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Same 'ole, same 'ole ...

It's March and the economy is crawling along. By the time you read this, we may be in a full-scale war.

On the other hand, I am talking to some people who say business is doing pretty well. That's something when the projection for small business growth in 2003 is only 3.5 percent. I'm talking to others who are looking at alternate budgets and strategies for surviving. The choices aren't pretty.

When I read all the materials about associations, people who are job hunting, and state budget cuts, none of the news is particularly inspiring.

Yet, what I'm not hearing is people who are coming together to consider doing business differently. You see, I don't believe that when the economy rallies, things are going to go back to being as great as they were. What I am seeing is that people are changing some of their business strategies and decisions, and that this is going to be permanent. I'm talking about people who may be your suppliers as well as your customers.

Somewhere down the line, the consumer is going to be making different decisions. Maybe the economy and a potential war will play into it, but this time period is also going to affect Gen X-ers as they come into some of their biggest earning years in their careers. Their expectations about life, from the get-go, were different from the Baby Boomer's expectations. They make their decisions about where they are going to put their money very differently from previous generations. They are far less materialistic and far more balanced in their approach to life. Wonder if they'll be buying the high-end homes – or even able to afford them if they want to for that matter?

The bottom line is, if you're not watching all of the things that are changing around you and projecting out more than just survival through this year, your business may not have a strategy that is going to work in the next three to five years.

This industry has got to move beyond short-term planning each season and get sophisticated about analyzing data that affects it, and turn that into smart business planning.

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Cover photo shows a typical construction project. New houses often mean trouble for old trees.

TCI’s mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the non-profit National Arborist Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.
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The old adage about someone wanting “the moon with a fence around it” rings particularly true in reference to trees within the urban infrastructure. Most people prefer large, healthy trees lining their boulevards, shading their parks and homes and lending a sense of scale to business landscapes. They also expect uninterrupted utility service and prompt, inexpensive repairs to those utilities when something goes wrong. And finally, this blend of green and gray infrastructure needs to be consolidated as much as possible, quite often into 4-foot-wide boulevards, narrow spaces between parking lots and new buildings, and 35-foot deep easements. Utilities — buried and above-ground — curbs, streets, sidewalks and trees suffer together in the same shared spaces.

There’s no question that many trees die each year as the direct result of urban expansion: subdivisions cut into woodlands, new or widened highways trespass on the rooting grounds of trees, and utility corridors expand through previously natural landscapes. However, that pales in comparison to construction damage to established urban trees — those trees in boulevards and medians, back yards and parks, alleys and vacant lots. Natural woodlands are a dwindling source of tree losses to construction damage, whereas boulevards and other urban landscapes offer unlimited opportunities for the “tree vs. tractor” conflicts to play out, time and again.

Design-out future problems. Rather than plant in a narrow boulevard, pour the sidewalk to the curb and plant the trees in the larger lawn space.

Three years after this green ash had three-sided root loss, the crown is little more than deadwood, and the tree must be removed.

Two years prior to the windstorm, this large green ash had one-sided root loss when the street was widened, leaving it unstable.

Three sides of this Norway maple’s root system were removed. Now, the tree is a high-risk tree in a high-risk situation and should be removed.
Brakes squeak and basements leak

Is tree loss a foregone conclusion when any type of construction activity occurs nearby? The “expert” opinions of many are as polar as the activities: “I’ve never killed a tree yet!” to “One wound spells doom!” Reality lies somewhere between these two opinions, somewhere between ignorance of what is really happening to trees and the emotions of those who view trees as almost human in spirit.

Construction damage to urban trees is (unintentionally) programmed, predictable, and sometimes, preventable. It’s programmed in the sense that buried utilities sharing the same growing spaces as tree roots have a finite lifespan and require maintenance and/or replacement, most commonly on 30 to 40 year cycles. Streets, curbs, and sidewalks – especially in the northern states – have a similarly brief period of usefulness and again offer periodic and programmed disruptions of the landscape. Businesses and residential homes become too small for their purposes and must expand further into the landscape that those trees were planted in 20, 30 or 40 years ago.

Repairs, replacements, and expansions are all accepted compromises for the quality of life that the “gray” infrastructure lends. Unfortunately, these actions do compromise the health and longevity of the trees that share their physical world. Trees are a different form of the urban infrastructure; they’re alive and must be managed as living elements, managed as the “green” infrastructure. Too often, however, they are managed by the wrong people. Trees are not intentionally killed during construction. It’s more a matter of the decision-makers not understanding the nature and frailty of the urban forest.

Understanding construction damage

Health vs. condition.

More often than not, death from construction activities is the end of a long, deliberate spiral of declining health. Construction damage is most often considered a predisposing type of damage. In some instances, the damage does directly result in the death of the tree. More often, the construction activities significantly weaken the vitality (overall health) of the tree, leaving it vulnerable to other contributing or opportunistic factors.

Healthy trees can often tolerate a considerable amount of damage and recover if given the proper care. However, most urban trees are stressed, more so than their counterparts in the forests, woodlands, or prairies. They’re assaulted by mowers and string trimmers on a scheduled basis, polluted with deicing salts and turf pesticides, and forced to seek water and minerals in confined spaces compared to their country cousins. In addition, they usually stand alone, more or less as specimen trees that don’t enjoy the mass protection of a stable, woodland environment.

This stressed state of living leaves trees more vulnerable to the dramatic or subtle changes that occur during construction activities. A healthy tree can usually tolerate root loss on one side of its stem or a wound to the trunk. A stressed tree may be pushed into an early death from the same degree of damage, simply because it doesn’t have the normal energy or ability to tolerate and recover. The decline in health to final death period is lengthy: four to seven years is not uncommon. During that time, many other insults to tree health occur and the eventual cause of death can get very confusing. Wood-boring insects – as well as some of the canker-causing or wood-rotting fungal pathogens – are attracted to stressed trees. Unpredictable seasonal droughts or normally tolerable insect infestations can contribute to even more stressful conditions and lead to the final demise of the trees.

Health: It’s alive, it’s green, but is it safe? Health refers to the ability of a tree to metabolize normally: photosynthesize, store energy, and release energy for growth, reproduction, and recovery from damage. Often, trees can be subjected to considerable construction-related damage and can recover in terms of their health, but may be a safety liability and need to be removed because their condition is unacceptable for urban landscapes.

Condition refers in part to a tree’s stability and structural...
Three-sided root loss and storage of leftover asphalt on the soil surface left this large tree unstable and unhealthy.

Buried materials, especially concrete, that elevate soil pH cause long-term damage to many trees.

Not only were structural roots removed on three sides, but the final grading removed most of the fine roots near the surface of this large tree. The tree should have been removed prior to construction due to predictable compromises to its health and condition.
tree deserves to be saved. Tree preservation during construction activities should be approached as a planning process that begins well before the activities begin, continues through the construction phase, and endures well after the completion of the project. It also must consider both health and condition, emphasizing health management and risk management equally.

Prediction

**Step One:** Assign the responsibility of making decisions regarding tree preservation before, during and after construction to one person or one governing unit and give that person the power of enforcement. Don’t ask a forester to install plumbing and wiring in your house, don’t ask an electrician to perform a root canal on your child, and don’t ask someone to make forest health or tree health decisions if he is not qualified to. This seems like a silly first step, but is most often one of the first silly missteps!

**Step Two:** Predict the type of damage that is inevitable. Most construction damage is accidental and preventable, but some of it is inevitable. If the excavation for the foundation or the trenches for the utilities will be within a few feet of a large tree’s trunk, root damage is inevitable. Wounding to the trunk or broken branches from the equipment used is accidental and preventable.

**Step Three:** Inventory the trees. Record the species, their size (usually the d.b.h., i.e., the trunk thickness measured at 4.5 feet above ground), their health and condition, and their exact location in respect to the construction activities.

**Step Four:** Determine if the inevitable damage is acceptable or not. At this stage, health management and risk management must be equally important.

**Health Management:** Young and/or healthy trees are better able to tolerate and recover from most types of construction damage. Older and/or unhealthy trees are less likely to survive and thrive. Certain species of trees are more tolerant of root loss (e.g., American elm, silver maple, boxelder); others are more tolerant of wounding (bur oak, ironwood, sugar maple). An experienced professional should weigh both the vitality (overall health) and the vigor (genetic potential) of each tree versus the predicted damage, and then predict its potential for tolerance and recovery. Those with poor potential should either be removed or avoided completely.

**Risk Management.** Healthy trees can usually tolerate one-sided root cutting within a few feet of the tree trunk and eventually recover if they’re cared for. Those same trees, if growing in a four-foot-wide boulevard, may present a high-risk situation if the root loss significantly increases their chance of failure during a windstorm, or if the root loss results in significant de-
fensive dieback in their crowns. If the tree is small (less than 25 feet tall), the risk is probably acceptable. If the tree is large (greater than 50 feet tall), the risk may be unacceptable.

If the root loss due to construction is predicted to affect two sides of a tree’s root plate, then damage to its health and condition increases significantly. Older, larger, more dense trees in high risk situations (e.g., in boulevards, parking lots, within a few feet of a building) automatically become higher risk trees. If damage is predicted to affect the root system on three or more sides of the tree, then removal of the tree is most likely to be the best and only option if construction is to occur.

If a tree has a significant amount of decay in its stem or major branches, if its form is poor (e.g., excessive amount of branch co-dominance and bark inclusion), or if it has a significant amount of deadwood present in the crown, it probably should be removed.

Finally, after health and risk management issues have been evaluated, determine the potential to maintain health and condition following the construction activities. If there will be no funds nor opportunities to maintain these trees after the construction is completed (e.g., deadwood pruning, watering, disease/insect control), then many of the “marginal” trees may need to be removed or completely avoided during construction.

Step Five: Make your decisions on the trees that deserve to be preserved, but don’t do this in a vacuum. Everyone involved in the construction project should be aware of how the trees became “anointed” and how they can be preserved.

Prevention
Step One: Preparation. Preserved trees in need of pruning should be pruned before the construction activities begin. Remove any low branches that could be hit by equipment. Remove all dead wood and weakly attached branches. If diseases or insects are present, control them. If trees are nutrient stressed, correct the deficiencies. Never allow trees to become drought stressed.

Step Two: Avoidance. Avoid the damage, not necessarily the construction activities. Assign a central storage, parking, and equipment clean-out area that is not within the root area of preserved trees. This tactic will avoid the potential of indirect and insidious damage to the tree’s root system, such as soil compaction or soil pollution. If construction techniques can be altered to reduce the predicted damage, use them. For instance, engineered or “structural” soils can be used as a base for paved surfaces. These “soils” can be compacted sufficiently to meet engineering standards yet still allow trees’ roots to grow fairly well.
both under and within the engineered medium. If oak wilt is a problem in your area and the construction activities are likely to cause wounding of the oaks in the landscape, protect the stems of the trees or do the work during the winter when the risk of infection is lowest.

Another avoidance tactic involves redesigning some aspects of the construction project. Rather than installing a poured concrete sidewalk that involves excavation, construct a raised boardwalk if it serves the purpose just as well. Instead of widening a street symmetrically and damaging trees on both boulevards, widen it to one side, preferably away from the side of the street that has the boulevard trees most deserved of preservation. Both of these options can be done, have been done, and most importantly, work.

Step Three: Protection. For trees deserving of preservation that fall within harm’s way, protect them from damage as much as possible. If the damage is predicted to be soil compaction, a 6 inch to 12 inch layer of coarse wood chips on the landscape surface can very effectively prevent soil compaction. The chips can either remain in place for long-term health of the trees, or can be removed after all construction activities are completed. For easier removal of the chips, cover the soil with a fabric weed barrier material prior to applying the wood chip layer.

Valuable trees can be preserved by using both avoidance and protection techniques, most commonly with tree preservation fencing. This fencing can be installed at the perimeter of the preserved root area, with no construction activities allowed within the fenced area.

Step Four: Maintain the health of the trees. The upper 6 inches to 8 inches of the soil should be kept moist. Mulching the soil surface can effectively reduce the frequency of irrigation, but not the frequency of inspection. Often, water sources are minimal near construction projects. Plan ahead for this by lining up water trucks, getting enough hoses and soaker hoses available and accessible, obtaining water meters and adapters for fire hydrants, and assigning the responsibility for health maintenance to qualified personnel.

Step Five: Monitor the trees and site constantly. Those protective fences come down as easily as they go up. Make certain that everyone involved with the construction project understands the preservation efforts and their personal responsibility to respect those efforts. Place signage around the site that explains the preservation efforts and provides contact information (e.g., a phone number for the consulting arborist). Enforce the tree preservation policies.

Step Six: Don’t work in a vacuum. Once a day, twice a day, once a week,
keep people informed of the tree preservation policies and practices, how things are going, how they could help, what more needs to be done, and any ideas they may have. The more people aware of the tree preservation efforts, the more likely the project will be successful.

If the project involves public trees, such as boulevard or park trees, don’t exclude homeowners. They should be just as knowledgeable as the contractors and should ultimately bear some of the responsibility for maintenance and monitoring when the project is completed. Send out letters or fact sheets that explain the progress of the project, the importance of tree preservation, and whom they can contact if they have questions or notice something that doesn’t seem right. Some communities or neighborhoods have set up temporary “street improvement/tree preservation” Web sites that can be accessed by anyone in the community, can be updated daily or weekly, can include a FAQ, and can get timely information out to the residents immediately.

Treatment

Step One: Continue monitoring the health and condition of the trees for several years after construction. In particular, monitor for occurrence of deadwood, drought symptoms, and opportunistic insects and diseases.

Step Two: Schedule regular irrigation visits to the trees. If there’s a magic bullet for tree recovery after construction, it’s maintaining optimal soil water conditions. Trees will require supplementary watering for several years after construction, especially during seasonal droughts and especially if the construction activities have directly or indirectly damaged the roots of the trees. Mulch in lieu of turf grass will conserve the soil moisture for the tree roots and lessen the frequency of irrigation visits. Encouraging residents in the neighborhood to irrigate the boulevard trees after street widening projects not only reduces the time and labor demand on the city, but also helps develop a connection between the resident and their boulevard trees.

Step Three: Schedule deadwood pruning of the trees two to five years after construction. If root damage occurred during construction, there will be dieback within the crown of the trees and it could create a high-risk situation.

Step Four: Don’t design in new problems! Don’t replant trees in boulevards that are only wide enough to support petunias. Don’t plant large trees in areas large enough to support only small trees. Avoid planting new trees so close to buildings that when the inevitable expansions come, the trees go.

Gary R. Johnson is professor of urban and community forestry, College of Natural Resources, at the University of Minnesota.

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Terex Utilities CBC and Combatel Distribution

Terex Utilities recently announced the creation of Terex Utilities - South - a new distribution network across the southern United States. Aligning company-owned Telelect Southeast Distribution with newly acquired Commercial Body Corporation (CBC) and Combatel Distribution formed the new entity. The single distribution region covers from Delaware south down the East Coast, west to New Mexico and Kansas, and north through Kentucky & Missouri. Gary Grist, former president of CBC, has been named vice-president and general manager.

"The acquisition of CBC and Combatel allows Terex Utilities the ability to offer our customers increased capabilities and services over the entire region," said President Chris Ragot.

Examples of the additional complimentary products include both Terex products - RO boom trucks, loader backhoes, Genie, and others as well as Terex Utilities Alliance Member products - Hogg & Davis, TSE, Reedrill Texoma, and Bronto. Used equipment and rental options provide additional solutions.

Kitazume Appointed President of Kioritz Corporation

Kioritz Corporation of Japan, the parent company of Echo Inc., recently named Yasuhiko (Chuck) Kitazume President, effective Feb. 27, 2003. The incumbent President, Yasuhiko Tanizawa, will remain on the board of directors as chairman.

Kitazume recently returned to Japan after serving four years as President of Echo Inc., in Lake Zurich, Ill. Kitazume enjoyed a successful tenure as President of Echo, setting the stage for the company’s future growth within the industry.

RedMax Executive Promoted

Mamoru (Tommy) Tanaka has been promoted to manager of marketing, product planning and public relations at RedMax, Komatsu Zenoah America, Inc. In his new position, Tanaka will manage all RedMax marketing activities, including marketing communications and dealer support. He will also retain his product planning responsibilities.

Tanaka joined Komatsu Zenoah Company as a design engineer in 1988, right after graduating from Tokyo Electric University with a degree in mechanical engineering. He came to the United States in 1993 an engineer, and was named to his product planning, quality control and public relation management position in 2001.

Call Backs

Mark Adams, pictured here as a demonstrator at TCI EXPO 2002, was incorrectly identified in the January issue of TCI magazine. Adams works for Downey Trees, Inc., in Cumming, Ga. We regret the error.

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Redesigned Bandit 2680 and 3680
In October 2002, Bandit unveiled redesigned 2680 and 3680 Beast Recyclers. Design changes include a new cutter body design, new teeth, 60 percent increase in screening surface, and a continuous anvil feed conveyor chain with twice the slats. In addition, a three-speed infeed conveyor drive doubles the conveyor speed, and new infeed chain sprockets prevent buckling of the chain when removed. The redesigned recyclers also sport Kevlar drive belts that do not stretch and have a horizontal thrower option available. Both the 2680 and 3680 are available as towable or self-propelled and feature a Cat 325L undercarriage. For more information, contact Bandit Industries, 6750 Millbrook Road, Remus, MI 49340; phone 1-800-952-0178 or (989) 561-2270; fax: (989) 561-2273; e-mail: brushbandit@eclipsetel.com or visit www.banditchippers.com.

Echo's CS-440 Chain Saw
Echo's new 44 cc rear-handle CS-440 chain saw features a two-stroke engine equipped with a Pro-Fire Electronic Ignition and an all-position diaphragm carburetor. In addition, the unit's Slope Advance Ignition System (SAIS2) automatically senses engine speed and advances ignition timing for optimal performance. Operating with a standard 18-inch bar and chain, the CS-440 has an adjustable, automatic chain oiling system that regulates the amount of oil according to engine speed, ensuring that the unit's bar and chain remain properly lubricated at all times. The CS-440 is also offered with optional 16- or 20-inch bars and chains. The unit's heavy-duty, cartridge-type filter helps extend saw life and maintenance intervals. The CS-440 also features a low-tone USDA-approved spark-arresting muffler and vibration-reduction system. Grouped controls utilize a throttle control lockout that prevents accidental throttle engagement. Echo's CS-440 has a low-kick chain and a reduced kickback guide bar to help prevent rotational kickback. For more information, contact Echo, Inc., a subsidiary of the Kioritz Corp. of Japan, at www.echo-usa.com.

Bobcat 5600 Toolcat Utility Work Machine
Bobcat Co. has unveiled its 5600 Toolcat Utility Work Machine. The Toolcat is a steerable machine that works on all surfaces, and can handle grounds maintenance, mowing, snow removal, ground leveling, lifting pallets, planting trees and shrubs as well as fencing and decorative landscaping. The 5600 is equipped with a 44 hp Kubota diesel engine as well as all-wheel steer and four-wheel drive. With a 17-foot outside turn diameter, the Toolcat is maneuverable in some of the most confined areas. The 5600 also comes with a suspension system that adjusts its responsiveness according to the type of load it is carrying. The machine can travel up to 18 mph, and its suspension system allows flex and axle oscillation, which helps keep all the tires on the ground for increased pushing force. The rear of the machine is equipped with a strong hitch that has a trailer capacity which can be used for pulling large trailers and other implements. Up front, the hydraulic system provides 17 gpm and 3,000 psi of auxiliary hydraulic flow to run attachments. For more information, contact Bobcat Co. at www.bobcat.com/toolcat.
Nicholson, a Cooper Hand Tools brand, has introduced a line of double-cut chainsaw files. The line includes a full range of sizes for every chain saw, including 6-inch-by-1/8-inch and 6-inch-by-5/32-inch, and a range of 8-inch files from 5/32 inch through 3/8 inch. The files have double-cut teeth. For more information, contact Cooper Hand Tools Customer Service, Lufkin Road, P.O. Box 728, Apex, NC 27502; phone (919) 362-1670; or visit www.coopertools.com.

RedMax CV225 Cultivator

RedMax has introduced the CV225 cultivator. The compact, 20-pound cultivator is designed to help with preparing and maintaining planting beds that are too small for traditional tilling/cultivating equipment. The CV225 has RedMax’s G241S two-cycle engine, which can drive bolo tines through almost any type of soil. For more information, contact RedMax, Komatsu Zenoah America Inc., 4344 Shackleford Road, Suite 500, Norcross, GA 30093; phone 1-800-291-8251, Ext. 213; fax (770) 381-5150; or visit www.redmax.com.

Garlon 3A Herbicide

The U.S. Environmental Protection Agency recently granted Dow AgroSciences a Section 3 label registration for Garlon 3A herbicide for aquatic uses. Right-of-way vegetation managers can now apply Garlon on emerged weeds and brush in standing water or on banks and shores of ponds, lakes or streams. Rather than switching to a different herbicide when encountering aquatic settings, crews can continue applying the same Garlon herbicide they are already using on terrestrial areas. The new label states there are no fishing, swimming or domestic livestock restrictions. The addition of the aquatic label gives vegetation managers the ability to control pests that frequent wet areas or the shores and banks of ponds and streams, such as purple loosestrife, Japanese knotweed, Brazilian pepper and Chinese tallow. For more information, call 1-800-263-1196 or visit www.forestrymgmt.com.

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Please circle 7 on Reader Service Card
Marketing in a Tough Economy

By Dick Proudfoot

A group of businesspeople gathered for lunch at a local family restaurant. The special was barbecue. The barbecue was great and, as always, a bit drippy. Little did the owners of a local dry cleaning business know that because of the drippy barbecue, they were about to lose some customers.

A businessman at the lunch dripped barbecue sauce down the front of his jacket. The conversation turned to the topic of dry cleaners, and one diner after another shared the opinion that service at the dry cleaning establishment on which they all relied was declining, and within minutes the names of other dry cleaners had been offered and decisions to change allegiances were in the works.

I’m sure that not one of these dissatisfied customers will complain. Not one will leave a bill unpaid. Each will smile at the counter help and say, “Thank you” on the way out the door – for the very last time.

It may take a few months for the reality of the business loss to sink in. When it does, the dry cleaners will probably blame their market conditions, pointing fingers at the two most commonly cited culprits in today’s business world: new competition and the sagging economy.

The owner probably won’t take time to ask: “Is it something we’re doing, or not doing? Might we be the problem?”

Instead, with sales down and their financials under attack, they’ll likely go on the offensive, fighting to bait business back with reduced prices, new promotions and increased advertising. But an offensive game plan – increasing advertising and promotions to attract new customers for a yet unfixed service – will only spotlight a weakness. Nothing kills a bad service like a good promotion!

Keep the customers you have!

Keeping current customers is far more important than getting new ones! Defensive marketing is a must. Protect yourself from threats and prepare to withstand attack; defend the goal. Anticipate the worst-case scenario and guard against it. Defensive marketing means placing more emphasis on preventing an opponent from gaining an advantage than on scoring. It means caring more about keeping existing customers than attracting new ones.

Defensive marketers focus their efforts toward fortifying current customer relationships with consistent and enhanced customer care, with the knowledge that happy, satisfied customers return again and again and bring new customers with them.

In the fast-paced business world of just a few years ago, customers were often willing to overlook service lapses and business sloppiness. Not anymore. Now that the economy has slowed, customers expect an all-new level of appreciation and care. They will definitely leave if they don’t get it!

Remember the new, cheaper competition; customers have lots of choices.

Why do customers leave?

Without question, many customers are lost due to their perceived feeling of indifference on the part of the company. The feel as if no one at the company cares about them. Sometimes it is not a specific bad experience that sends customers away, but rather complacent behavior that indicates that the company doesn’t care.

Customers who have had an issue resolved quickly and professionally will almost always stay to become repeat customers.

One survey indicated that when customer expectations are not met – when customers sense indifference – 94 out of 100 leave quietly, without saying a word to the business. They are the quiet, non-complaining customers, who never return.

How do customers judge your tree care business? And how would they describe your business to their friends (if at all)? They notice how quickly phones are answered; how promptly calls and e-mails are answered; the accuracy of billing, responsiveness to customer questions, complaints or concerns; and the efficiency, effectiveness and friendliness with which they are handled.

They notice if you do what you say you are going to do. They make decisions about who you are, and whether you are sincerely concerned and interested in looking out for their best interest. Remember the saying, “Who you are speaks so loudly I cannot hear the words you are speaking.”
For instance, checking into one hotel, the clerk enters your name in the computer, looks up, and says, “Welcome back Mr. Jones! It’s been nearly three months since your last stay, so you haven’t seen our remodeled restaurant. Let us know if we can make you a reservation. I will get you back onto the 8th floor in a smoking room just like you requested last time, unless you have another preference.”

Compare that to: “Good afternoon. Do you have a reservation? Under what name? Could you spell that? Have you stayed with us before?”

Which hotel do you think will end up with loyal customers, as opposed to merely satisfied customers?

Even satisfied customers are vulnerable customers. They are susceptible to better offers. The dry cleaning customers eating barbecue likely fell into the “satisfied” category.

Only loyal customers are safe from defection. What’s more, their level of satisfaction with your service is so high that they lead others to your business, and they discourage other companies from trying to match your level of service because your standards are so high.

As a tree care business owner, ask yourself: “What do I do to turn first-time customers into lifetime customers? How do I keep customers and make it unappealing for them to switch to my competitors? How do I make the buying experience with my company so pleasurable my customers will want to repeat it?”

Think about re-defining your business. Focus on the customer (while delivering the best of arboricultural care) and deliver an incredible experience about which your customers will rave! Focus on your customer and help them treasure your business, be anxious to buy from you – and be willing to pay what you ask. And bring other customers with them.

You only get a certain number of chances with advertising and promotions. You can screw up and try again – until the money runs out. But if you don’t know how to keep customers, finding advertising and promotions that work may only increase the number of people who buy your service and then walk away, quiet and non-complaining, unhappy with the results, and never to return.

Imagine if, when the barbecue sauce was dripped onto one person’s jacket, she had said, “Call 5th Avenue Cleaners. They’ve got this awesome emergency pick-up service; your jacket will be ready by the time we’re done with lunch.”

That would be amazing service. That would be a formula for unshakable customer loyalty.

Dick Proudfoot, a green industry business & sales consultant, trainer and speaker, is the former president of Pruett Tree & Landscape and a past president of the National Arborist Association.
Don't miss these upcoming events

March 5-6, 2003
Michigan Green Industry Association Annual Trade Show & Convention
Novi Expo Center
Contact: (248) 646-4992, or www.landscape.org.

March 7-8, 2003
Missouri Community Forestry Council 10th Annual Conference
Kansas City, MO
Contact: Justine Gartner, (573) 751.4115, Ext. 3116, gartnj@mail.conservation.state.mo.us

March 11-13, 2003
NADF 10th Annual Trees & Utilities National Conference
Arbor Day Farm, Lied Conference Center, Nebraska City, NE
Contact: NADF, (402) 474.5655, conferences@arborday.org

March 12, 2003
Conn. DEP and Urban Forest Council Tree Selection Workshop
Burlington, CT
Contact: C. Donnelly, CT DEP Forestry, 79 Elm St., Hartford, CT 06106

March 14-15, 2003
2003 Plant Biology Workshop
Plant Health Care, Inc. Education Center
Frogmore, SC
Contact: Selina Marx at (888) 290-2640 or phcmarx@directway.com

March 17-20, 2003
ArborMaster Training, Inc.
Nashville, Tennessee
Climbing Skills
Precision Felling, Chainsaw Safety and Maintenance
Contact: 860-429-5028, Info@ArborMaster.com

March 17-22, 2003
ArborMaster Training, Inc.
Greensboro, North Carolina
Precision Felling, Chainsaw Safety and Maintenance
Level I Rigging (pre-requisites required)
Contact: 860-429-5028, Info@ArborMaster.com

March 22-25, 2003
ISA Southern Chapter 61st Annual Conference & Trade Show
Grove Park Inn
Ashville, NC
Contact: (336) 789-4747

March 25, 2003
New Hampshire Arborists Association Annual Spring Meeting
The Sugar Shack, Barrington, NH
Contact: Mark K. Reynolds, President, NH Arborists Association, (603) 271-2214, Ext. 307

March 28, 2003
Queens Botanical Garden
NYC Root Zone seminar
Flushing, NY
Contact: Naomi Zurcher at treerap@sprintmail.com

March 17-22, 2003
ArborMaster Training, Inc.
Greensboro, North Carolina
Precision Felling, Chainsaw Safety and Maintenance
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March 28, 2003
Queens Botanical Garden
NYC Root Zone seminar
Flushing, NY
Contact: Naomi Zurcher at treerap@sprintmail.com

March 18-29, 2003
ISA Texas Chapter 2003 Tree Climbing Championship
Reverchon Park, Dallas
Contact: Guy LaBlanc, (512) 633-5245

April 1-4, 2003
ArborMaster Training, Inc.
Orlando, Florida
Climbing Skills & Precision Felling
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April 4-5, 2003
Chapel Manor College
A Celebration of Trees 2003 Trade Show & Conference
Enfield, Middlesex, UK
Contact: 020 8366 4442, ext. 102, or www.cepel.ac.uk

May 14, 2003
Landscape IPM Workshop
Oklahoma City, OK
Contact: Mike Schnelle at 405-744-7361 or mas@okstate.edu.

June 21-24, 2003
ISA Florida Chapter Annual Meeting Wyndham Resort
Orlando, FL
Contact: (352) 332-6986

July 18, 2003
Longwood Gardens
2003 Conference on Woody Plants
Scott Arboretum, Swarthmore College
Contact: (610) 388-1000 x507

July 23-25, 2003
Turfgrass Producers International Summer Convention and Field Days
Dayton, OH
Contact: www.TurfGrassSod.org

August 3-6, 2003
2003 ISA Annual Conference
Montreal, Quebec, Canada
Contact: ISA, (217) 355-9411; fax (217) 355-9516, www2.champaign.isa-arbor.com

August 9-13, 2003
American Phytopathological Society Annual Meeting - 2003
Charlotte, NC
Contact: Kathy Aro, (651) 454.7250, karo@scisoc.org or www.apsnet.org
August 20-22, 2003
CalScape Expo 2003
Orange County
Hyatt Regency,
Irvine, CA
Contact: California Interior Plantscape
Association, (707) 462-2276; fax (707)
463-6699;
www.cipaweb.org

September 17-20, 2003
2003 National Urban Forest Conference
American Forests
Adams Mark Hotel
San Antonio, TX
Contact: Donna Tschiffely, (703) 904-
6932; donna@amfor.org;
www.americanforests.org

October 18-20, 2003
International Lawn, Garden & Power
Equipment Expo
Kentucky Exposition Center
Louisville, KY
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2622, Ext. 106; crossland@natarb.com
or www.natarb.com

October 30-November 2, 2003
American Society of Landscape
Architects
Annual Meeting
New Orleans, LA
Contact: (202) 898-2444

November 7-8, 2003
Green Industry Expo
St. Louis Convention Center
St. Louis, MO
Contact: 1-888-303-3685, fax (770) 579-
3835, www.gieonline.com

November 13-15, 2003
TCI EXPO 2003
National Arborist Association
Baltimore Convention Center
Baltimore, MD
Contact: Carol Crossland, 1-800-733-
2622, Ext. 106; crossland@natarb.com
or www.natarb.com

November 13-14, 2003
Pacific Northwest Utility Vegetation
Management Conference
Eugene, OR
Contact: PNW ISA office: PNW-ISA office
at 1-800-335-4391 or info@pnwisa.org

December 3-6, 2003
ASCA Annual Conference
Hyatt Regency Lake Tahoe
Lake Tahoe, NV
Contact: (301) 947-0483, fax (301) 990-
9771

December 5-6, 2002
2003 Plant Biology Workshop
Plant Health Care, Inc. Education Center
Frogmore, SC
Contact: Selina Marx at (888) 290-2640
or phcmarx@directway.com

December 8-11, 2003
Ohio Turfgrass Conference and Show
Columbus, OH
Contact: 1-888-683-3445,
www.OhioTurfGrass.org or
otfinfo@offinger.com

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TREE CARE INDUSTRY - MARCH 2003 23
NAA inks an Alliance with OSHA ... for Industry Safety

Overview of Alliance

As the nation's leading trade organization for the tree care industry, the National Arborist Association is taking a proactive approach to improving safety in the tree care industry throughout the United States. To further this objective, the NAA has entered into an "Alliance" agreement with the Occupational Safety and Health Administration (OSHA), in which both parties can better communicate safety issues and freely exchange educational materials in an effort to assist NAA membership with safety.

This Alliance has resulted from OSHA's recognition of the NAA as a legitimate trade organization that is committed to improving the quality of member companies. This is a unique benefit that the NAA can pass along to its member companies.

Common Misperceptions

As the initial agreement was negotiated, the NAA leadership had to consider a wide range of interests and concerns from its members. In general, all agreed that the focus on safety issues was necessary and welcome, but the NAA should be cautious of the lack of understanding between OSHA and the tree care industry.

In business it is often prudent to be cautious, but it is always necessary to be well informed. So, the following points are meant to clarify the Alliance between OSHA and the NAA:

- The term Alliance is chosen by OSHA because it is a legally defined program that allows OSHA to commit personnel and financial resources to its meetings with the NAA.
- An Alliance is created to improve communication and exchange educational ideas.
- OSHA is not going to use information presented by the NAA against NAA members. Any exchanged information cannot be the basis for any enforcement actions.
- The forming of an Alliance with the NAA does not mean that OSHA will become more aware of any "weaknesses" in the tree care industry and step up enforcement. At no time will any NAA member company be singled out for discussion on any issue.
- OSHA is not looking for the NAA to provide it with information about safety in the tree care industry so that OSHA may conduct "more informed" enforcement actions. OSHA understands the safety issues in the tree care industry very well. OSHA has offered to assist the NAA in understanding how OSHA works, so that the NAA may better educate its members.

Benefits to membership

As the NAA has become more involved in political and regulatory issues, membership has become better informed, and better able to make sound business decisions. The Alliance between OSHA and the NAA presents a unique opportunity for all for membership to understand what works and what doesn't work when it comes to safety, and therefore, what works and what doesn't work when it comes to loss control. The following benefits will result from this effort:

- The NAA will be able to identify trends in safety, and develop safety programs jointly with OSHA that are proven to reduce accidents in specific areas.
- The NAA will be able to communicate OSHA concerns and objectives to membership, which will allow membership to be informed and make the appropriate loss control decisions.
- The NAA will have an open channel of communication with top OSHA officials, which will help in improving the relationship between OSHA and the tree care industry.
- The NAA will have the ability to present information on safety in the tree care industry jointly with OSHA at industry meetings, so that tree care professionals can benefit first-hand from the knowledge and information developed.
- The NAA will be able to raise safety awareness in the tree care industry throughout the country by jointly publicizing the results of safety research with OSHA.
- NAA membership will be recognized as legitimate professionals who take safety seriously, and who have representation at the highest levels of OSHA.

Conclusion

This Alliance will help to further the objective of improving safety in the tree care industry. It will help further the objective of allowing NAA membership to better understand how OSHA regulates the tree care industry. And, it will further the objective of having the government recognize the tree care industry as a legitimate industry.
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In the late 1970s, Jay Halloran saw a need for change in the brush chipper knife industry. Halloran and Norval Morey (former owner of Morbark Industries), were co-owners of Michigan Knife. Until then, chipper knives had only one cutting edge, wasting space and the usefulness of the knives. It was

Servicing your chipper knives

1.) All Brush Chipper Knives must be re-sharpened to the specified OEM bevel angles (degrees) for best performance.
   - Asplundh: 40 degrees
   - Salsco: 31 degrees
   - Bandit: 31 degrees
   - Dosko: 37½ degrees
   - Valby: 30 degrees
   - Woodsman: 31 degrees
   - Vermeer: 30 / 40 degrees (varies)
   - Woodchuck: 31 / 42 degrees (varies)
   - Morbark: 31 degrees

2.) Before sharpening, make sure each knife is flat. You must discard all knives that are bent, bowed, or have the bolt holes puckered out from over tightening. If you use a knife with this condition the knife will wood pack, causing major damage.

3.) Use a soft “H,” “I,” or “J” grade grinding wheel with an open 36 to 46 grain structure.

4.) Plenty of coolant must be used at all times when re-sharpening. Do not get the knife hotter than you can touch with your bare hands. Overheating will destroy the knife, causing it to crack.

5.) Do not “snag” sharpen the knife with a hand-held disc grinder. Inconsistent grinding pressure without ample coolant will cause heat cracks on the cutting edge.

6.) Hand hone all burrs off the cutting edge after grinding with a 150 / 240 grit honing stone. If you leave burrs on the cutting edge it will decrease the sharpening life.

7.) Do not overtighten the knife mounting bolts or nuts. Overtightening beyond the manufacturer’s recommended foot/pounds will cause the knife to crack from the mounting holes of the knife out to the cutting edge.

8.) Do not mount any knife in a dirty or unflat pocket or holder. If the knife is tightened up against an unflat surface, it will bend, break, or crack the knife.

9.) Do not operate your chipper with dull knives. Dull knives take more power to drive the dull cutting edge through the wood and can cause knife and mounting bolt failure.

10.) Do not re-sharpen a knife beyond the manufacturer’s recommended minimum width. The knife has a tough (softer) center area with harder cutting edges for safety.

11.) Insist on knives made by a reputable manufacturer that certifies the knife is made out of 8 percent chrome A8 Modified Chipper knife tool steel.

This bulletin was drafted by The KnifeSource LLC.
The knife blank being rough milled to a 30 degree bevel prior to heat treatment.

Skids of brush chipper knives already heat treated waiting for finish grinding.

Halloran's idea to sharpen two edges, forever changing the brush chipper industry.

They developed their new company into one of the most respected knife manufacturing operations in the nation. Shortly after inventing the double-bevel knife, chippers started getting bigger and horsepower increased. The new double-beveled knives started breaking, because their hardness was uniform. Michigan Knife began varying the hardness of their blades, making them soft in the middle and hard on the edges. By softening the middle, the knives flexed at the higher impacts without breaking, while maintaining a hard cutting edge.

In the 1990s, the brush chipper knife industry went through more dramatic changes involving everything from one company buying out its competitor to leveraged buyouts from large venture capital firms. By the end of the decade, Halloran was owner of The Knifesource, which, along with Simonds Industries, are the major suppliers to chipper manufacturers and their dealers. Companies such as Zenith Cutter and Sharp Tool are major providers to the after-market business.

Making the knives

To make great knives, you need to start with great steel. Steel's main ingredient is iron, about 85 percent. Carbon, phosphorus, sulfur, silicon, vanadium, manganese, molybdenum and chromium are added to make steel. The last three elements - especially chromium - are the most expensive, so cheaper steel will have less of these three materials.

Knife manufacturers buy raw steel in hot rolled bars that are an oversized width and thickness. The metal comes with a slight overrun to allow for grinding to exact tolerances after heat treatment.

In the first step of knife production, a piece of steel is preheated to 1,100 degrees Fahrenheit, and is then put
"We have done business with Zenith for over ten years and I have been very satisfied with the service, price and performance of Zenith chipper blades."

Charles Freeman — Freeman’s Tree Care, Inc. Mableton, Georgia

"Other blades have shattered, but the Zenith Chipper Blades keep a great edge and have the longest life."

Ed Langel — Affordable Tree Service Fort Pierce, Florida

"Zenith chipper blades have excellent quality and are equal to or better than anything else I’ve tried over the last 23 years. My Zenith blades even survived a 1/2" steel rod going through my chipper. I run Zenith blades on my Vermeer, Morbark, and Bandit chippers and I am very pleased with Zenith chipper blades."

Ron Van Beek — Tree Care, Inc. Holland, Michigan

"Zenith has the best prices and the chipper blades stay sharp which maximizes the efficiency of my machines."

Chetins Aydinoglu — Chetin’s Chipping Lagovista, Texas

"I have used Zenith chipper blades for over 15 years and never had one shatter. Zenith has good service, good delivery and have been very reliable."

Don Araki — Agri-Con Tree Service San Jose, California

"Zenith chipper blades hold up good and are economically priced. I am very happy with the service and it’s a pleasure to work with the Zenith sales team."

Keith Neuzil — Wood Products Coralville, Iowa

"Zenith blades are the best blades for the money. I am very happy with the prompt service and excellent quality of Zenith chipper blades."

Ramon Cruz — Ira Wickes Arborists Spring Valley, New York

"I have been very happy with Zenith blades, they are reasonably priced, with excellent quality and prompt delivery. I have used other blades, but none as good as Zenith."

Mike Hrycak — Green Mansion Tree Syosset, New York

"I use Zenith blades on my Vermeer and Morbark chippers and I have been very satisfied with the performance, service and quality of Zenith chipper blades. I feel they are a superior product and more economical than other blades."

Skip Stranahan — American Tree Company Glens Falls, New York

"Zenith chippers are high quality, long lasting and trouble-free."

Eddy Perry — Dr. Ugly Tree Service Memphis, Tennessee

"Zenith knives are better than factory knives, last longer, and allow the equipment to work more efficiently. Zenith chipper blades are the best blades I’ve ever used!"

Scott Dipman — S & C Tree Service Burlingame, California

"Zenith has quick deliveries and excellent quality at a very competitive price."

John Wolf — Wolf Tree Service Knoxville, Tennessee

The Only Choice for Chipper Knives
<table>
<thead>
<tr>
<th>Model Number</th>
<th>Part No.</th>
<th>Knife Description &amp; Size</th>
<th>Price ea.</th>
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<td><strong>Vermeer</strong></td>
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<tr>
<td>BC1000</td>
<td>KCH20109</td>
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<td>BC1220-BC1250</td>
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<tr>
<td><strong>Morbark</strong></td>
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<td>100, 200, 290</td>
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into a 1,960-degree oven. The metal is left at this temperature for 10 to 15 minutes. It is then taken out and brought down to 135 degrees.

As it cools, the metal goes to a Rockwell - a unit used to measure metal hardness - of 59 to 60. At that point, molecules in the metal are beginning to line up according to grain size, but at this hardness, if dropped, the metal would shatter like glass.

The blades are then put in a tempering oven at 960 degrees for six hours. This makes the metal grains tighten up, much like braiding a rope increases its strength. While tempering, the knife Rockwell drops to between 54 and 56 - the preferred hardness for the edges but not the center of the knife. The knives are then double or triple tempered to give the metal grains another chance to line up and strengthen.

After tempering, the center around the holes is heated up (a process called annealing). This process is done in approximately 30 seconds and brings the Rockwell of the center to between 38 and 45. If the center is heated more slowly, the heat bleeds to the perimeter, softening the cutting edge. The softened middle allows the knife to flex when cutting, reducing the chance of breakage. When heated, the blades are ground to their exact size and are ready for shipping.

Finding the right knife

Now you know how a great knife is made. So how can you look at a knife and tell if it is a good one or a bad one? You can't. There is no way a person can hold up two sharp knives side by side and tell which one is better. What a person should do is check with the knife's supplier. Since steel can be domestic or imported, you want to make sure your supplier has tight controls over the steel he buys and uses.

Next, inquire about the percentage of elements in the steel. Chromium is vital, and good steel has a minimum of 7.25 percent chromium. The only other way to tell who makes good knives is through your own experience and information supplied through dealers and manufacturers. If your knives are cracking or flaking easily, that's a sign of bad steel or a poorly heat-treated product. Since there are so many good knife manufacturers, finding a competent source shouldn't be hard.

Distribution

There are two ways to sell chipper knives: either direct to the end user like Zenith Cutter Co. and The Sharp Tool Co., or through a distributor such as Simonds Industries and The Knifesource.

Direct sellers market heavily and count on low prices and quick service to drive their business.

"Our preference is to sell a high-quality product at a competitive price," explains Doug Long, the chipper product manager at Zenith. "We have a pulse on the industry by selling direct. It puts us in greater control of our destiny."

To put it another way, they prefer that the end user - and not a few large chipper manufacturers - directs their business. In addition, if a customer is particularly happy (or displeased), Zenith gets quick feedback.

Paul Morrete of The Sharp Tool Co. agrees. "What separates us is our service. We try to make it easy for people to do business with us. People can call with a credit card, place an order before 3 p.m. and have it shipped the same day."

Selling through distributors often means a more expensive knife, but in this situation you can count on the dealer (usually a chipper dealer as well) to offer advice on the best knife for each situation.

"Since you can't tell a good knife from a bad one by looking at them, our dealers give our customers the information they need," notes Ray Eluskie, the knife product manager at Simonds. "We do all our manufacturing in house, so people can count on quality."

Halloran at The Knifesource also makes everything in house. In the business for 40 years, he only sells to chipper manufacturers and their dealers and feels that the end user is best served that way.

The state of the industry

Over the years, chipper knife production has improved. However, like many American industries, changes in the market have
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resulted in some problems that arborists should know about.

As long as most arborists get good quality knives, few will ever notice, or even care, that the knife industry has changed in recent years. Venture capitalists have moved into the industry, issuing bonds and using company assets as collateral to secure the debt. As a consequence of the debt, bond payments have been missed.

"The steel industry is not supporting the knife manufacturers because bills aren't being paid properly," says Halloran at The Knifesource. "With some companies in financial difficulty, prices drop, and in the end this will hurt quality and supply."

As Halloran sees it, when a manufacturer gets into financial trouble, the company has to try anything to increase sales. This means lowering prices and quality. In the meantime, the other manufacturers lose contracts to the low pricing, and are forced to follow the same path in order to compete. It becomes a vicious cycle.

Since you can't tell a good blade from a bad one by looking at them, the best you can do is buy from a reputable company. In the world of chipper knives, quality matters, and you have to pay for it.
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Every person who has ever worked for a tree service has lamented throwing out beautiful wood. It might be a hardwood log that was too wide for the local mills or a softwood tree that had to be chunked into 5-foot sections in order to be lowered safely to the ground. You might even own a company that cannot afford equipment to haul away big wood, so you slice it up into small pieces and take it away to the dump. In each case people often say to themselves, “If only there were an inexpensive, efficient sawmill that could allow me to make money from this wood.” Well, with today’s improved technology, that machine may be available.

Imagine you have just taken down a large tree and have one or two large logs lying on a lawn. You might have to cut the logs into many pieces to haul it away to the dump. You might just chip it. Even if you are lucky and have a log loader, a sawmill might be too far away to make it worth the trip for a couple logs. So you store the wood back at your yard, waiting to accumulate enough logs to make it worth the trip. By the time that happens, the logs may have become stained or checked. With a portable mill, however, that whole scenario changes and you can cut those logs into valuable lumber.

Before you buy

There are four important issues to keep in mind before investing in a mill:

1. Is there a ready market for the lumber you produce?
2. Does the machine produce lumber fast enough to make it worth your while?
3. Can the manufacturer recommend customers doing tree work who have made money using their machine?
4. Is there a portable sawmill shootout you can attend to compare machines and see which one best suits your needs?

Portable sawmills can be broken down into two categories: bandmills and circular mills. Bandmills have many options. They frequently allow the operator to stand in one place while loading a log, sawing it, and off-loading the boards. They have a thin kerf blade, which minimizes waste and allows for accurate cuts. You can pull them behind a truck, set up beside a log pile, and begin cutting.

Circular mills require the operator to walk beside the mill. Their kerf is bigger, resulting in a little more waste, but they tend to be less expensive. They can cut through some of the hardest woods and allow the operator to cut boards from the log in one pass without having to turn the log. (One pass is defined as one time out and back on a log.) You set them up beside a log pile or right over a large log and cut. Unassembled, they can fit into a pickup truck that has cargo racks.

Circular mills

Many years ago, circular mills were the norm. Then technology changed around the mid-1980s, and bandmills with their reduced waste, higher speeds, and truer cuts on large boards became more popular. Now technology is catching up with circular mills, and they are once again becoming popular. The reason is the swing blade that both Lucas and Peterson sawmills use.

Assume you want to cut 2-by-4’s. After you cut a flat face in a log, you set the saw down 2 inches and make a horizontal cut. On the way back, the blade swings vertical and saws the 4-inch side. The process can be reversed as well, cutting vertically into the log first and horizontally to finish the boards. This gives the sawyer the opportunity to maximize the most valuable areas of a log.

“Our mill allows you to pick and poke through a log to find the best grade,” explains John Wahley, manager of Lucas Mills’s sales at Bailey’s. “It also allows a tree service to remove a large log from a job, without doing lawn damage.”

Wahley also points out that commercial mills average 25 percent overrun on lumber compared to the log scale. “When you mill your own lumber, you get that overrun,” he notes.

It’s important to consider that the wood produced by circular mills is probably more rough-cut than wood produced by bandmills. That is because a circular mill leaves a circular pattern on the wood, whereas a bandmill leaves lines that tend to be more vertical. The thinner bandmill blade also seems to leave less of a mark. However, Wahley points out, most softwood goes for framing, so it doesn’t matter if it is rough cut, and
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most hardwood will need to be planed no matter what. In addition, as bandmill manufacturers have pointed out, there are plenty of uses for a finer finish without planing — for example, selling the lumber green and wholesale. Many of the companies that purchase such lumber will have a dry kiln and planer.

Another feature of circular mills is the ease in resharpening the teeth. The Lucas Mill has only five carbide teeth and the blade can be sharpened while still on the machine. When the carbide wears out, a good metal shop can replace the carbide for about $25.

Manually operated circular mills cost between $5,000 and $11,000, depending on the model. The price in the United States has dropped in the past few years because two of the more popular mills are made in Australia and New Zealand, and their currency has fallen.

"Most people recover much of their initial investment in the first six months, and can be proficient at running it in an hour or two," contends Wahley.

Bandsaw mills

Bandsaw mills differ from their circular mill counterparts in many ways. Unlike many of the circular mills, many of the bandmills have live hydraulics, allowing the operator to stay in one place rather than walk and push the powerhead. After you create a cant, you can program the mill to cut the rest of the log. All you have to do is offload the boards. As stated above, bandmills have less waste due to their thinner blade. They also can cut much larger boards, which are more valuable.

There are many manufacturers of bandsaw mills, creating a variety of options, but they all operate on two main premises: They all require the log to be rolled up on a carriage, and they cut horizontally into the log.

After you get one flat side, you roll the log and begin cutting boards. The lumber is stacked to the side for edging later. After the entire log is cut, you stack boards back on the mill for edging and sizing. This might seem time consuming, but since many boards can have their second edge cut at one time, that time is made up.

Since the operator runs controls and stays away from the powerhead, bandmills are very safe to operate.

"Tree surgeons are one of our largest customers," says Gary Russitano, sales manager at Quality Manufacturing, a maker of bandsaw mills in Rome, N.Y. "It costs $190 per ton to get rid of wood waste on Long Island," so even companies in dense metropolitan areas find a need for such machines.

With regard to finding markets for the lumber, Russitano confidently states, "If you start selling wood, people will find you."

The people at Wood-Mizer bandsaw mills offer similar stories. "One of the biggest comments we hear is [that] the mill starts to pay for itself in a couple of months," insists Nikki Nichols, the media relations' specialist at Wood-Mizer.

Wood-Mizer has a different distribution model from most other manufacturers. The company has one production facility but eight locations in the United States and Canada where you can purchase the mill. Wood-Mizer encourages each customer to go to a site and figure out which model and options will suit him best. A Wood-Mizer representative then spends time training the customer how to run the mill.

"We'll spend as long as a person needs to get proficient," relates Nichols, "but typically it takes about four hours." This training aids in safety and creates skilled operators, but it also allows the customer to change options after running the mill a few hours.

Wood-Mizer mills use what is called a cantilever head. Most mill carriages are in a rectangular pattern with the band blade moving between the long ends of the rectangle. The Wood-Mizer mill instead runs along a monorail and is balanced by vertically mounted rails.

Denis Prive of Johnson, Vt., has a 1996 Wood-Mizer, with a 40-hp diesel motor. He says if he is sawing 2-inch wood on logs 12 feet to 16 feet, he can cut about 2,000 board feet per day. He's done more than 3,000 board feet with help, and 4,000 board feet when he is cutting larger beams. He bought the mill originally when he couldn't find anyone to mill his logs. He enjoys the work, but
says he is beat after a few days in a row running the mill. Another mill owner near Prive who owns a Timber Harvester agrees that a few days in a row is plenty before you need a break. Both men agree you have to love working with wood.

If you combine running a sawmill with tree work, you can get a break by rotating personnel between tasks. Prive also noted that he shuts down in the winter because the work is too tough in the northern climates, and road salt can damage a portable mill, in spite of washing.

Prices for bandmills vary greatly, but doing more manual labor, perhaps the circular mill makes sense. But if you need to maximize lumber and you want the machine to do more of the work and produce a smoother board, then the bandsaw mills become more attractive.

**Attend a shootout, then decide**

Perhaps one of the best things you can do is attend a sawmill shootout. These events are held regularly around the country. At the shootouts, you can talk to people who have experience with the mills. You can see which mill wins, and investigate other mills and their options. Every tree service has different needs based on economics, geographic area, personnel, lumber markets, and waste wood issues. Sometimes, seeing is believing. Attending a sawmill shootout might answer all the questions you have.

When pondering whether to invest in a sawmill, it all comes down to money. Do you have valuable wood to cut? Would it cost less to buy a mill than to truck and store logs? Are you wasting valuable wood and hauling it to the dump or chipping and spreading it? You have to figure out what logs cost you; then you have to figure out how much money you can make from lumber if you were to cut it yourself. If the numbers add up for the lumber, then a portable sawmill is the way to go.

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**Weigh the pros and cons**

Not every tree service is going to want the same portable sawmill. Choosing the right one is as difficult as choosing any other new piece of equipment. You have to think about future markets, storing logs, milling at someone's house or taking the logs back to your shop. Cost variables are huge. A $35,000 machine is obviously going to have more options than a $10,000 machine. Some of the smaller machines cut fast, however they also waste more wood. If you can deal with extra sawdust and less wood while are commonly in the range of $8,000 to $35,000. The price depends mostly on carriage and engine size, and options such as hydraulic log turners and automatic setworks.

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**A sawmill shootout is a good way to see and test various models. Here, a unit from T.A. Schmid (left) battles a Grizzly 30 from Quality Manufacturing.**
More on oak wilt

Recently in an article about oak wilt, written by Lana Robinson in your January 2003 issue, I feel that you left out one relevant fact:

Your article states that a susceptible oak should only be pruned during certain times of the year to prevent the transference of the oak wilt spore by insects, which feed upon sap.

I disagree. My experience (14 years) in Austin indicates that most susceptible oaks develop abrasive type wounding. This includes limbs rubbing one another inside the same tree canopy, limbs rubbing on structures, and limbs from non-phototropic trees growing up into the crown of susceptible oaks rubbing on the susceptible tree. These abrasive wounds never heel, and will flow sap year-round, with the heaviest flow occurring during peak insect activity and fungal mat formation.

Furthermore, any wound created by man, even large incompetent cuts, will stop flowing sap within a few hours.

We all agree that a properly applied tree wound dressing will make any cut unattractive to the insect. Why wait for a specific time of year to correct a naturally created abrasive wound? Does this not increase the risk of transference by insect vector?

Take a look at: http://treemasters.net/Oak_Wilt_1x.html
And also at: http://treemasters.net/whenvx.html

How about educating people on the transference of the fungal matt, spore and Nitidulid beetle by way of firewood?

In conclusion:

1. Trees that need to be pruned should be pruned as soon as possible to correct mechanical problems within the tree.
2. Trees that do not need to be pruned shouldn’t be pruned at any time of the year.

Please think about the logic behind what you are doing prior to disseminating information.

Jerry Naiser, Owner
Tree Masters, Arbor Consulting, Inc.
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Processing Firewood by the Bundle ... and Can It Be Profitable for You?

By James Mayes

At the beginning of every winter, stacks of firewood appear on pallets in front of convenience stores and grocery stores. They are short—generally 16 inches to 18 inches in length—wrapped in plastic bundles with five or six pieces of wood in each bundle. Some of them even have little straps to aid in picking them up.

Most people who buy small firewood bundles burn wood only for decorative reasons or in emergencies when the power goes out. Apartments with fireplaces usually do not have a place to store a large amount of wood. The majority of apartments built these days come with very small fireplaces (or gas fireplaces), and are not designed to heat a room. Their only real purpose is for the look and smell of a cozy fire. Many houses are built in the same way, especially in the South. Small bundles allow the owners to build a fire without the mess of firewood in the yard, or paying for a cord of wood they will never use.

Selling wood to this market, the small user with limited storage space, can be one way to enter the firewood processing business. Of course there is the old stand-by of buying a splitter and selling wood by the cord, but with a little more investment profit margins can be improved significantly.

Paper mills were one of the first industries that wrapped unwanted firewood. Mill inspectors looked through the wood to pick out and discard pieces that wouldn’t make good pulp. After a while, stacks of rejected wood began to pile up, so the mills cut them into firewood length. Later, they began wrapping them and sending them to campgrounds and hardware stores, and eventually ended up shipping them to grocery and convenience stores.

Soon people who sold firewood by the cord noticed the prices of the bundles and added up how much each cord sold for by the bundle. They realized there was another way to make money from firewood.

A cord of firewood sells from $80 to $200, depending on the area, the amount of competition, and the availability of wood. However, when shipped to suburbia, firewood generally arrives bundled on pallets. A pallet holds about 60 bundles (based on a 0.75 cubic foot bundle), which retail for about $4.75 per bundle. If there are 160 bundles per cord each cord retails for $760 per cord.

Of course, firewood suppliers do not make that much for each pallet. If a store is selling a bundle of wood for $4.75, the supplier probably sold the wood for $2 to $2.50 per bundle—again depending on competition in the area. This still translates into as much as $400 a cord.

One of the hard parts in supplying firewood to stores is the amount of wood that has to be processed. Once you gain several clients who buy wood, you have to be able to produce large quantities quickly. This creates the age-old problem of how much do you want to invest based on your return. If a firewood company has only one or two stores
that are buying wood from it, then a couple of people cutting firewood and bundling it can usually get the job done.

For smaller firewood operations, little is needed besides a chain saw, a splitter, and a wrapper. Small operations won’t make a lot of money, considering that only two or three cords can be produced in a day, but it can help a couple of tree workers get by during the slow season.

Beginning the process

The first question you need to answer is, “do you want to get into the firewood business in the first place?” Selling a product is a lot different than selling a service like tree care. When you sell a service you are selling yourself, and if people like you and trust you, then often that is all they need to hire you. If you are selling a product, what matters is price – especially a commodity like firewood. Never mind that your wood might burn hotter or be better quality, what matters is price alone. If the end user buying the wood sees one bundle selling for $4.75 and another sells for $4.25, people will tend to buy the $4.25. Storeowners know this, so they are apt to push hard for the best price.

This can be a difficult mindset for an arborist. An arborist is used to selling his service based on quality and reliability first, and price second. Once you sell a product, especially a commodity, price is first, second and third. Most arborists could never imagine losing an account over 50 cents, but when it comes to bundled firewood, 50 cents could make the difference.

In addition to the lowest price, storeowners demand reliability. They want to know that when they run low in January, you will be there to restock them. They want to know that if they use you as a supplier you will be doing this next winter. They also prefer to have the same supplier for their kindling (softwood) and firewood (hardwood).

It’s a tough business and very different than service work, but the right company can excel.

“As long as you supply what you promised, you will have a positive relationship with retail operators,” insists...
Melissa Nix, the sales and marketing agent at B&B Manufacturing, a manufacturer of firewood packaging equipment out of Olean, N.Y. “It’s very different than selling to the retail customer who complains all the time. Instead, you are dealing with a few business owners and managers who are looking for product and support.”

So yes, retail operators can be demanding when it comes to price, but they are in business too, and understand the value of having a good supplier.

**Getting involved**

“This is an ever-growing industry,” says Nix. “In a winter like this one, everyone is out of wood, and the hard part isn’t selling wood, it’s finding wood.”

Nix points out that B&B has been making firewood packaging equipment since 1984. In that time she has seen many customers work a few months a year and put a lot of money in their pockets.

“Our G200 unit sells for about $12,000, which includes a wheel kit and freight charge. The retail price for a bundle of firewood is about $4.75, so the processor should get about $2.25 per bundle. From that there is about a $1.00 profit per bundle. There are about 160 bundles per cord of wood. Therefore it only takes 75 cords to re-coup the initial investment ($12,000 divided by $160 = 75).

According to B&B, a company that does 500 cords a year and charges $2.25 a bundle will gross $191,250. If there is 160 bundles/cord and therefore $160 profit per cord x 500, there is $80,000 gross profit on that $191,250 in sales.

Nix notes a few other important points: When packaging hardwood, make your bundles 0.75 cubic feet, anything larger is too heavy for many women to lift. Since women do the majority of the household shopping, you want to make sure they can lift it. If you’re packaging softwood, 1.0 cubic foot bundles are fine. Splitting the wood in smaller pieces yields more wood than larger split wood. Be sure you only sell dry wood. Packaged wood sold out of a convenience store is very different than firewood sold by the cord. People assume packaged wood will be dry, so it must live up to the customers’ expectations.

**Two ways to package it.**

It’s important at this point to note the differences between shrink wrapping and plastic wrapping. In essence, it all comes down to making squares for easier shipping and storing. Plastic wrapping involves
putting an armful of wood onto a platform, then running a plastic wrapping machine around it. The resulting bundle is circular in shape. A shrink-wrapped bundle is made by putting a similar armful of wood on a platform shaped in a square pattern, folding over a poly sheet, then hitting a conveyor switch, that runs the bundle through an oven. The resulting bundle is square in shape.

The advantage to plastic wrapping is one person can easily do it and the machine costs under $4,000. The disadvantage is the bundles are circular, making them harder to ship on a truck or store in the retail outlet. The volume is lower than shrink wrapping.

The advantage to shrink wrapping is you can do high volume, creating bundles that are square sided that ship and store easily. The disadvantage is the machines quickly cost over $10,000, but as Nix at B&B Manufacturing points out, this increased cost is recouped quickly by increased volume capacity.

**Things to keep in mind**

The operation of processing wood by the bundle can be profitable, especially with the right equipment and clientele. Getting started in the firewood business takes capital and market research to see what level of competition you are up against. Setting up even the simplest operation can cost thousands of dollars. Once a company begins to grow and decides to get bigger, the machinery cost escalates. Instead of a wood splitter and a wrapper, now you have a wood processor, a loader, conveyor belts, a shrink wrapper, and large trucks. It is not difficult to spend $100,000 on a complete operation. At that amount, a person needs to make sure that there is enough wood and customers that the investment pays for itself.

A good way to avoid a lot of this expense however is to buy wood already split. If you buy in volume at say $100 per cord, then sell packaged wood for $400, you have a $300 mark-up just for shrink wrapping and delivering the wood.

Luckily, because of the different needs of customers who buy wood in bundles vs. those who buy wood by the cord, there is less overlap between the two operations than you might expect. A person who sells wood in tidy bundles has to go out and schmooze with the retail operators, a trait many cord wood sellers don’t excel at. The key is getting a few retailers you can count on. Then, when you have a customer base you can rely on, you can feel confident in your investment.
A couple of nights ago, heavy storms hit the town, and for at least the next week, you'll be up to your neck in the mess. You pull your chipper into another client's yard and go to work on the limbs that lie scattered. When you finish, your client is pleased. Things look 100 percent better than they did before .... only now, you've got to deal with wood chips. The fees for yard waste at the local landfill will eat into today's profits, and so will the time it takes to haul this load over there. Wouldn't it be nice if you could leave the chips behind? Or sell them?

That adage about "one man's trash" holds true in regards to wood waste, because if you're carrying around a load of chips, there's someone, somewhere who wants them. Your challenge is to find those people. Recycling your chips can have a two-fold economic effect. On one hand, landfills across the nation are nearing capacity, and those that accept yard waste at all will attach a fee to it. So, if you can recycle your chips, you'll be sidestepping this expense. If you can find someone to take them off your hands for free, you're ahead of the game. Also, if you can locate the buyers, you can make money from the debris you manage.

Even when buyers aren't in the equation, the avoidance of landfill fees is sufficient motivation for most professionals, especially when one considers the associated transportation costs. The notion of leaving the chips behind can certainly be appreciated.

"The opportunities [for recycling wood chips] are awesome," insists Dennis Beam, president of Wood/Chuck Chipper Corp. "In recent years, we have been involved in several programs that encouraged this practice. One of the most proactive programs involves self-propelled chippers that require the chips to be left on the property. In most cases, the homeowners are elated to have 'free' wood chips."

Beam furthermore explains how one contractor – by leaving the chips behind for the homeowner – reported a reduction in his weekly landfill visits from 15 to one.

**To mulch or not to mulch**

In many cases, the demand for chips themselves will be strong enough to make a difference. Depending on the scenarios you face, though, turning the chips into mulch may be something you've considered. If you already have a market for chips – or if you can dispose of them with no problems – then mulching isn't likely to be your best course of action.
Terry Hughes Tree Service in Nebraska is a company that successfully processes its wood waste and then resells it as mulch. According to Vice President Stacy Hughes, the success of an arborist in mulch production and marketing is directly related to that arborist’s disposal fees.

“The rule of thumb for getting into the mulch business is: as long as you can dump your debris for free or burn it for no charge, it’s not worth the effort to get into,” Hughes says. “You don’t want to start getting into it until it starts costing you to get rid of your waste.”

The cost associated with a chip-to-mulch operation is considerable, Hughes warns, and it isn’t just a matter of grinding your waste and allowing customers to beat a path to your door. The first consideration is having enough debris to make mulching worth your while. Then there are the issues of space and time. “You have to have enough land available to you to compost it,” he notes. “You have to sit on it for six months after you grind it before you can sell it. It easily requires a half-million dollar capital investment to jump into it.”

Nevertheless, if all these factors are there, mulch production can be a profitable enterprise and a wise way to manage a company’s wood waste. Terry Hughes Tree Service uses a Bandit Beast chipper, a Cat 924 loader and a truck to grind, mulch and resell an estimated 95 percent of its debris. John Davis of J. Davis Tree Service in Hampton City, Texas, uses his Rotochopper CP-118 Chip Processor to refine and colorize wood chips. Davis says, “Customer demand and interest has been outstanding. It’s allowed us to sell at a tidy profit what was once a liability.”

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session of the folks who want it. It’s just a matter of applying the salesmanship you already have to the chips you’re trying to market. Here are some tips for reaping the greatest possible financial rewards:

Define your markets

Landscape contractors, retail garden centers and homeowners may be among your biggest buyers, but if your neighborhood has farms, nurseries or golf courses, you might approach these, too.

“In our community,” Beam explains, “several golf courses use the chips as ground cover in high-maintenance areas. Once the chips are in place, the need continues, and they contract with local arborists to supply them.”

Who already has a need for chips in your locale? Make some phone calls to discover where they get their chips and mulch. Would they prefer a local supplier? If these questions don’t leave you with a satisfactory list, ask who could use your processed wood waste and explore that vein.

Network

No matter how valuable a product you have to sell or how many people want it, your chips and/or mulch will do nothing more than take up space if you don’t get the word out. Professional associations geared toward forestry, agriculture or landscaping are good places to start.

Your local cooperative extension office is another superb ally. Extension agents will have a finger on the pulse of the community, and they’ll know all the major agricultural producers in the area. Furthermore, through extension programs such as Master Gardeners, word will spread quickly about who has wood chips available for do-it-yourself composting.

Keep a keen eye on trends

One chip-friendly article in a home and garden magazine can influence a lot of people, even if the ideas presented aren’t exactly revolutionary. A well-placed piece in your local newspaper on wood chip pathways in a vegetable garden or landscape can turn on a light bulb in the minds of your prospects. If you’re visible when this light comes on, the rewards will be there.

Organic agriculture has been gaining acceptance for years, but today, the organic movement is snowballing. It isn’t unusual to read about a large farm deciding to go fully organic — which means no chemical fertilizers or soil amendments will be used — which means compost will be in demand — which creates a market for organic waste — which includes wood chips.

Public policy can have a large influence on the demand for processed wood waste. For instance, Hughes predicts that the National Pollution Discharge Elimination System (NPDES) will open doors for arborists with chips on their hands.

Phase II of this EPA program will regulate stormwater discharge from construction projects under five acres. Erosion control is becoming an issue on smaller projects, and one of the most feasible products to curb erosion on these types of sites is wood waste.

Quality counts

For Hughes, whose mulch customers are mainly landscapers, quality and consistency are key in making the company’s investment pay off.

“Landscapers want a quality product at the cheapest price they can find,” he says. “They want something consistent. They’re always concerned with you being able to supply them throughout the
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season. You’re going to do about 60 to 70 percent of your mulch sales in April, May and June.”

Likewise, if it’s chips you’re selling – and not processed mulch – you can still focus on a quality product by ensuring that non-woody trash isn’t included. Buying a load of chips with an occasional soda can or candy wrapper thrown in will leave a bad taste in someone’s mouth and may cost you a customer.

**Creativity can make a difference**

Where markets are minimal, the arborist can approach potential chip and mulch users with his or her ideas, and this will serve to let tree care professionals know just how good their marketing skills really are. Using chips in high-profile areas such as school playgrounds or nature center trails has the added advantage of functioning as a demonstration project. For example, in the golf course case that Beam mentioned, golf course owners became enlightened as to how wood chips could solve the weed problems they were having in shady areas, ditches, and so forth, where it had proven difficult to get grass established. Afterward, some courses would pay up to 20 dollars per load to cover the transportation costs of hauling these chips.

Beam also points to how some companies simply haul their chips to a central location and allow chip users to serve themselves – another method to avoid disposal fees in the absence of sufficient paying markets.

Other uses for wood waste include fuel, charcoal, oriented strand lumber, pulp and paper, and beer production. Depending on the species composition and such markets’ specific criteria for their chips, your creativity may be able to open doors in these arenas.

Wood waste is a fact of the tree care profession, and one that will never just disappear. Mounting concerns about landfill space will only make debris management more of an issue for arborists. On the flip side, though, developments such as the NPDES Phase II Final Rule may open more doors for dealing with wood chips and may even indirectly generate some industry profits.

**Chips are everywhere**

No matter where you call home, a day’s errands will reveal practical uses for chips: around a mall’s landscaping; along a footpath or beneath the picnic tables at your favorite park; or on the grounds of a local construction project, preventing the occurrence of non-point source pollution.

All these chips have to come from somewhere. If you have the interest, the resources and the debris, perhaps you can become the supplier.

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Increasing the Life Expectancy of Your Chain Saw

By James Mayes

Nearly every experienced tree worker knows the importance of a clean, maintained chain saw. When properly cared for, a chain saw can last a long time, no matter how much wood it has cut or what brand it is.

Every part of a saw needs some sort of daily or weekly maintenance, and when one part of the saw is not properly cleaned or maintained, it can have an effect on the whole saw. Here are a few examples of how to treat a saw with care, how to properly service a chain saw, and some of the consequences of a poorly maintained saw.

Bar and chain

A dull chain can cause several problems. In order for a dull chain to cut, the operator has to “push” the chain through the wood. This extra effort is extremely hard on the saw, causing the bar, sprocket, clutch and engine to heat up dramatically. If these parts continually get heated in this way, they will eventually break under the pressure. This greatly reduces the life expectancy of the saw engine. Running a dull chain will also stretch the chain out prematurely, causing it to need replacing or a link to be taken out before its time. Always be sure to take time to sharpen the saw when it needs it, and replace the chain when there are not enough of the teeth left to sharpen.

The bar also needs to be cleaned out regularly. At least once a week, run a knife or thin screwdriver down the groove of the bar to remove all of the built-up oil and dirt. If the groove is too clogged, it can cause the saw to run sluggishly, which also puts extra strain on the saw’s engine, reducing the life expectancy of the chain.
Frame

When sharpening the saw chain's cutters, it is important to steady the saw bar with a vise. A file guide holds the round file at the proper depth while it marks the proper filing angle for the individual.

Another chain saw life reducer comes from dropping the saw a foot from the ground instead of taking the effort to place it. Unfortunately, this problem most often occurs with seasoned climbers and groundworkers. Instead of bending over to the ground, they just bend over a little and drop it, or place the tip of the saw on the ground and let it fall onto the handle and roll over. Even if this abuse does not immediately affect the saw, eventually parts will break or quit working. Taking an extra second to properly place it on the ground will help extend the saw's life.

Cleaning the saw's frame regularly also extends its life. Removing the bar and chain cover and cleaning out all of the sawdust and oil that builds up around the clutch and sprocket, and cleaning the inside of the cover, will help the saw maintain peak performance for a long time. Using air to clean these parts is best, however if the saw needs to be cleaned in the field, gasoline and a soft-bristle brush or rag will do. If gas is used to clean the whole area of the frame, be especially careful to not get gas into the pull rope area. The gas can eat the pull rope quickly, and the rope will eventually break.

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*Optional Gibbs ascender sold separately.*
Gas and oil

Gasping and oiling saws are very simple tasks that arborists do many times a day. Unfortunately, it is usually the newest members of the crew or tired workers who are filling the saw. If the person filling it is not paying attention, dirt and grit can easily fall into the gas and oil chambers. To help prevent dirt from clogging up the saw, always be sure to clean the edges of the chambers' openings before removing the caps.

Everything that goes into the oil and gas chambers eventually has to go through the saw. If dirt constantly falls into the oil chamber, in time it will clog up the oiler. When the oiler is clogged, the bar and chain will run hotter, and so will the engine. Sometimes, it is possible to pour a little gas into the oil chamber to clean it out. Conversely, if gas is poured into the oil chamber too many times, it will cause the oiler to quit working completely.

All chain saws have filters on the inside of gas chambers to keep dirt from getting into the carburetor. If the filters are clogged, the saw will bog down, greatly reducing its performance. From time to time, the filter should be checked to ensure it is clean of debris. The best way to check is to turn the chamber upside down and pull the filter out with a pair of needle-nosed pliers. The gas filter should be replaced frequently, yet it is one of the most overlooked parts of the saw. A good rule of thumb is to replace it every time the carburetor filter is replaced.

Engine and carburetor

Some of the major problems with chain saws come from improper maintenance of the engine and carburetor. These two parts of the saw should be cleaned frequently. Dirt and dust build up easily behind the air filter, and when the filter is removed, it is very easy for dirt to fall into the carburetor. The best way to clean this part of the saw is to clean out as much of the dirt as possible before removing the filter. This greatly reduces the chance of dirt falling into the carburetor. Once the filter is removed, the choke should be closed to improve the chance of keeping dirt out of it.

As with all parts of the saw, air should be used to clean behind the carburetor. Using a brush or rag to try to clean it could cause hoses and wires to become loose or damaged. Pouring gas on the area to remove the dirt could run the residue into places it should not go, and increases the chance of it seeping into the engine and carburetor once the saw starts running again.

Compressed air is the only recommended way to clean the filter. However, if the filter needs to be cleaned in the field and you don't have any, nor any replacement filters in the truck, soap and water could be used as long as the filter is rinsed thoroughly and allowed to dry completely before it is placed back on the saw. Water dripping into the carburetor can be just as harmful as dirt. One should never use gas to clean off the filter - especially mixed gas. The oil residue can stick to the filter, reducing the flow of the air. Also, excess gas can seep into the carburetor, passing the extra-fine dirt into its components. Finally, some filters are lined with small fibers that can be eaten away by the gas, causing small gaps in the filter that can allow dirt to pass through it.

Following these tips can greatly increase the life of any chain saw. Every time a new person is hired, he should be required to read the owner's manuals of the chain saws he is going to be working with, since each saw has unique needs for proper maintenance. Even experienced treeworkers need to read new manuals from time to time. Every year scientists and engineers do their best to improve the quality of chain saws, and new cleaning techniques are added frequently.

Remember that the better care you take of your saws, the better the saws will perform. An efficient and clean-running chain saw does nothing but make the jobs go faster and smoother. Chain saws are the single most important piece of equipment for any tree company, and every member of the crew should do his part to ensure that they are maintained properly.

James Mayes is the owner of Tree Care of Denton, in Krum, Texas.
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By the 1950s, a variety of growth retardants were available to the agriculture, ornamental horticulture and floriculture industry to enhance production and marketability. Utility arborists were the first among those caring for trees to peer over the fence at agricultural and horticultural fields and ponder the potential of growth regulators used in those cropping systems as a tool for tree maintenance. Mechanical trimming, which was the sole means of combating the unrelenting growth of trees into overhead electrical wires, was a costly operation, and a chemical alternative was very attractive. Hence, the electric utility industry provided funding in the late 1950s for research on chemical control of tree growth following trimming for line clearance.

The first chemical growth retardants

The results of that early research led to the use of naphthaleneacetic acid (NAA), a synthetic auxin, painted onto the surface of wounds from cut branches. Although effec-

Soil injection and basal drench methods of applying paclobutrazol.
itive in reducing the regrowth of branches, treating each cut surface took a lot of time and was not cost-effective. Hence, in the 1970s, new tree growth retardants (TGRs) and more economical application techniques were sought. Two groups of growth retardants were identified: Type I - cell division inhibitors; and Type II - cell elongation inhibitors. Bark banding and pressure injection into holes drilled into tree trunks were the recommended application methods.

The Type I cell division inhibitors, which were mixed with various oils, pastes and surfactants to hold them on the bark and to enhance penetration, often resulted in deformed shoot growth and unattractive bark discoloration and damage. Hence, bark banding was never widely used.

The first major breakthrough in the commercial feasibility of TGRs on a large scale was the formulation of the Type II compounds (cell elongation inhibitors) - paclobutrazol, uniconazole, and flurprimidol - for trunk injection. Trunk injection offered a precise method for dose application with more uniform growth control. Commercial applications began in many parts of the United States in 1981.

Trunk-injected Type II compounds retard growth in length of stems through inhibition of production of the plant hormone gibberellin, which controls cell elongation. Due to their low water solubility, it was considered necessary to dissolve the growth retardants in either methyl or isopropyl alcohol. The active ingredients of these formulations were unquestionably effective in reducing tree growth. After several years of use throughout the United States in the 1980s however, problems associated with trunk injection began to appear. Cracks in the bark and cambium, weeping from injection holes, and internal wood discoloration due to the alcohol carriers led to disenchanted utility arborists and a decline in use of TGRs. Uniconazole was even removed from the tree care market. In spite of these problems, utility arborists remained interested in a chemical tool to reduce trimming frequency and the amount of wood waste removed from trees.

More recent developments in TGRs

Experience and persistent research in the 1990s resulted in new and better formulations of flurprimidol and paclobutrazol. Satisfactory performance of these new products as growth retardants, as well as benefits to tree health revealed through recent research, has resulted in a rebound of TGR use today by some electric utilities and has spurred an active expansion of the market to commercial landscapes and general arboricultural tree care.

Flurprimidol, sold as Cutless Tree Implants, was pressed into tablets for insertion into shallow holes drilled in tree trunks. Concern about drilling holes into trees and the apparent compartmentalization around the tablets that prevented continued release of flurprimidol into the water stream resulted in limited use of the implants. The confusing and frequent flux in ownership and licensing agreements so common today among chemical companies resulted in removal of flurprimidol from the tool kit of arborists about a year ago. Hence, only one growth retardant for use on trees survives today.

Paclobutrazol, formulated as Cambistat 2SC or Profile 2SC, is applied as a water suspension. Both formulations are approved by the EPA for soil injection or application as a basal drench. The dose rate, which is species specific, is determined by measuring trunk diameter. The water suspension of paclobutrazol can either be injected at about 150 psi into the soil to a depth of approximately 6 inches as close to the tree trunk as possible, or simply poured into a shallow trench around the base of each tree.

Mode of action

Suppression of growth by paclobutrazol occurs because these compounds block three separate steps in the biosynthetic pathway for the production of gibberellins. One of the main roles of gibberellins in trees is the stimulation of cell elongation. When gibberellin production is inhibited, cell division still occurs, but the new cells do not elongate. The result is shoots with the same number of leaves and internodes compressed into a shorter length. For many years this was considered to be the sole response of trees to treatment with TGRs. However, recent research has demonstrated that blocking a portion of the so-called terpenoid pathway causes shunting of the accumulated intermediary compounds above the blockage. The consequence is increased production of the hormone abscisic acid and the chlorophyll component phytyl, both beneficial to tree growth and health.
There are numerous observations of reduced incidence of common fungal diseases, such as anthracnose, following treatment with paclobutrazol. More and more experimental evidence is being published to substantiate these claims.

The unique structure of paclobutrazol that allows it to bind to an iron atom in the enzymes essential for the production of gibberellins also has the capacity to bind to enzymes necessary for the production of steroids in fungi as well as those that promote destruction of abscisic acid. The consequence is that TGR-treated trees have greater tolerance to environmental stresses and resistance to fungal disease infections. Morphological modifications of leaves induced by treatment with paclobutrazol — such as smaller stomatal pores, thicker leaves, and increased number and size of surface appendages on leaves — may provide physical barriers to some fungal, bacterial and insect infections.

**Shoot growth**

Although growth reduction is dose sensitive and varies widely among species, all evergreen and hardwood species, and even palms, respond to treatment with TGRs. Treated trees have more compact crowns and somewhat smaller and darker green leaves, but otherwise look normal. The amount of shoot growth reduction ranges from a low of 20 percent to a high of 90 percent. As a consequence of the reduced growth in height, there is a parallel reduction in biomass removed when trees eventually require trimming. This has been demonstrated to be as much as a 75 percent reduction for oaks and maples in the eastern United States when trimmed for clearance of electric distribution lines.

**Cambial growth**

Although the principal focus of research with TGRs has been on growth in length of shoots, growth in diameter of the trunk and branches of woody plants also has been found. Expansion of cells produced by the vascular cambium responsible for increases in girth is also dependent on gibberellins just like cells in stems and leaves. This could have significance in urban areas for trees planted in wells, above-ground containers, and in the parkway between sidewalk and curb. It has been found that up to 30 percent of city trees cause sidewalk damage due to expansion in girth of the trunk and roots and that 25 percent of the annual tree budget for many cities goes to repair sidewalks and curbs damaged by tree growth.

**Root growth**

Effects of paclobutrazol on root growth vary from enhancement to inhibition, and are far from being clearly defined and understood. In almost all cases, however, the response in paclobutrazol-treated trees is an increase in root-to-shoot ratio.

Gary Watson at the Morton Arboretum conducted one of the few studies on large mature trees exposed to paclobutrazol. Soil injection at the base of white and pin oaks caused fine root densities to be 60 percent or 80 percent higher, respectively, near the trunk base. It is unclear whether the responses observed in roots of treated trees are a direct effect of paclobutrazol on root growth or an indirect effect resulting from shoot growth modification and a shift in carbohydrate allocation to the roots. Root response to paclobutrazol is an important question for arborists, because root growth and vigor influence not only water uptake but many other aspects of tree health. Enhanced fine root development could be a valuable secondary benefit of using paclobutrazol.

**Greener leaves**

Trees treated with paclobutrazol generally have leaves with a rich green color, suggesting high chlorophyll content. There are two possible explanations for this response. One is that the leaves of both treated and un-
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Treated trees contain the same number of cells, but because the cells in leaves of treated trees are smaller, the chlorophyll is more concentrated in the reduced cell volume.

There is also evidence that the amount of chlorophyll is actually increased because phytyl, an essential part of the chlorophyll molecule, is produced via the same terpenoid pathway as gibberellins. Paclobutrazol treatment, which blocks the production of gibberellins, results in a shunting of the intermediate compounds for gibberellin synthesis to the production of even more phytyl. An analogy might be an accident blocking the flow of traffic on a major highway causing drivers to divert to alternate routes.

Reduced water stress

In addition to interfering with gibberellin production, paclobutrazol is known to affect the synthesis of the hormone abscisic acid, which also is made via the terpenoid pathway. Unlike the inhibiting effect on gibberellin synthesis, treatment with paclobutrazol promotes the production of abscisic acid much like it promotes the production of phytyl. When

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Trees treated with TGRs, like the maple above, have more compact crowns and somewhat smaller and darker green leaves than the untreated tree below.

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**Improve the Durability of Urban Trees**

*A seminar hosted by Rainbow Treecare Scientific Advancements & The Horticultural Alliance*

The seminars were designed to provide some baseline information about Cambistat as well as how a tree care business can use the product. The seminars were offered in a variety of locations, were worth 6 ISA CEU’s, and often included doughnuts!

The program, after the doughnuts, was broken into three sections: Biology and Benefits of Paclobutrazol; Enhancing Tree Root Development and Tree Health with Paclobutrazol; and How to Grow Your Business Using Cambistat. (Although most everyone had a difficult time pronouncing Paclobutrazol!!)

Dr. William R. Chaney, a tree physiologist and researcher from Purdue University, started the program by covering basic biology and some of the benefits of Paclobutrazol. Chaney discussed some of the basics of tree growth regulators (TGR’s) in general and covered some of the specifics of Paclobutrazol, including, but not limited to, the effects on growth, root development, drought tolerance, tolerance to other stresses, and energy availability.

Dr. Gary W. Watson, senior research scientist at the Morton Arboretum, focused on roots and tree health benefits of using Paclobutrazol. His talk started on the importance of good root development for healthy trees and some of the things that negatively affect roots in the urban environment. Watson discussed some of the research he had done with Paclobutrazol to improve root development and tree health. He also talked about how Paclobutrazol could possibly aid in controlling stress-related diseases.

Tom Prosser, president of Rainbow Tree Care, ended the program by discussing the business aspects of using Cambistat. He explained how to properly apply Cambistat, including equipment needed, dose, method, potential problems, and what results to expect. He also gave examples of where Cambistat is being used, often showing “before” and “after” pictures, wrapping things up by discussing how one could effectively use Cambistat in a tree care business, municipality, golf course or landscape management program.
gibberellin synthesis is inhibited, more precursors in the terpenoid pathway accumulate and are shunted to the production of abscisic acid.

Pacllobutrazol also interferes with the normal breakdown of abscisic acid. The mode of action involves another iron-containing enzyme to which the pacllobutrazol will attach, preventing its activity. The combined effect on both the production and breakdown processes results in enhanced concentrations of abscisic acid in leaves. One of the functions of abscisic acid is to cause stomates to close, reducing water loss from leaves through transpiration. Horticulturists applying growth retardants to ornamental perennials and annual bedding plants have reported a similar enhanced tolerance to drought stress. The improvement of water relations in pacllobutrazol-treated trees is an important secondary benefit of using TGRs. It could become a valuable tool to improving water-use efficiency in the face of persistent droughts and water shortages.

Improved water relations in trees could arise from a combination of:

- increased abscisic acid contents that physiologically reduce stomatal opening;
- reduced shoot growth resulting in less leaf and stem surface area;
- enhanced fine roots for more water absorption;
- morphological changes in leaves that provide physical barriers to moisture loss.

Yadong Qi at Southern University in Baton Rouge, La., has dramatic scanning of electron images that show thicker leaves and masses of trichomes on leaf surfaces of cherrybark oaks in response to treatment with pacllobutrazol.

Effects on fungal and bacterial diseases

Protection from fungal diseases that attack urban trees is now recognized as another secondary benefit of using pacllobutrazol. There are numerous observations of reduced incidence of common fungal diseases, such as anthracnose, following treatment with pacllobutrazol. More and more experimental evidence is being published to substantiate these claims.

Karel Jacobs at the Morton Arboretum has shown pacllobutrazol to reduce the growth of eight fungal pathogens in laboratory cultures by 25 percent to 100 percent. Gary Watson at the Morton Arboretum and Tom Smiley with Bartlett Tree Research Lab have demonstrated marked reductions in apple scab in flowering crabapples and Entomosporium leaf spot on red tip (Photinia sp.), respectively, in response to soil drench applications of pacllobutrazol. My graduate student Ryan Blaedow at Purdue has shown that a single foliar application of pacllobutrazol is just as effective as the biweekly applications of propiconizole now recommended for control of apple scab. Bruce Fraedrich, also with Bartlett Tree Research Lab, has recently demonstrated that even bacterial leaf scorch is markedly reduced in red oaks following a soil drench application of pacllobutrazol.

The fungistatic property of pacllobutrazol is due to the inhibition of steroid production in fungi, also via the terpenoid pathway. This is the same mode of action that accounts for the fungistatic property of the class of fungicides known as SBIs, or steroid biosynthesis inhibitors. Steroids are essential constituents of membranes.

The effect of pacllobutrazol on bacteria is unknown at this time but may be due to increased resistance of trees to infection by bacteria through alteration in leaf surface structure or even the size of stomatal pores.

Conclusions

The many benefits of pacllobutrazol can be explained based on an understanding of its ability to combine with iron-containing enzymes and to inhibit, as well as foster, production (via the terpenoid pathway) of several important compounds for tree growth and development. Because of its many positive effects on trees, pacllobutrazol is quickly evolving from use solely on trees under electric distribution lines to an important tool for commercial landscape and arboricultural practices where both growth suppression and improved tree health are desired.

William R. Chaney is professor of tree physiology in the Department of Forestry and Natural Resources at Purdue University.
There is a window between winter and spring that’s perfect for pruning deciduous woody plants. Why early spring? It’s after the coldest part of winter has passed and the roots have lots of stored carbohydrates. And while plants also sprout from roots underground, most spring growth comes from dormant buds on the stems that are activated when exposed to warmth and light. As the weather warms, their energy-rich sap rises to the uppermost buds and then leaf out. By pruning early, one saves a waste of this energy from going to buds that might not be wanted.

Another practical reason why early spring is ideal for pruning is that the ground is often too wet to be worked, so pruning is a cost-effective use of work crews before the heavy cleanup and removal season begins later on.
What to prune in early spring

- Too-thick shrubs can be thinned out.
- Overgrown shrubs can be cut back to better fill their allotted space.
- Though most shrubs grow multi-stemmed from the ground, they can be trained to a single stem or a few stems.
- Ugly shrubs can be reshaped.
- Really ugly, ratty or overgrown shrubs can be cut to the ground and revitalized (the English method).
- Winter-killed, broken, and dead wood can be cut.
- Undesirable root shoots on grafted plants can be removed.
- Deciduous hedges (especially privet) can be sheared.

Developing a fine eye for truly artistic pruning takes years of watching plants grow. Each one has a different character and responds differently to pruning. The Japanese make a mystique out of it, but really anyone can learn just by interest and careful observation of the natural shapes.

The gardenesque way to prune deciduous shrubs is to take out only the very old stems or weak thin stems, but save the young, vigorous shoots. This kind of hand pruning is very time consuming and frustrating, though it does preserve the shape of the shrub and that season's flowering. For expediency, most people just clip or shear deciduous shrubs - sometimes like hedges - which makes them fit into their space, but makes garden purists lament long and loudly.

Proper pruning is not mysterious, but you do need a little information, such as the name of the shrub, when it blooms (spring or summer), and what size and shape you want it to have. As always, there are a few "rules" for beginners (which, of course, seasoned landscapers delight in disobeying).

Good pruning cuts should be on a slant, with the "highest side" just above an out-facing bud. Vegetative buds (which produce only leaves) are smaller than flower buds. If you look carefully, eventually you will be able to tell them apart, although it's not a cinch. It's easiest to see the difference on large-leafed rhododendrons.

Some rules

- Almost any shrub can be pruned before bud break.
- Trimming back produces a bushier plant since two or more shoots grow from each cut end.
- Plan for a good shape, but don't be a maniac with pruning shears, especially electric ones.
- Removing sick, weak or over-crowded stems at the ground produces more vigor in the remaining stems.
Growing degree days

Farmers have long recognized that when certain indicator plants grow, it’s time for something else to also happen. My favorite, “When the oak leaves are the size of a mouse’s ear, it’s time to plant the corn.”

While every bug can read nature’s calendar, we, like the Druids and the Farmer’s Almanac, had to rely on these unfolding rites of spring. Indicator plants, which leaf or bloom at a certain time, indicate when other events will occur. They are triggered by heat, but the trigger dates vary from year to year. A 24-year recording of a willow tree leafing out at Boston’s Arnold Arboretum showed a 33-day difference between March and May.

Fortunately, we now have something more scientific than observing indicator plants. It relies on a growing degree days (GDD) number, which is a measurement of the amount of cumulative heat that has been received that season. (The word “days” is misleading, so ignore it.) The GDD numbers are now known for most plants, with the monitoring usually done by state extension services.

Some common GDD numbers
- GDD 1 - Usually starts in March. Carpenter ants emerge from winter hibernation.
- GDD 14 - Willow, red maple and aspen bloom.
- GDD 20 - Early daffodils begin. Squirrels eat the crocus.
- GDD 48 - Cherry blooms. Tent caterpillars hatch.
- GDD 86 - Dandelions bloom. Tick season starts.
- GDD 90 - Gypsy moths hatch when Shadbright (Amelanchier canadensis) blooms. When the short-lived blossoms blow, the shad (really bony herring) run in the streams.
- GDD 100 - Forsythia, PJM rhododendron and violets open. Crabgrass seed sprouts.
- GDD 105 - Magnolia blooms. Pine sawflies hatch. (Eggs are yellow bands on needles.)
- GDD 146 - Apple blossom time. Sow hardy vegetables.
- GDD 203 - Lilacs and Carolina rhododendron are in full bloom. Gypsy moth holes in oak leaves. Last date for BT application.
- GDD 286 - Catawbiense rhododendron and enkianthus in full bloom. Sow melon, cucumber.
- GDD 577 - Fireflies appear.

- Most, but not all, shrubs flower on buds that were formed in summer the year before. This is called “second-year wood.”
- If you cut back this second-year wood on spring-blooming plants (forsythia, rhododendron, azalea, lilac, spring-blooming spirea), you remove the flower buds and you lose this year’s bloom. Those few weeks of flowering is why many deciduous shrubs are grown at all, since they aren’t very interesting the rest of the year.
- Many summer-blooming shrubs (hydrangeas, althea, buddleia, crepe myrtle, summer-blooming spirea, tea roses) don’t set flower buds until that same spring. This is called “first-year wood.”
- The best time to prune these first-year wood bloomers is before leaf break in early spring. It is even better to prune them before the buds swell.
- The English renew their shrubs every several years by mercilessly cutting them right down to 6 inches above the ground, and then letting them grow back up again into a neat round bush. One usually loses the next season of bloom, but the resulting new bush has all young stems that grow and bloom better for several years.
- Fertilizing in a circle around the roots just after pruning increases vigor, but healthy shrubs will grow without it.
- To increase flower production, fertilize when they are setting flower buds. Use a balanced fertilizer not overly high in nitrogen.

There is one helpful trick for unwanted privet hedges: Instead of pulling them out by the roots (a very messy job), just cut them right back to the ground every spring. They will grow into a neat, very low, stylish green border. This also works for euonymus and any shrub grown primarily for foliage alone.

Deciduous shrubs can be cut back with some abandon, for most will grow from any piece of leftover stem as long as it’s not too old. When pruning, a few new shoots should be allowed to grow from the ground each year so that there will always be vigorous young stems available if the old ones break or become diseased.
Electricity is the most dangerous hazard facing any tree worker. This is especially true for those who have not been fully trained on how to work around electrical hazards. The newly revised and improved Electrical Hazards Awareness Program (EHAP) from the National Arborist Association (NAA) will help solve this problem.

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Whether you own the old version of EHAP or have never used it before, this is your chance to order a newly revised and improved version of this essential and valuable training program.

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What not to prune in very early spring

- Don’t prune spring bloomers. Wait until immediately after they flower to prune.
- Don’t prune needled evergreens. Wait until new green shoots appear, usually much, much later in spring. Then these new shoots may be clipped back if they get too long.

What to prune later in spring

- Needled evergreens, if cut below green foliage, will not send out new shoots from buds on old bare wood for a year or two, sometimes never. However, one can renew old overgrown yew and holly shrubs or hedges by cutting them back to bare wood, and then watching the bare stems with patience and forbearance. (Most clients don’t have enough of these virtues.) After a while, the stems will again sprout new green shoots.

There is an old Elizabethan Inn in England with a perfect period evergreen garden that was renewed this way several years ago. First one side of the 90-year-old hedges was cut back by half to the main central trunk and allowed to regenerate. That took about two years. Then the other side and top were cut back by half. Another two years. Now the garden is a perfect Elizabethan masterpiece as only the patient English can create.

- Rhododendrons and azaleas are usually reduced stem by stem using hand clipping. This may produce tall water shoots that have to be reduced later in the season. Some small-leaved azaleas tolerate being sheared like hedges, which reduces the number of flowers. However, when shrubs are overplanted, this is often the only way to control growth.
- For totally renewed rhododendrons and azaleas, try to do it over a three-year period. Remove about 1/3 of the thick old trunks, starting on the southeast-facing side. On healthy plants, new shoots will arise from the ground, and a few from the stub.
- When shoots arise, at least you still have a plant left. In that case, perhaps it can be thinned to be a small tree and underplanted. Try ground cover (non-climbing myrtle or pachysandra), flowers (impatiens, geraniums, petunias, etc.), plus perhaps some small shrubs to landscape the area underneath.
- On top-grafted plants, especially some roses, root suckers have to be removed or they, being more vigorous, will overwhelm and replace the more desirable variety. Identification is easy. The leaves look different.
- Deciduous hedges are best pruned in early spring. They usually need one or two more shearings per year to keep them tidy.

Evergreen hedges are more of a challenge because if they are cut too much, they develop a scalped look. What’s needed is a lighter touch. Spring fertilizer improves vigor to compensate for the loss of carbohydrate-producing chlorophyll tissue.

To save labor costs, many hedges are now trimmed to a more naturalistic, non-geometric form. The look is more feathery and loose. Often one pruning per season can suffice. However some people absolutely love neat geometric hedges, just as some folks are addicted to neat, perfect lawns. You have to know your clients’ tastes.

A nice touch for your clients

Sometimes one must reduce the size of spring-blooming shrubs and trees, especially vigorous forsythia, quince, pussy willow, witch hazel, cherry, red maple and crabapple.

Why not give a large bouquet of clippings for your client to force indoors? The closer to their natural blooming date you cut them, the more successful forcing will be.

Ruth Foster, a garden columnist for 26 years with the Boston Globe, is a Massachusetts certified arborist.
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... continued on page 74
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**Tree Care Industry**

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Austalian native trees are transforming the North African landscape. For almost 40 years, the Maghreb countries – Tunisia, Morocco and Algeria – have been mass planting eucalyptus and acacia trees for use in a wide variety of environmental projects. Morocco alone has over 60,000 hectares of eucalyptus forest.

Both species are used extensively as wind barriers to protect agricultural crops from the blustering gales of the Western Mediterranean Sea, which damage crops and cause soil erosion. The lining of fields with trees as wind barriers is a time-honored practice, but it is only in recent times that hedge systems have undergone extensive research. An effective windbreak can reduce winds by up to 40 percent, improving crop yield considerably.

The Food and Agriculture Organization of the United Nations – established in 1945 with a mandate to improve agricultural productivity – recommends the use of Australian trees because of their drought-resistant properties. The mass plantings also create sustainable plantations providing firewood and timber for light construction. Local bees also get a look in, working the eucalyptus flowers to produce the well-known light and creamy honey.

As you would expect in this part of the world, sun is a big problem, and with little protection from native flora, the trees have also been enlisted to act as shade trees, planted alongside roads and avenues to protect locals against glaring sun and heat.

Tunisia has had unique problems to overcome. The world’s largest desert, the Sahara, lies in the south of the country; to the north, the land, which was described as fertile and forested in ancient texts, has also become arid. As part of the Roman Empire, Tunisia had the unfortunate distinction of being used as “Rome’s Granary”; the fertile corridors were cleared and used heavily to provide livestock and crops to feed the empire.

Today, much of the aridness of the land is attributable to that period and the subsequent 1,500 years of overgrazing. During the 1960s, the first president of independent Tunisia, Habib Bourgiba, made an attempt to reclaim this “lost” land. He engaged the entire population in a collective reforestation project, organizing mass plantings of Australian natives that quite literally transformed the Tunisian landscape.
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My name is Rusty Girouard and I am the new Chair of the Board of the National Arborist Association. It is truly an honor to serve this organization. While I am not an especially religious person, I have a very firm and unwavering belief that there is a power much greater than we are, and that we are guided by this power. I thank that power, by whatever name you want to call it, for the opportunity to begin this truly exciting but somewhat scary year as Chair of the NAA.

The journey to this spot has been one of great challenge but an immensely rewarding experience. As the second daughter of seven children, and the rebel of the lot, I had no particular interest in the family tree care business. That was for my three brothers. My career path took me out into the corporate world and away from home for several years.

I thought I had a challenging career going. Then, when I was 32, with a five month old daughter and contemplating returning to the corporate world, my mom asked me to fill in part time for the secretary who had left. After all, it was November and it would only be a couple of months until the busy season started and then they could afford to hire someone full time. The real lure was that I could take Robin to work with me and not have to put her in daycare. Well, it did not turn out to be part time. Since Robin is now a junior in college, many, many busy seasons have come and gone. In hindsight, it was a blessing. I thought I was challenged in the corporate world, but I had no idea what a challenge it would be to take over the office and management of the family tree care business. I had much to learn in order to wear all the hats that a small business-person must wear. My challenge was learning how to be the office organizer and manager of the paperwork, the chief financial officer, the human relations director, the payroll and tax department, the employee benefits manager, customer service representative, advertising manager, and a smoother of tree climbers' unique egos. Most important of all in a family business, probably is the role of mediator, conciliator and keeper of the peace. Participating in the NAA - and attending TCI EXPOs and Winter Management Conferences over the years - went a long way toward helping me meet many of those challenges. The blessing was that I loved what I was doing, I was surrounded by people I loved, and I was able to participate in some way in a most noble profession, arboriculture.

Being on the board these past seven years has been a real treat and a wonderful learning and growing experience - one I will always be grateful for. The opportunity to participate in planning sessions and board development activities, as well as board, committee and taskforce meetings, has been an invaluable experience for a small business-person. I really have to thank Gary Mullane for nominating and championing me for the board position. Although I am sure there are days when he regrets that decision, I never have. Speaking of thanking people, I want to extend a special thank you to all the past chairs and presidents with whom I have had the privilege to serve. Your leadership set a very high standard for the rest of us to follow. I also want to thank Paul McFarland and Walt Money for their constant encouragement and support over the years. And of course I cannot leave out Bob and Pat Felix. They say to not include is to exclude, but I include everyone in the NAA that I have had the privilege to work with and learn from.

It has been my very good fortune and another blessing to have met many wonderful people through the NAA and the activities I have participated in. Lifelong friends, sound business contacts, and many casual acquaintances have been the result.

I was raised to view family as one of the most important things in life. The needs of the family have always been foremost. I am blessed to have three wonderful families. My immediate family of Ron, Robin, my mom, three brothers, three sisters, and their current and former spouses, 19 nieces and nephews and four great-nieces and nephews make for a very large blessing. (Not to mention a house full at Christmas.) My father, the patriarch, passed away last January, but I was always blessed by his wisdom, love and support. Ron’s mom was also an inspiration to us both. Then there is my work family. The hard-working people on whom I depend to pull together to make it all work and support us all in the pursuit of our passion to be the best we can be as the caretakers of the trees. My other family, acquired over the last 17 years, is my NAA family - friends and acquaintances among the members and staff. And believe me, the

continued on next page ...
Shawnee Mission Tree Service defines excellence

It was a great honor for Shawnee Mission Tree Service to receive one of the 2001 Excellence in Arboriculture Awards from the NAA at last November’s TCI EXPO in Milwaukee. Excellence in anything can be difficult to measure or define, however, the recognition from peers for quality, professional work is very satisfying and definitely worth pursuing.

As a service-based business, opportunities can present themselves in a number of different ways. So following a devastating ice storm in the Kansas City metro area, our company found itself in the midst of a full-scale clean up effort with literally hundreds of customers calling us for immediate tree work. After months of dealing with seemingly endless hangers and badly damaged trees, we needed to step back and evaluate how we were doing.

We were aware of the annual awards given by the NAA, but hadn’t given much thought or put the effort into submitting an entry. But based on the severity of this storm, the extent of work we had performed for this one particularly commercial customer, and the curiosity of how our efforts compared with other tree care companies, we decided to put together an entry. Winning an award was certainly a great outcome, but the process involved in getting the submission ready and the ways we’ve been able to use the award have proved equally rewarding.

The application really helped identify key components in having a successful outcome for any size project: what are the goals of the project, characteristics of the trees involved, defined pruning standards/expectations, how will the work affect the site and species, and impact of the finished project on the people at the site. Now, by being mindful of these issues and applying them in routine, day-to-day work, we produce even better results for the customer and increase the likelihood of repeat business for us in the long run.

Also, the crews who performed the work now take even greater pride in their jobs after seeing that their efforts really do make a difference. This knowledge has helped keep them motivated to perform at even higher levels and has given them extra incentive to pursue excellence in their work. We will continue to look for ways to encourage and maintain this positive attitude.

Finally, the ultimate benefactor was the customer of the project, Corporate Woods, a highly visible office complex in the metropolitan area. Their ownership group and property management team were thrilled—not only with the results of our work, but also with the recognition by a national organization such as the NAA. We have loaned them the plaque so they can show their current and potential clients the commitment they have in providing a quality work environment.

We would encourage all NAA members to take advantage of this annual opportunity and hopefully reap the same benefits as we have as winners of this prestigious award.

Ron Keith, President
Shawnee Mission Tree Service

Every NAA member, large or small, works on a project that could qualify in one Excellence in Arboriculture category. Enter your work today! Entry deadline: June 30, 2003. Call 1-800-733-2622 for more details, or go to www.natlarb.com to download entry rules and forms.

...Girouard continued

current staff is a true blessing. They are an intelligent, talented and dedicated group of people who are a pure pleasure to work with.

I look forward to a very challenging year at NAA. As I said, it is a scary but an exhilarating time. The NAA faces many of the same challenges that we face in our businesses. Economic uncertainty, dwindling resources, changing demographics of the membership, consolidation of the industry, competition from other associations and other sources of information, government regulations, scarcity of qualified employees, member apathy, and so on. I am committed to facing these challenges and working with all of you to come up with solutions. I am committed to being nimble in our approach to the current challenges and not hold stubbornly to the old ways, just because they have always worked before. To quote an old Bob Dylan song (and I am really dating myself now) “The times they are a changing.” They truly are changing for our association, our businesses, our families and our country.

The NAA board, staff and several member volunteers met last year to formulate a new Strategic Plan to help guide us through these changing times. We will begin to implement elements of this plan in 2003. Some tough decisions will have to be made regarding the name change, member services, a PAC program, the viability of some of our sacred cows and even delivery systems for our services. Member support is paramount to the success of this association. I look forward to the challenge and hope you will step up to help make this association the true “Voice of the Tree Care Industry.” Please feel free to contact me at any time via phone (513-576-6391), fax (513-576-6394) or email (mtsinc@one.net). I am anxious to hear your views about how the NAA is doing in meeting your needs and your ideas on how to move the association and the industry forward for the next decade.

May the power that be bless us, our families, our association and America.

Girouard continued

May the power that be bless us, our families, our association and America.
Awards ... and Rewards

The National Arborist Association uses its Winter Management Conference as an opportunity to reward its attending members with an exceptional program. The NAA also recognizes members' excellence with various awards. Winners were selected in four categories: Brochure, Newsletter, Company Web Site, and Special Entry. The entries were evaluated on their overall appearance, content quality, and their respective success in achieving the company's marketing goals.

In the Brochure category, we have five entries to recognize. In alphabetical order, the companies are:

• The F.A. Bartlett Tree Expert Company, with two winners in this category: A piece called, "The Roots of Pleasure" was created specifically for the Philadelphia flower show, and another called, "16 Common Problems, One Solution" features some great graphics.

• The Davey Tree Expert Company's Careers piece called, "Discover the Davey Difference" won a best-in-its-class award, and exemplifies the sophistication being brought to bear on employee recruitment.

• Hartney Greymont, in a beautiful piece called, "We care about trees," sends a powerful and poignant message about the value of the company's employees.

• Finally, Rainbow Treecare's entry touts its new product, Cambistat, and the corresponding benefits of tree growth regulation.

Newsletters engage their intended audience in what's happening within the company. This year, we recognize The Care of Trees for its distinctive consumer newsletter, and to Lewis Tree Service for its employee newsletter called, "The Cutting Edge."

With Web sites, judging focuses on the quality of the site's content, page design, unique functionalities the site offers, and, of course, how much visitation the site gets. There are two winners this year:

• The first is Almstead Tree & Shrub Co. With 12,000 hits per month, it's hard to argue with the effectiveness of this site!

• We also want to recognize Swingle Tree & Lawn Care. Its site boasts 2,100 hits per month and offers newsletter signup and downloadable copies.

The Special Entry category covers an array of marketing initiatives that don't fit in the other categories, everything from water bottles to posters, from TV spots to company portfolios. This year we'd like to recognize six projects, from three companies:

• It was felt that Almstead Tree & Shrub Company's entry best exemplifies the company portfolios.

• Bartlett wins two awards in this category for point of purchase displays - one focused on its plant health care service and one for employee recruitment. We'd also like to recognize them for their plant health care flyer and their publication, "Tree Topics."

• There were many print ads and advertorials entered in this category. It was felt that the Care of Trees print ad was deserving of recognition.

Congratulations again to all our award winners.
A chance to view some of the best communications materials the industry has to offer.

Don't Miss
Winter Management Conference 2004
February 8 - 12, 2004
Marriott Royal Beach Resort
St. Kitts

Attendees on the El Yunque rain forest tour had the chance to see some of the 250 plant species in the only tropical U.S. National Park.

Flaming torches and swaying palms at the Pirates of the Caribbean party.

Members of the NAA Safety Committee met in Puerto Rico to discuss ongoing issues with the government.

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"California Special"

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TREE CARE INDUSTRY - MARCH 2003
A Replanting Effort of Olympic Proportions

Organizers for the 2004 Olympics in Athens, Greece, recently announced that they will try to save 4,000 olive trees doomed for destruction at construction sites. About half of the trees will be relocated to the Olympic marathon route to increase the amount of greenery, according to an Associated Press report. The marathon route stretches from Athens' northeaster coast to the city center.

The project is estimated to cost $3.24 million. The trees will come from public housing construction sites on the island of Zakynthos and Crete.

It is unclear what the fate will be of the trees that are not planted along the marathon route.

Trees on Battleground - Germany and U.S.

In the wake of potential war with Iraq, the U.S. Army is planning to expand its biggest battleground in Bavaria, Germany - cutting down 200 acres of trees in the process. The pine forest is located in a region the German government has designated a nature reserve.

Residents are protesting the expansion at the Grafenwoehr combat training grounds, in part to help preserve the trees, reduce water contamination from hexogen and octogen – deadly substances used in explosives and propellants – and also to keep out the sound of exploding artillery shells and tank fire.

The U.S. Army currently has 70,000 soldiers stationed in Germany - 3,500 of them at Grafenwoehr. The Army wants to increase that number to 5,500 troops.

Lt. Col. Paul Grosskruger, commander of the 94th engineering combat battalion, said he respects Germans for having a different opinion on the expansion and their right to protest.

"I really love trees," said Grosskruger, eager to defuse the row. "I love being in Germany. I'm sure we will work it out."

Texas Tree Grows on License Plates

A new proposal could place Texas' state tree – the pecan – on license plates, raising money at the same time for the Texas Urban Forestry Council.

Texas State Rep. Edmund Kuempel (R, Seguin) and State Sen. Florence Shapiro (R, Plano) have filed bills to permit the pecan to adorn plates.

"With the passage of this legislation, Texans will be able to personally support greener, cooler communities across our state," said Nancy Masterson, president of Texas Urban Forestry Council. Registration fees for the special license plate would include money that would go to the Texas Urban Forestry Council.

The council is a nonprofit organization that promotes the planting and protection of trees in Texas.

"Seguin is the home of the world's largest pecan," Rep. Kuempel said. "So it's fitting that we're the patron of the first state-sponsored funding for the community trees of Texas."

Police Not Extending Olive Branch in Tree Theft

An Israeli guard hired to supervise a fence being built on the border of Israel and the West Bank was recently arrested on charges of helping to steal olive trees owned by the Palestinians, according to a report by The Associated Press. Police said Arnon Avneri – who was hired by the Israeli Defense Ministry to supervise the fence building – was planning to resell the trees in Israel.

The trees are symbolic ties to the land for the Palestinians, and in many cases, are also their livelihood. Some of the trees – some of which are hundreds of years old – stood in the way of the fence and had to be uprooted.

According to Defense Ministry spokeswoman Rachel Niedak-Ashkenazi, the contractors were instructed to either return the trees to their owners or replant them on Palestinian territory.

Oak Tree Dispute Not a Gray Issue for Gov.

California’s Gov. Gray Davis is stepping aside in the dispute over a 400-year-old oak tree that stands in the path of a road-widening project.

Although spokespersons from Davis’ staff said the governor is “extremely sympathetic” to preservationists who have protested the tree felling, Gov. Davis said the tree’s fate is a local – and not a state – issue.

According to The Associated Press, tree-sitter John Quigley, 42, who has been in the oak since Nov. 1, recently called upon the state’s leader in hopes that he would intervene and prevent the road-widening project.

“Clearly, this is no longer a local issue. ... The Old Glory oak tree is now a matter of protecting a resource of California’s natural heritage,” Quigley said.

Although the developer has agreed to relocate the tree to a nearby park, environmentalists fear the old oak would not survive the move.
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The Last Tree

By Marshall Adams

I had thrown everything into my truck that a treeworker would take to an unseen job: steel lines for pulling, line-grip, climbing tools, more ropes than I could use, a full line of Stihl chainsaws, and skills learned during 30 years of tree service work. I was prepared for everything—except what I saw when I pulled into the yard of that hundred-year-old farmhouse in eastern Washington.

It was late when I arrived. I looked at my watch, and then to a bright orange horizon west of the house. Shadows from trees along the west side of the yard loomed over several out-buildings and darkened a grain field to the east of a century-old barn. The trees were Lombardy poplars, and they stood like giant pillars of driftwood against an otherwise unobstructed evening sky.

I stepped from my truck to shake hands with David Geil, a personal friend for more than 20 years. We said a few words, then leaned against my truck, and in silence we watched the last rays of sunlight disappear at the edge of the field.

It is there in the open country where fence lines are measured in miles, and the shadow beyond each fence post is measured only by the time of day. In the stillness of that moment I could almost hear God say, “Rest now, morning will come in its own time.” I felt ready for a relaxing evening with Dave and his wife, and I was anxious for a good night’s sleep.

Dave and I enjoyed a fine breakfast, shared several hunting stories, and then headed for the old farmhouse. I was impressed how the absence of any other trees added to the grandeur of these poplars. They ranged in size from 3 feet to 5 feet, and they were as tall as the tallest of their species. One field guide describes Populus nigra this way: “Medium-sized, introduced tree with straight, stout trunk, often enlarged at the base, and a narrow, columnar crown of upright, short, brittle branches.”

It was a fair description, but the person who wrote that description had not seen these trees. The term, “enlarged base” was a huge understatement without the word hollow, and “narrow columnar crown of upright, short, brittle branches” missed on narrow and short, though brittle would have been a correct statement.

By noon Dave and I had taken down the easy ones. We used a steel line, and pulled each tree. It should be a simple matter of starting your cut somewhere in a sound vein, and ending on the other side in a sound vein. The problem is that that is not always the way you want the tree to fall.

I made several tricky shots, and soon we were down to four remaining trees. I had been sneaking looks at the hard ones all through the morning. I wanted to say as we got to each tree, “No problem Dave. I’ll hang a line, rappel down, start at the bottom, and we’ll swing these monstrous limbs around to miss the house, the barn, the clothesline, the fence, the hundred-year-old concrete sidewalk, and that concrete bird-watering thing.”

We finished the trees that evening as any of you would have done them, one piece at a time. I stopped for a moment in the last tree. When I looked to the west the horizon was orange again. I felt a breeze from the north, and I thanked God for a good day. I turned and looked to the east to see the long dark shadows that had cast their gentle touch on the farmland, and across the century-old barn. The shadows were not there; the trees were gone.

I listened for the sound of wind, but I could not hear it in the trees. I felt like time had stopped. I imagined I was on the porch of that hundred-year-old farmhouse, before any trees were planted, hearing the tune played in a thousand western movies as wind blows across a single electric line.

I looked upward to what is called the heavens, and I understood a presence much greater than my own. In the distance I heard a great horned owl telling of a hunt that would happen sometime in the darkness of night, and I wondered where she would perch to watch over the fields.

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