Protection Organization’s (NAPPO) Phytosanitary Alert System is noting ash dieback is continuing to spread in Europe. Most recently the disease has been reported for the first time from the United Kingdom, and is now considered widely distributed there. It has also been detected in Ireland.

The disease was first observed in parts of Eastern Europe in the mid-1990s, although the actual causal agent of the disease, *Chalara fraxinea*, was not identified until 2006. The pathogen causes a serious dieback disease of European ash (*Fraxinus excelsior*), as well as other *Fraxinus* species, in many parts of Europe.

Ash dieback is characterized by a rapid dieback of the crown, associated with the presence of cankers or lesions girdling the affected plant parts, usually leading to tree death. It is estimated that as much as 90 per cent of ash trees in some areas of Europe are affected by the disease.

It is spread via wind-blown ascospores, as well as through the movement of infected host materials, such as nursery stock. The actual origin of the ash dieback pathogen remains unknown.

Gypsy moth controls set up in Virginia, West Virginia

The Animal and Plant Health Inspection Service (APHIS) in January expanded its gypsy moth (GM), *Lymantria dispar*, regulated area to include Tazewell County, Virginia. Similar regulations were set up in McDowell, Mercer, Raleigh, Summers, and Wyoming Counties of West Virginia in December. GM is a highly destructive insect of approximately 300 species of trees and shrubs. All interstate movement of GM-regulated articles from these counties must be handled in accordance with the Federal Order.

Tequila-swilling tree trimmer rescued from tree

An allegedly intoxicated tree trimmer dangled 40 feet off the ground for nearly two hours January 7, 2013, before rescuers were able to get him down from a eucalyptus tree in Brentwood, California, according to a report by NBCLosAngeles.com. The worker was taken to the hospital to be evaluated for possible trauma.

The man seemed lethargic, according to rescuers, and once brought to the ground it was apparent that he had consumed a significant amount of alcohol from a bottle of tequila that he had in his work belt with him, according to the report.

About an hour after the crew packed up and left, the homeowner’s gardener noticed there was someone in their eucalyptus tree. It was not clear whether he’d been left behind in the tree or climbed up after the rest of the crew left.

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Tree News Digest

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When rescuers finally reached the man, they found he’d been hanging by a harness that had slipped from around his waist to underneath his arms. The worker was wearing climbing spikes but, hanging by his chest, had been unable to get his footing.

Thirty-two firefighters responded to the scene and used ropes, a harness and 35-foot ladders to rescue the tree trimmer.

* Sent in by David L. Schwartz, president of TCIA member Schwartz Tree Care, Inc. of Cranston, Rhode Island.

New York AG lawsuit alleges price gouging

Claiming that a local company preyed on the vulnerable, New York Attorney General Eric Schneiderman’s office in December filed a lawsuit against Lake George-based American Tree Co. for alleged price gouging following Tropical Storm Irene, according to an article on timesunion.com. The suit claims the company boosted fees “exponentially” for work after the devastating August 2011 storm, charging up to $10,000 per tree removal and also hitting customers with undisclosed $1,500 “emergency service call” and $1,000 “after hours” fees.

According to court documents, the investigation began with a consumer complaint in February 2012 and ultimately uncovered 27 alleged victims. The state’s Price Gouging Law prohibits unjustified price inflation of essential goods and services during an “abnormal market disruption” caused by a natural disaster.

The suit claims that American Tree “provided inaccurate ‘lowball’ estimates or false promises of full insurance coverage”, failed to provide written contracts as required by law; and amended pricing information on documents after they had been signed by customers.

In an interview with the Times Union, American Tree co-owner John Stranahan called the allegations “absolutely false,” and said the company would defend itself.

“We are a three-generation company. ... There has never once been an accusation of this kind levied against the company,” Stranahan told the Times Union. He said that all work was specified and approved ahead of time by customers. He said that the attorney general’s analysis comparing tree-removal rates in the periods before and after the storm was flawed, and should instead have made comparisons to what other companies were charging during the post-Irene cleanup. He also said some of those who gave testimony to Schneiderman’s investigators had simply pocketed insurance settlements rather than settle their bills with American Tree.
I was out giving bids in an area not too far from my home on a warm summer day. The homeowner met me at the driveway. After basic introductions, I followed him around the house to the backyard to see the “problem tree.” As we walked, I noticed that we wouldn’t be able to get an aerial back there because of the trees and a large hill.

The problem tree turned out to be an 85-foot-tall white ash with a double trunk starting about 10 feet up. It had a rotten base that had broken near the ground and the tree was now hung up in a group of spindly maple trees. The tree was leaning at a 45-degree angle toward the neighbor’s house and wooden fence. The small maples were bent with the weight of the tree and I was surprised that they managed to stop it at all.

After checking for possible truck access through the neighbor’s yard and finding none, I realized that we would have to take the tree down the hard way. I explained to the homeowner how we would secure ropes near the top of the ash tree to stronger trees in the woods nearby and the steps that we would follow to ensure the safety of the crew and protection of the property. I explained to him the time involved to do the job properly and gave him what I thought was a very fair price of $500.

He shook his head, gave a quiet laugh and said, “I don’t know how you guys get off charging such outrageous prices. It’s just one tree! I’ve got a friend who’s got a small skidder who said he would take it down for a case of beer! I don’t think I’ll be needing your services,” he said, and sent me on my way.

About two weeks later, I was out in that same area and drove by the property. As are a lot of us tree guys, I was curious as to whether or not the tree had been cut down. What I saw from the road piqued my curiosity even more. I parked my truck off the road and took a walk to take a look.

The first thing I noticed was that the corner of the neighbor’s roof was covered with a blue tarp and that two sections of the wooden fence were on the ground. There was sawdust everywhere, but the tree was nowhere to be seen. In the tree owner’s backyard, I could see several deep ruts of the kind that a log skidder would make. The ruts had done quite a bit of damage to the lawn, but the worst part of it was where the skidder had apparently gone through the septic tank and left a large gaping hole.

It was now my turn to shake my head and laugh quietly. I hope those guys enjoyed their beer, I thought, as I walked back to my truck.

Darren Bucksa is an ISA Certified Arborist and owner of Bucksaw Tree Service located in Coleman, Wisconsin.

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