TREE CARE INDUSTRY

The Official Publication of the National Arborist Association

Volume 6, Number 2 - February 1995

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Publisher Robert Felix urges arborists to take a look at their pricing strategies.

Candid comments from our readers.

Arborists should be aware of new congressional committees.

Learn how to use the “fishing pole” technique in limb removal.

Major contractors pose proudly with the machine that made the Oakland firestorm cleanup possible.

Thinking of starting or expanding a pesticide application business? Here's some good advice on the type of truck and other equipment you will need.

Do you have creditability with your banker? Find out how to get it.

Important regional and national meetings and activities.

New products and news in the industry.

A veteran arborist offers a few tips on how to be kinder and gentler to wildlife.
Do you ever raise the price of a job because of an unusual risk, a special talent, specialized equipment, or because you are licensed, certified, degreed or otherwise specially qualified? Are your rates higher when you are very busy? Probably not!

I am sure that you would like to charge more and feel you deserve it, but your competition won’t allow it, right? Not necessarily. Did you ever hear of the art of what's possible?

The art of what's possible is the talent that allows you to accurately assess opportunities and proceed, achieving optimum results and maximum benefits. I am not recommending that you price gouge, but rather that you include your assets and your self-esteem in your pricing policy. Consider the following.

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You project an image of being the premier tree service company in your marketing area. Do your customers pay more for your services than they pay a lesser firm? Your clients pay more for a Cadillac than a Yugo. Shouldn't they be willing to pay more for the top quality service you provide?

Are you an ISA-certified arborist? Are you licensed or do you have a degree in arboriculture? Are your field personnel certified? Shouldn't you charge more than your competitors who don’t have any or all of these qualifications? Doctors do. The more specialized they become, the more they charge.

It has been said that tree care professionals don’t receive the recognition, the respect or the prices they deserve. Whose fault is that? It is ours because we let the competition set prices. We have a fear of projecting an image that looks too successful. Maybe some lack self-esteem.

It doesn't have to be that way for you. Many of your peers have proved otherwise. They have learned the art of what's possible.

As 1995 unfolds, try something. Take a dozen inquiries for estimates. Price them based on what you know you are worth. Justify the price on the basis of training, experience, professionalism, and most of all, on past performance. Let people know about your firm’s qualifications. You may discover that people are willing to pay top dollar for top quality.

When you are busy, you may want to increase your prices temporarily, not necessarily to regular customers but perhaps to new inquiries.

If you are better than the rest, be prepared to justify it, but get paid for it. Don’t be afraid. Be proud. Find out what is possible.

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TREE CARE INDUSTRY - FEBRUARY 1995
In 1991, Oakland, California, suffered what is labeled as the most disastrous urban fire in U.S. history. A reignited brush fire spread quickly, destroying 2000 acres of forest and more than 3000 homes.

The pivotal factor in this firestorm was the enormous quantity of fuel provided by hundreds of dead eucalyptus trees - many of them stretching more than 100 feet tall - that had been killed the year before. In 1923, a similar freeze had killed hundreds of eucs and precipitated a fire that decimated one-third of the City of Berkeley. Over the years, the area had seen numerous other freezes and fires but not severe enough to mandate a large-scale fire clearance program - or so everyone thought.

Although the dead and dying eucs were prime contributors to the fuel ante, the Monterey pine forests of the area became flame food as well. Although relatively frost hardy, the Monterey exhibits a host of problems relative to fire safety. Five years of drought previous to the fire had stressed the Monterey stands to the point where weaker specimens had succumbed to the beetles, root failure, wind damage or simple mechanical failure. One-hundred-foot trees would buckle and collapse under their own weight. Even the pines that survived these conditions and grew tall and green fell prey to the voracious appetite of the 5000-degree firestorm. The storm was so hot that whole green trees would burst into flames within seconds and rocket flame 300 feet into the smoky fray.

The toll in every respect was awesome. Within hours, the firestorm had decimated 2000 acres of wooded forest, including 3354 houses and apartments. Displaced people lucky enough to escape numbered around 5000, including 150 injured.

Unlike conventional house or brush fires of an acre or two, the intense heat developed by the firestorm caused it to take on a life of its own. Fire jumped two freeways, with a span of more than 100 yards each. Heat from the blaze drove solid and burning debris miles upward and deposited its ashes 30 to 40 miles away, across the bay in San Francisco. Ash rained down on Candlestick Park as the 49ers battled the Detroit Lions in a gray shroud, 35 miles from the blaze.

The intense heat caused metal light poles to sag and melt like candles. Enormous steel I-beams came to a tangled rest on the ground. The contents of “fireproof” safes were essentially vaporized and cement foundations were turned to powder.

Cleanup plans
In the wake of this massive tragedy, the
While helicopters are more expensive than conventional logging methods, they are not limited by the slope where they yard the logs.

city had to shoulder the burden of cleaning up, provide the victims with quick relief and come up with a long-term plan to help rebuild their homes and their lives.

The long-range plan provided for the cleanup, “burial” and revivification of this forest corpse. The cleanup zone in question was steep, denuded and prone to landslides. Therefore, strict criteria were established to preserve the zone and reduce erosion. The cleanup project had to wait, however, until federal funding had been secured and sensitive political issues had been resolved.

In June 1993, before tree cleanup efforts had begun, the city passed the Storm Water Management and Discharge Control Ordinance, which was written to block the Regional Water Control Board from penalizing the city for causing soil erosion. The ordinance meant that the responsibility for preventing erosion, as well as the financial penalties, could be imposed on the entities awarded the cleanup contract.

More than two years after the fire - on February 16, 1994 - contracts for the tree cleanup were put out to bid.

Approximately 3000 large scorched trees had to be removed within 40 days after the contracts had been awarded. About 1000 of them were perilously close to local dwellings.

No roads or log landings were allowed to be built within the cleanup zone. No log skidding or vehicles of any type were allowed. Protection of any remaining plant life was mandatory. In short, no heavy equipment could be used, except on existing roads bordering the zone. Although many trees could be craned from the roadways surrounding the zone, this task was difficult since high-voltage power lines around the area needed to remain energized so as not to further inconvenience the already harried residents. These lines also ruled out extensive use of crane towers necessary for high lead logging.

**Helicopter plan chosen**

This difficult cleanup, with its highly restrictive criteria, is where the helicopter gains favor above conventional forms of yarding (log hauling).

According to Randy Ogata, former co-owner of D&R Helicopter in San Jose, a firm involved in the cleanup, tractor skidding is preferred by many timber harvesters because of its low cost. However, these types of operations are limited to terrain with slopes less than 50° due to environmental concerns and new regulations pertaining to water quality and erosion control. Skidder operations are limited where erosion could affect lakes and other bodies of water that support wildlife.

Another method of yarding is the cable, or high lead system, Ogata explains. This system operates on slopes that exceed the capabilities of the tractor and was designed for clear-cut operations. Although this system is easier on terrain, it can be limited by long distances and multiple pitches. Thus, as additional environmental concerns were raised, selective harvesting gained favor for better timber management.

As the demand and thus the price for timber increased, helicopters equipped with turbine engines became more cost-effective, Ogata adds. Lift capabilities were increased, allowing access to timber that had been difficult to reach. While helicopters are more expensive than conventional logging methods, they are not limited by the slope where they yard the
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7
successfully completed fire cleanup contracts for Oakland.

Golden Bear president Brad Boyajian began assembling his team of subcontractors for this monumental task. The nature of the operation required a combination of disciplines, including but going beyond the scope of commercial arboriculture.

Heading up the subcontractors was Treescapes, Inc., of Oakland, owned by Torrey Young. A member of the National Arborist Association and president of the California Arborist Association, Young is well known on the West Coast. Large, difficult removals are one of Young’s specialties. His company’s phase of the work - removing 500 trees and stumps from residential areas bordering the work zone - was executed with eight, ten and 50-ton cranes.

Another key player was International Environment Corporation, owned by Henry Cespedes, a specialist in big tree removal.

Once all the contractors got together, Boyajian explained, they decided to explore the possibilities of airborne transport of all felled materials. Boyajian said as far as he knew, this method had not been used previously on a project of this magnitude in a heavily populated urban area. Still, he and the others felt that it would be the most environmentally responsible and would allow the greatest flexibility in reducing the effect on residents.

The unique part of the team was D & R Helicopter of San Jose, and pilots Ogata and Don Dawson. Ogata has been around planes for 24 years and has flown helicopters for 13 years. He is also a certified mechanic and flight instructor. Dawson grew up on a ranch in Wyoming, where he learned to fly as a teenager to manage
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Soren Eriksson, International logging expert

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the property. He has been flying logging helicopters for 13 years, accumulating over 12,000 hours of flight time.

Specialists involved in the overall project included technical riggers; heavy equipment operators for cranes, loaders and dozers; customized logging helicopter with two pilots specially trained in aerial yarding; a full-time helicopter mechanic; experienced timber harvesters with weight scaling and heli-logging expertise; choker setters familiar with helicopter work; management experts running crews of up to 40 and coordinating the activities of the helicopter and six subcontractors; and public relations personnel.

The project was extremely high profile, controversial and emotional for the thousands of people that it affected. There were numerous challenges with the public regarding traffic control, safety, noise concerns and environmental issues.

After huddling with his subcontractors, Boyajian left Monrovia for Oakland. Three thousand large Monterey pine and blue gum eucalyptus needed to disappear within 40 working days - that's 75 trees a day on average. No material over four inches in diameter could be left, and no erosion-causing activity could be tolerated, under the penalty of $1000 per day fines. The work began in August 1994.

The cleanup begins

Mechanical difficulties started on the first day when a newly overhauled helicopter engine developed trouble. The engine was flown to Bell Helicopter in Montana for service, but was back on the job within three days. Near the end of the job, the helicopter was again shut down after a bearing in the rotor control assembly failed, but it was flying within a couple of days.

In retrospect, Boyajian would have preferred to have had an extra helicopter standing by. Since that wasn't the case, he shifted workers around to other projects during down time.

More difficulties arose when a large, flat tract of land bordering the work unit could no longer be used to drop logs, due to the progress of construction. The alternate site was farther away and uphill and the new flight path crossed a road and high-voltage power lines. The change required a new flight plan and additional ground traffic control. The lengthy uphill flight doubled the fuel bill and meant that log loads had to be scaled back. Additional flying time required closer scrutiny of the weather, which tends to be very foggy in the San Francisco Bay area, and flights were often held until the fog could burn off. Also, a breeze was needed to provide the lift for efficient log transport.

The new flight path went up and over Grizzly Peak Boulevard, which at 1500 feet is the highest main artery in the entire East Bay. The flight path also crossed a park hiking path which had to be closed for safety. At least six road guards were needed to block traffic during flights.
The operation was an impressive spectacle and much of the work was visible from the 8-lane Luther Gibson Freeway. Onlookers often created problems when they stopped within the safety zone for a better look at the operation and there were several traffic jams and fender benders.

Orchestrating events like admirals at sea, Boyajian and Young engaged in the art of management by wire, perched high on a ridge cut overlooking the bowl-shaped unit. Communication was handled by cellular phone and radio, sometimes with one in each ear. Contact was with any number of eight to 10 entities.

A primary contact was the pilot. Everything fed off him, from traffic control to log loading to setting chokers. Flight time in between fueling was about an hour. Re-fueling and simultaneously inspecting the chopper took 10 to 20 minutes.

Meanwhile, the ground crew prepared for the next round of turns, or cargo flights. According to Young, the speed of the turns was the most challenging aspect of the work. Since the chopper alone cost approximately $20,000 a day, organization and speed were critical. Logs and debris had to be organized and moved fast enough to provide sufficient landing/working space for logs between each turn.

“The pilot was outstanding,” Young says. “He had amazing control of lifts and loads, and flew virtually non-stop for six to eight hours on many days.”

According to Young, the pilot used natural wind patterns to improve lift and load capacity, thereby reducing turn time and fuel use. Heavy loads were lifted by backing up and off the load - downhill, and taking a running start uphill, up and over the ridge to the drop zones. Rather than stopping to drop the load, the pilot came in on a curve, touched the logs down while flying over the top of the load and released the logs while completing his U-turn back to the removal area.

Maneuvering with ballet-like precision, the pilot had to negotiate the wind against the hill and swing his choker hook onto a pile of logs readied for flight. That hook was suspended from a long line cable with a maximum length of 200 feet. Just as the hook hit the ground, the choker setters scrambled to engage one or several choker loads with a total weight of 3000 to 4000 pounds. Two drop sites were used so that ground crews would have time to process and remove the material.

Prior to these turns, all trees were felled.
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and bucked. Four choker crews of two to four men each communicated with the pilot, supervisors and landings at all times. They worked like mountain goats on the steep, charred and lifeless terrain. They were responsible for carrying all their gear and fuel in by foot. The chopper did airlift in food, water, and bundles of 20 to 30 log chokers to each station. Over 200 chokers were used in this operation to cut turn time. Debris too small to be safely choked for flight was loaded into cargo nets for removal.

Crews of six to eight men, two loaders, one bulldozer and a collection of dump trucks and debris boxes were stationed at each of the two drop zones. Logs were bucked, handled and hauled in a flurry of activity, anticipating the next turn just minutes away. Smaller debris and slash had to be separated and hauled to a remote yard for recycling. The drop sites were constantly watered to keep dirt and grit from pepperin men and machine in the rotor wash from the chopper.

An additional site was required just for servicing, fueling and storing the helicopter. It had to be manned 24 hours a day for security. A mechanic lived at the site for the duration of the project to watch over the bird and its 40-foot fuel tanker.

The project is completed

The project was completed in September, a month after it began. The Herculean effort was accomplished eight days ahead of schedule amidst a flurry of mechanical setbacks, weather contingencies and timing problems.

“The helicopter operation turned out to be one of the most successful ventures in which we have participated,” Boyajian says. “This operation is full of everyday challenges, however, this team’s perseverance and expert management-by-wire approach resolved all issues prior to them becoming problems...The mission to get the material safely off the hillside area without causing excessive soil disturbance was an unquestionable success.”

Firestorms will no longer be a problem in this area, but reforestation and erosion control will.

Shaw James Hazen is an arborist and photojournalist residing in Orinda, California, just east of Oakland.
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Please circle 11 on the Reader Service Card
I have encountered a problem to which I am looking for possible “tricks of the trade” to resolve.

I recently supervised and coordinated the take-down and removal of a large elm tree which had succumbed to the Dutch elm disease. The tree was very large, tall and proximate to energized conductors. A contracted crane service was hired to take down the tree. The tree, which had one main trunk for the first 10 to 12 feet and then divided into multiple (12 to 15) columns, was taken down with relative ease but then the problem was encountered. The final trunk portion of the tree was approximately five feet in height. When the crew attempted to make the final stump cut, they encountered a foreign matter within the tree which damaged the saw chain to the point that it could not be repaired. Now, I am sure that some of you have guessed that the center of the tree contained a cavity which at some point early in the tree’s life had been filled with cement/concrete, but that is not all. The crew then attempted to make a second cut a little bit higher on the trunk, only to have the new saw chain not only break but also damage the bar. Upon whittling with an axe, the crew discovered to their amazement that not only was the tree filled with cement but also several large diameter pieces of rebar!

Here is my question to you and your readers: Is there some method to remove the remainder of the stump without endangering the lives of the crew members, without damaging additional equipment, and without costing the proverbial arm and a leg?

Any suggestions or ideas would be greatly appreciated.
Glenn P. Nadeau
Maine Public Service Company
Presque Isle, Maine

(Replies can be sent to Mr. Nadeau. P.O. Box 1209, Presque Isle, ME 04769-1209)

Letters should be sent to:
Tree Care Industry, Editor
P.O. Box 1094
Amherst, NH 03031
Congress Forms New Committees

Understanding changes can aid arborists in monitoring legislation

By Brian Barnard

Like all small business operators, arborists must communicate with congressional officials on issues that impact the success of their operations. Topics that hit home for tree care professionals include worker safety and labor issues.

The recent congressional shift in political power to Republicans brings a total overhaul of committee chairmanships. Also, some of the familiar subcommittee titles have been changed by the new Congress. Understanding these changes is important so arborists can quickly monitor and act on legislation that will surely unfold in the coming months.

Labor - Labor issues were previously administered by the House Education and Labor Committee. The new committee is titled Economic and Educational Opportunities, and will be chaired by Bill Goodling (R-PA). Key subcommittees under Rep. Goodling's committee include Worker Protections, Employer-Employee Relations and Oversight and Investigations.

Worker Protections - OSHA - The Occupational Safety and Health Administration will now be under the jurisdiction of the House Subcommittee on Worker Protections. Rep. Cass Ballenger (R-NC) will chair the committee. Rep. Ballenger is a businessman who has been praised by his peers for his understanding of how government intervention can affect small business.

It is likely that Rep. Ballenger will look closely at a bill to reform OSHA. However, unlike the OSHA reform bill proposed last year, this bill will carry strong themes that, as a Ballenger staffer was quoted as saying, "improve workplace safety and not harass business."

The Worker Protections Subcommittee will also have jurisdiction over other labor-related issues including the Davis-Bacon Act. Davis-Bacon requires that prevailing wages be paid when federally funded construction contracts are involved.

| Committee on Economic and Educational Opportunities |
| Size - 24 Republicans, 19 Democrats |
| Chair - Rep. Bill Goodling (R-PA) |
| Key Subcommittees: |
| Worker Protections (oversees OSHA) Chair - Rep. Cass Ballenger (R-NC) |
| Employer-Employee Relations Chair - Rep. Harris W. Fawell (R-IL) |
| Oversight and Investigations Chair - Rep. Peter Hoekstra (R-MI) |

Republican Members
Bill Goodling, Chairman, Pa.
Tom Petri, Wis.
Marge Roukema, N.J.
Steve Gunderson, Wis.
Harris W. Fawell, Ill.
Cass Ballenger, N.C.

Democratic Members
William L. Clay, Mo., ranking
George Miller, Calif.

| 104th Congress - Key Committees |
| Bill Barrett, Neb. |
| Randy “Duke” Cunningham, Calif. |
| Peter Hoekstra, Mich. |
| Howard P. “Buck” McKeon, Calif. |
| Michael N. Castle, Del. |
| James M. Talent, Mo. |
| *Lindsey Graham, S.C. |
| *Dave Weldon, Fla. |
| *David Funderburk, N.C. |
| *David M. McIntosh, Ind. |
| *Mark E. Souder, Ind. |
| *Frank Riggs, Calif. |
| Jan Meyers, Kan. |
| Sam Johnson, Texas |
| Joe Knollenberg, Mich. |
| Tim Hutchinson, Ark. |
| *Charlie Norwood, Ga. |
| Pat Williams, Mont. |
| Matthew G. Martinez, Calif. |
| Major R. Owens, N.Y. |
| Tom Sawyer, Ohio |
| Donald M. Payne, N.J. |
| Patsy T. Mink, Hawaii |
| Robert E. Andrews, N.J. |
| Jack Reed, R.I. |
| Tim Roemer, Ind. |
| Eliot L. Engel, N.Y. |
| Xavier Becerra, Calif. |
| Robert C. Scott, Va. |
| Gene Green, Texas |
| Lynn Woolsey, Calif. |
| Carlos Romero-Barcelo, P.R. |
| Mel Reynolds, Ill. |

Boldface denotes new committee members; *asterisk denotes freshmen.
Employer-Employee Relations -
Rep. Harris Fawell (R-IL) will chair this subcommittee addressing labor-management relations and civil rights. In naming Fawell to head this subcommittee, Rep. Goodling was quoted as saying, “I have high expectations for this subcommittee as we comprehensively examine forty years of laws and regulations that clearly need review and reform.” The subcommittee was previously titled Labor Management Relations.

Oversight and Investigations -
This is a new subcommittee formed by the Republicans. Although no specific agenda is set, the oversight subcommittee is expected to address labor-related issues including those involving OSHA. The bottom line of this committee’s purpose appears to be to look closely at the past 40 years of federal programs to determine if those programs are meeting their intended purpose. The subcommittee chairman is Rep. Peter Hoekstra (R-MI).

Speaking Up
As a business owner, you may wish to contact your congressional leaders. Address correspondence to a Representative: The Honorable (name) United States House of Representatives, Washington, DC 20515.

Brian Barnard is Government Affairs specialist for the National Arborist Association.
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The blade is a separate component. Changing it takes one tool and one minute.

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The square-shouldered, right-threaded pivot bolt that enables quick blade change is positioned so that the hook and blade open wide with a minimum of handle movement — in other words, with less effort. And the same coating that makes cutting so easy also self-lubricates the pivot action.

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Our new aluminum handered loppers come in three models. A 21-inch version with a 1 1/2-inch cutting capacity suitable for vines and shrubs. And 26 and 32-inch models with a 2 1/4-inch cutting capacity for tree pruning.

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If you try these loppers, we think you'll agree that they're perfect, or close to it. So we're making you this money-back offer. Buy a pair. Prune with them for two weeks. Use 'em and abuse 'em. If you agree they're the best, buy more. If you don't, return them to us along with a note telling us what you think would make them better. We'll refund your purchase price. Fair enough?

For further information, contact your Corona dealer or call us at 1-800-234-2547.

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What You Need On A Spray Rig

By Paul Wolfe

In order to increase efficiency and effectiveness, minimize environmental risk and maximize potential profit, there's a bit more involved to putting a spray rig on the road than turning the key and stepping on the gas pedal. Effective pesticide application relies on three main elements. These include the proper components of a sprayer system, calibration of that equipment to assure the system is functioning at peak efficiency and correct techniques in assuring that the material is correctly applied to the target. Each of these has to work in perfect harmony to achieve the desired goals.

When things go wrong, entire operations can come to a screeching halt. On one nightmarish day several years ago, we had two units dead in the water in perfectly calm weather during the height of the gypsy moth season because each crew had lost the cap that holds the disc onto the spray gun. To add insult to injury, by the time we located the spare parts, the wind had kicked up and the day was lost.

From humbling experiences such as this, I've worked with others in putting together a list of necessary items to make for a successful operation.

The spray truck

When putting together the truck, there are a lot of components you have to consider. For convenience, I like my vehicles to have an automatic transmission. They are more forgiving when you're driving down the road, trying to look at the contract to see where you're going, trying to read a map and eating lunch all at the same time.
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Now, we're adding new dealers all over the country to bring Wood/Chuck quality right to your area. Once you take a closer look at Wood/Chuck, you'll see no other chipper company can cut it.
When determining the weight rating of the truck you need, the gross vehicle weight is what you really need to worry about. My truck weighs about 8200 pounds. A 1000-gallon sprayer weighs about 3500 pounds. A 1000-gallon tank holds 8000 pounds of water. You have tool boxes, hose and hose reels, and all the tools and materials that go with pesticide application. You’d better have a truck that will hold 23,000 pounds by the time all is said and done. I have seen trucks that are undersized for the weight they’re expected to carry.

Your truck should be set up for the way in which you want to operate. I have always felt that a rig should be versatile—one that will allow you to do everything that needs to be done when you’re on the property. All controls and hoses should be on the curb side for ease of use. In this industry, travel time and setup time are profit killers. If we could eliminate or reduce these, we make more profit, which is not a dirty word by the way.

My firm uses two rigs. The first rig does a lot of tall tree spraying. It’s set up very nicely for that purpose, but it is versatile enough to spray smaller material, and even fertilize.

The tanks

There are several basic components of a spray unit. One is the tanks. My tall tree unit has three compartmented tanks. Each tank is about 330 gallons.

The engine, the pump and all the valves are inside. I can close and lock the doors at night.

The flexibility is key. I can have three different materials mixed up in three different tanks using the same pump. I can have fertilizer in one tank, oil in a second tank and fresh water in a third. I don’t have to mix up 1000 gallons of any one material. I can mix in small doses if I want to, which again adds to the unit’s versatility. In addition to spraying out large quantities of a single material, our truck is used in IPM applications because I can mix up small amounts needed for individual clients.

One drawback of this system is that it is possible to forget what is in each tank, so I’ve placed identification on each one. At the end of the day, the applicator writes on a little toe tag what is in the tank. Monday morning when we come in, we have an idea of what we have. This is a critical step because the applicator on the truck Monday may not be the one who was on it Friday.

We have a 500-gallon nurse tank, two 50-gallon side tanks, and one 100-gallon tank on the other side.

This unit has clear rubber hoses attached to each tank that aid in measuring how much material was used on a job. This works really well for about the first week of the season until you actually put something in the tank and can’t read the gauge any longer. We change them quite frequently so we can gauge how much material we’re using. This becomes important when you have to fill out all your paperwork at the end of the day.

Hose reels

Now the hose reels. Each unit has three hose reels. I have them stacked vertically so they take up less space. Two of the
If you try to determine the weight rating of the truck you need, the gross vehicle weight is what you really need to worry about.

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goes under something pretty low and the hatch lid is up for whatever reason, the lid is going to be slammed down. If I had them the other way and went under something low, the lids are going to be broken off.

The hatches all lock. If lids are left unsecured, the owner is leaving himself open to all kinds of potential disasters. We lock everything up at night whenever the truck is unattended.

Matching pump & job

Match the pump on your unit to the type of spraying you do. My tall tree rig is relatively simple. There is one 60-gpm hydraulic pump powered by a 65-hp engine.

My IPM rig has three pumps and three engines. It has two 5-gpm diaphragm pumps powered by 8-hp engines. The only reason I went with an 8-hp engine is because it has an electric start. I thought it was much easier to push that button than to make a crank pull. These little pumps will hit 35 to 40 feet with the Bean 785 gun on a one-half-inch hose. The unit also has a 40-gpm diaphragm pump with a 35-hp engine for larger trees.

A word on plumbing. It’s very helpful when setting up a sprayer to have everything at a level so you don’t have to get off the ground except to mix materials, and some new rigs even eliminate that. It’s a safety consideration. It’s a fatigue consideration. Clamoring onto a truck 40 times a day to engage the pressure relief valves is wasted effort.

Quality spray guns are a must. I believe in having at least one spare of each type of gun on our trucks. Although they are pretty durable, they can malfunction from time to time. It’s nice to have some spares on the truck.

There are proper and improper ways to store your guns. I’ve seen trucks driving down the road dripping chemical, with the unsecured gun just flopping off the side of the truck. It looks terrible and creates a negative public image.

Remember, we’re all in the image business and we should be concerned. If one company has an incident, the whole industry is painted with the same brush! Let’s work together.

We lock our spray guns down on the truck. We had a spray gun holster device specially built for our units. The gun slips in and is secured. Another way that we have found to be effective is to place the gun in the bucket.

Other considerations

Besides these major components of a spray rig, there are many more items to consider that are important to a successful operation.

Storage - It is extremely helpful to have clean, secure storage areas that are large enough to place all your materials beyond the public’s view.

Regulated items - On every truck we are regulated. There are certain things we have to have on the truck. Obviously, the name of the company and the city from which you operate. If you’re crossing state lines, you have to have a Department of Transportation license number. In Maryland, we’re required to have our Pesticide Applicators number on the side of the truck. Since we fill out of hydrants,
The last resort to root control is losing the tree. As tree roots begin to spread into unwanted areas, you’d like to avoid trimming the roots or, worse yet, having to destroy the tree altogether.

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If one company has an incident, the whole industry is painted with the same brush! Let's work together to keep all of our noses clean.

A word of note. Stainless steel tanks and magnetic markers don’t work together. I found that out the hard way.

Any gasoline container with more than one quart has to be marked and has to be DOT-approved. It is advisable to carry shipping papers of all the pesticide materials you carry on your truck. The NAA has samples that are available to you.

We carry MSDS sheets and sample labels for all the materials that we apply. You never know when you’re going to need something. Also, we only carry materials in containers with the manufacturer’s label. We don’t use service containers.

Personal protective gear - Rubber latex gloves are the first item of gear we put on when we get out of the truck. They don’t have to be expensive. In fact, we use throw-aways - we use them for three or four days.

Rubber boots are essential. Leather soaks up materials. When we’re out doing a pesticide treatment, rubber boots are required. Ours cost less than $20 a pair and are good for a season. Actually, the odor eaters that we have to put in them end up costing more than the boots, because unless you change them regularly, clients will smell you coming long before they see you.

We don’t have to wear a raincoat and pants, but first thing in the spring when you’re spraying tall trees on a regular basis, the extra protection is warranted. I prefer a full brim hard hat. The Smokey the Bear types offer the back of your neck a little more protection.

Tyvek suits are good to have. There are certain times of the year that you want to have this kind of protection. We have two or three of these that are wrapped up under the seats.

Respirators and goggles are important, and may be required by the product label when mixing and loading. It’s very easy for material to splash out of the tank.

I’ve also found it valuable to carry a change of clothes.

A well stocked first aid kit is also a must.

Posting & notification - The State of Maryland requires us to put a sign in people’s yards upon completion of an application. This posting can be done either in the front lawn by the principal place of access or where the material was actually applied. I’ve always been of the opinion that if I’m spraying a tree in the middle of the back yard, posting a sign at that point provides the most beneficial information.

How many times have you seen signs in January notifying of application made in October? We make a point of picking the signs up as well, even though we are not required to do so.

We have consumer information that we have to give to our clients. It includes a list of precautionary statements for the chemicals that we use.

We fitted our trucks with wind gauges so after each application we are technically supposed to record how hard the wind was blowing.

We also clock in at what time we get to our client’s property and what time we left. If there is ever any controversy, we can document when we arrived.

Other equipment - Every morning we inspect our trucks before we go out. We walk around them, we kick the tires, we check the lights, we check the horn, we check the windshield wipers, we check the oil - everything that is required of us. In the evening we do the same thing. We fill out a little form and one copy goes to the office and the other one remains in the truck. We also carry the Safety Regulations Guide Book with us. These come in handy because you don’t remember all the regulations. A couple of years ago, I broke down. It doesn’t happen often. I knew that we were supposed to have a permit. In our case, the permit is issued by the Washington Suburban Sanitation Commission. Also, the commission inspects our trucks once a year to make certain we have the anti-syphoning device up there.

Depending on the compounds you use, the DOT may require placarding or marking. Certain materials we use require marking on the side of the truck when they contain more than 1 pound of active ingredient. Two materials that quickly come to mind are Dursban and Diazinon. Your trucks have to be marked for those materials.
to put triangles out but was at a loss as to how close to the truck they were to be placed. I thumbed through the book and found information on where to place the triangles. I don't think it made much difference but at least I put them out at the proper distances.

We also carry a little certificate that says: "Our truck is under a Programmed Maintenance program and it's inspected every 12,000 miles or once a year". We carry a manifest on our trucks that states all the materials that we have on our trucks that given day. It lists the amounts and the type of container that they are in. The manifest should be within an arm’s reach for the driver. If you’re ever in an accident and the emergency response teams want to know what you have, this little manifest can save everyone a lot of grief.

Cones are not required, but we have them on our trucks. When we stop along the street, we take them out and put one in back of the truck and one in front of the truck to let people know we’re there.

A little strobe light on the top of the truck could be helpful, but we do not have any yet. I can’t tell you how many times I’ve been spraying street trees when along comes Mrs. Smith, drinking her cup of coffee, oblivious to everything. Try as I might to wave her off, her car gets soaked. Having some sort of warning light up on top might help.

Spray rigs do get wet from time to time, so I placed anti-skid devices, adhesive-backed strips, on all step surfaces of the trucks. These things are great. Stainless steel gets slippery, as any metal does, so having some kind of strips on the side certainly reduces that.

If you stop on a hill, it doesn’t take a second or so to set wheel chocks. A lot of trucks have built-in compartments where you can put the chocks.

An extremely important document that should be carried on each truck is a procedures manual. At a minimum, this should contain safe operating procedures, details on spill control, insurance information, tips on client relations and emergency information. This manual may take a little while to develop, but is nice to have on the truck for routine operations as well as emergencies.

We also carry a vial of change. It can be nice to have when you forget your lunch money. More important, it’s indispensable when you need to make a telephone call.

Keep emergency phone numbers in the truck cab. The sticker we use is available through the NAA. It lists doctors, hospitals, the department of agriculture pesticides division, etc., and our office phone number - many employees never call their own office and don’t know the number. We place our stickers on the dashboard or in the glove box.

We carry spill kits that consist of absorbent pillows, flagging tape to cordon off a spill area, and a shovel.

You should carry insurance forms in case you’re ever involved in an automobile accident. They fit in the glove box and take your operator step by step through what he needs to do.

We carry five gallons of fresh water on our trucks. It’s important for drinking and for flushing foreign matter out of your eyes.

We keep lunches in airtight containers. Small coolers are great for this purpose; lunch boxes and paper bags are not.

We carry enough pesticides for one day’s operation. There’s no sense in filling that box with 20 gallons of concentrate if you’ll only use two.
Six years ago, I purchased several hundred gallons of horticultural oil in 2 1/2-gallon plastic containers. We now buy our oil in 55-gallon drums then break it down into the 2 1/2 gallon container. This container has about a 3-inch diameter opening. You can empty this in the tank in about six seconds. It is fast, convenient and easy.

You need various mixing devices. Measuring cups and spoons are essential.

We have a little pan underneath our filter. When the filter clogs, you open it up and everything runs out. A small roasting pan catches all the stuff.

We also carry pruning tools on all of our spray trucks, such as hand saw, folding hand saw and hand clips. A lot of times during an IPM visit, there is no sense in spraying the plant if you can clip out the bug. That’s my philosophy. We carry the tools needed for mechanical control. We also carry a sectional pole clip on the truck. It makes for great applications.

A flashlight, soap and paper towels are part of our standard equipment.

Our applicators don’t claim to know everything they might see in the field, so we put reference books in our trucks - an insect book and a landscape IPM book.

We carry a garden hose for washing off and a tarp for covering up. How many times have you gone to a client’s property and you can’t spray because the family car is parked underneath the tree?

Don’t leave the office without maps. On our contracts, we cross reference the job with a map coordinate so that the applicator can quickly find the work site.

Of course, you cannot leave the shop without contracts for a day’s worth of spraying. On the contract we list the target pest and the target itself.

We carry a small hand sprayer on the truck - even our big trucks. If you have to go to the back 40 and you only have one or two azaleas, there is no sense in dragging hose 300 hundred feet.

We also have a fertilizer gun on our trucks, particularly in the spring and in the fall. There are many times when the morning weather is calm. Everything is going great until the wind kicks up. You may as well have your applicator switch to fertilizing at that time.

We carry a complete tool box with everything we might need if we break down. We have spare everything.

The most important part of your spray operation is your applicator. Even if everything else on your truck is substandard, I suggest that you have an applicator who is trained, who is responsible, who knows how to communicate with the public, and who knows what he’s doing with the materials. This person is going to save you more time, money and aggravation than anything else that I have discussed. Where do you find such a person? That’s the topic of another article.

Paul Wolfe is the owner of Integrated Plant Care in Rockville, Maryland. He is past president of the Maryland Arborist Association and a director of the National Arborist Association. This article was excerpted from the author’s presentation at TCI EXPO ’94.
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Fishing Pole Technique

By Peter Thomas and Glenn Riggs

Removing large trees in difficult areas has been made a lot easier with ratcheting lowering devices. Using one is like strapping a mini-crane on to the base of the tree we are removing. The ratcheting device is designed to either pull the line tight or lift the entire limb up.

Height is important in lowering. The lowering line should be crotched in the highest, safest place possible to make good, safe time. We have been using a method which not only gives us good height, but maximum strength up top. The technique is for advanced riggers who routinely deal with large, difficult removals.

We rig our lowering line through a series of eyes, similar to the eyes on a fishing pole. The setup will be different on various trees, but this method enables us to get the most from our lowering device and our lowering block.

To make an eye, we weld two shackles together, one on top of the other. Five-eighth-inch pins work well. Make sure to place the weld along the outside edge only, and cut the ears off. The extra thickness of two shackles means the rope doesn’t bend as sharply. We attach a suitable rope or nylon sling to the bolt. Three or four of these and we are ready to go.

When we reach the tree crown and are setting a climbing crotch, we locate a suitable lowering crotch. We set our block at the lowering crotch. Shackles are set every three to five feet below the block so that the last shackle is on the main trunk of the tree, directly above the lowering device.

We run the lowering line from the lowering device directly through the shackles and to the block. The setup resembles a large fishing pole, where the weight is distributed along the entire pole.

Now we have a direct line from our lowering device, plus each shackle acts as a safety to the one above it. If the top block were to break, the next shackle would catch the load. The load could still be lowered safely. We can literally pick a tree apart using this one lowering crotch.

We have been using this technique for a couple of years. We never commit ourselves to just one lowering point without some sort of backup. We do not use these as backup when lowering pieces of a trunk on itself.

Peter Thomas and Glenn Riggs are subcontracting climbers associated with J.W. Bickers, Inc. in Bryn Mawr, Pennsylvania. Each is a former ISA International Tree Climber’s Jamboree contestant.
Credit, Creditability & Your Banker

By Joseph Arkin

Few businesses grow and prosper without the financial help that comes in the form of an occasional bank loan. One loan may fill a gap in a firm’s cash flow. Another will help support the expansion in assets that inevitably accompanies growth. Still another may finance the purchase of necessary equipment.

Unfortunately, many business owners fail to foresee the eventual need for bank financing. Many others overlook some important factors that influence a bank’s credit decision. Consequently, they do not build a banking relationship that encourages approval when the need does arise.

Despite the old adage, banks do make loans to businesses that need financing. But those loans most often go to businesses that have established the necessary credit and creditability. A number of actions contribute toward those objectives.

Your checking account

First, recognize the need to handle your checking account properly. As a basic requirement, you should not write checks unless your bank account holds sufficient funds to honor those checks. In a banker’s eyes, a history of bouncing checks automatically marks a business as a poor credit risk. That’s true even though a firm may satisfy the financial standards that normally make a business credit worthy.

Incidentally, bouncing checks does not remain the hidden concern of a bank’s bookkeeping department. In most banks, lending officers review checks drawn against accounts with insufficient funds on a daily basis. Repeat offenders soon earn undesirable notoriety.

Note also that a history of bad checks reduces a firm’s potential for trade credit consideration. Suppliers typically require a favorable bank reference before approving a prospective customer’s line of credit. A history of bad checks stands in the way of that reference.

Of course, handling your checking account properly is only the first step in establishing a firm’s credit. If possible, you should go a step farther and maintain a “reasonable” level of deposits.

That doesn’t mean that you should carry excess idle balances merely to please your bank as a potential creditor. But a business that carries a reasonable operating balance demonstrates management prudence. Moreover, deposits help compensate a bank for its services. Larger deposits provide more compensation, and more justification for a positive response to a loan request.

The appropriate deposit level for a business naturally varies with the circumstance. However, as a rule of thumb, a business should maintain average checking account deposits equal to at least 30% of its monthly transactions.

Thus, the business that writes $5000 in checks each month should have a $1500 average checking account balance. The business that writes $10,000 in checks each month should have a $3000 average balance. Banks look at longer term habits, so falling below your average in some months isn’t a problem.

Interest-bearing accounts

At the same time, don’t hesitate to invest temporary excess cash balances in a bank account that pays interest. For example, commercial banks now offer “money market” accounts that pay interest rates well above the traditional savings account rates. Moreover, those rates move up with the interest rates prevailing in the large dollar money market. The small business now can earn interest rates on idle balances previously available only to large national concerns.

While providing your business with interest income, money market accounts add to the compensation the bank receives for its services. After all, banks never intentionally pay more interest than they can earn from deposits.

Moreover, accumulating interest bearing deposits - even temporarily - enhances the bank’s view of a firm’s credit worthiness. Such practices again demonstrate sound management. A positive view of the business becomes better.

Developing relationships

In any event, handling your deposit accounts properly is a necessary part of the process of building creditability with a bank. But it isn’t sufficient. You also should develop a personal relationship with one or more of the bank’s lending of-
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As a final alternative, make the initial contact yourself. Introduce yourself as a business customer whose future needs may include financial advice or a bank loan. Then outline your circumstances. Most often, you will receive a response that can be the start of the desired relationship.

Perhaps you’ve noted a peculiar omission from the process that helps establish credit and creditability with a bank. That is the lack of discussion regarding the specific financial requirements necessary to qualify for a bank loan. That omission is deliberate.

Indeed, a firm’s financial circumstances often become a secondary consideration in the credit decision process. That doesn’t imply that banks make foolhardy loans. Rather, it helps emphasize that banks tend to respond favorably to business managers who demonstrate responsible management practices and open lines of communication. Those factors often become more important than financial considerations.

Establishing creditability doesn’t make any loan automatic. But it can significantly increase the potential for a positive response to any loan request.

Joseph Arkin received a bachelor’s from St. John’s University and a master’s in business administration from Pace University. He is licensed by the states of New York and Florida as a certified public accountant and has written extensively for trade and professional publications.
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March 10
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The training center is operated by the U.S.D.A. Forest Service and the U.S. Department of Labor.


ACRT, Inc., was instrumental in curriculum development and promotion for the federally funded program and currently provides instructors for the trade.

The Job Corps Center, located in southern Illinois, is one of 107 throughout the U.S. and is currently the only one that offers the urban forestry program.

The lift truck replaces one that had been leased.
The National Arborist Foundation has received a grant to develop computer models and related promotional materials on the economic and environmental benefits that result from maintaining large trees. Arborists will be able to use the models and materials when preparing customer presentations. The $85,000 grant was made by the National Urban and Community Forestry Advisory Council, and the National Arborist Foundation is required to match that amount. ACRT, Inc. of Kent, Ohio, will develop the models.

Background - The economic and environmental benefits of trees have been quantified, but the information is scattered among many journals and disciplines. The study will consolidate all the data and make it available to arborists in a form they can readily apply to their customers' properties.

ACRT has already identified some of the information resources as part of its ongoing energy conservation research project in Ann Arbor, Michigan. The urban forestry research firm is conducting this study with the University of Michigan, Detroit Edison and Michigan Consolidated Gas. Another source of information will be the U.S. Forest Service's Chicago Urban Forestry Research Project.

The models will be based on three major components:

Environmental and aesthetic benefits - From location, size and condition of a tree, an arborist will be able to determine energy savings due to heating and cooling effects; the tree's impact on property values; air pollution filtration and absorption rate; storm water runoff reduction; carbon dioxide sequestering, storage and avoidance; oxygen production; noise reduction; and aesthetic and wildlife contributions to the quality of life.

Economic conversion - By processing the environmental and aesthetic benefits listed above, an economic, as well as societal, value can be determined. In some cases, the environmental benefits will be converted to everyday terms, such as relating the amount of oxygen produced by a certain size tree to the amount of oxygen used by the average person.

Maintenance costs - Such maintenance categories as fertilization, mulching, pruning, pest management, cabling and bracing, watering, leaf cleanup and disposal, and the impact of tree maintenance on the overall property will form the basis for this element of the model. This will guide the arborist when formulating and costing out recommendations. Changes in the benefits and costs as a tree matures will allow the tree owner to visualize the long-term impact of tree maintenance costs in relation to the benefits produced during the same period.

Two models will be developed. Each of the two models will have regional specific options for the user. One of the models will be an individual tree model, in which arborists can input data for individual trees. The other will be for all trees on a property.

The project is expected to take two years. When complete, arborists will have a number of options for accessing the data.

Funding - The NAF Trustees recently sent out a special mailing to NAA Active and Associate members as well as other organizations, asking for donations to this project. The Massachusetts Arborists Association has already thrown its support behind the project with a check for $5000. Other contributors are Madison Tree Service, Cincinnati, OH and McFarland Landscape Services, Inc., Philadelphia, Pennsylvania.

If you have any questions about a donation to this project, or would like more information about the project itself, there are two numbers you may call. You can contact NAF Chairman Richard Proudfoot directly at 1-800-635-4294, or call NAA at 1-800-733-2622.

The NAF is the research and educational arm of the National Arborist Association. ACRT, established in 1985, is an employee-owned professional services firm serving arboriculture and urban forestry.
Mid Dakota Corp. has recently introduced a conical earth auger as an accessory to the Dakota Hand tree spade. The tree spade system can be easily removed by lifting it off the guide posts and the earth auger can then be installed. The guide posts contain single acting hydraulic rams. A scale on the left guide post indicates the exact size of the rootball to be dug. The Dakota Hand will dig a variable size rootball from 16 to 28 inches in diameter in five to 10 minutes, depending on soil conditions and the size of the rootball. Mid Dakota Corporation, Garrison Industrial Park, Box 728, Garrison, ND 58540. Phone: 800-327-7154.

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Inject-A-Cide AV insecticide, a non-restrictive, full-season insecticide that has shown outstanding control of tree pests when applied in the low dose Mauget Micro Injection System, has been registered by the Environmental Protection Agency. The product is a major advancement for arborists concerned about applicator safety, control of harmful insects and the environment. Inject-A-Cide AV is registered for the control of spider mites (except conifers), leaf miners, elm leaf beetle, sycamore lace bug and fall webworm. J.J. Mauget Company, 2810 North Figueroa Street, Los Angeles, CA 90065. Phone: 213-227-1482.

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36
TREE CARE INDUSTRY - FEBRUARY 1995
Are you Ready for Tree Care in the 21st Century?

To really be prepared to do business in the 21st Century -- just a few years from now -- perhaps you should hire a cutting edge team of marketing, legal, and financial consultants. Or, join the National Arborist Association. We've done the hiring for you. NAA experts have already developed free or low cost programs that offer:

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NAA members are ready for the future with inside information on everything from plant health care to navigating ever-increasing government regulations to planning for the future.

Plus, members can network with other, non-competing tree care companies -- large and small -- to get their peers' point of view on everything from pruning ornamentals to cutting overhead; from haggling sales to negotiating contracts. We're even developing an on-line bulletin board to facilitate computer networking among members and our staff.

When you're in business, you can count on only one thing: nothing stays the same. To stay competitive, tree care companies must plan for next year and the next century. And the NAA should be a big part of your plans. Join today for just $150 for the first year. Put the NAA to work for you today, and you'll be ready for the 21st century.

CALL 1-800-733-2622

The National Arborist Association
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V & B Manufacturing Company now provides more tool options plus year-round capability with its recently expanded line of Groundbreakers® landscaping tools. All tools feature corrosion-resistant ductile iron tool heads and seasoned hickory handles. In addition to the full-size 36-inch Groundbreakers, the company also offers the lightweight Handy Mattock series plus a new 16-inch Mini-Tiller for one-handed work. These tools, originally designed for sod busting, digging, clearing, weeding and planting, can also be used for clearing snow and ice and fall and spring cleanup. V & B Manufacturing Company, P.O. Box 268, Walnut Ridge, AR 72476. Phone: 800-443-1987.

Mycorrhizae treatments can benefit trees. For almost a century, scientists have known that trees cannot flourish, or in some cases survive, alone. Mycorrhizae (Greek for fungus root) are fine feeder roots that have been colonized and modified by beneficial fungi. Research shows that mycorrhizae can more readily absorb soil nutrients, take up more water, protect against disease, increase the longevity of the root function and increase trees' tolerance to stress. Trees in urban settings may be deficient in mycorrhizae. Mycorhizal fungi for select trees can now be introduced to promote tree health. The Doggett Corporation, 30 Cherry St., Lebanon, NJ 08833. Phone: 800-448-1862.

Vermeer's 625 brush chipper is a disc-style chipper for use by rental centers, commercial tree service firms, landscape and lawn care operations, golf courses, municipalities and public works departments. Safety features include a 64-inch feed table for more distance from the cutting action, and a discharge chute that rotates 240 degrees to direct chips away from the operator. Vermeer's exclusive automatic-feed sensor system means fewer jams and reduced engine stress because it automatically monitors and controls feed roller speed by sensing engine load. The 625 is built to handle brush and debris up to six inches in diameter. Vermeer Manufacturing Company, P.O. Box 200, Pella, IA 50219. Phone: 800-829-0051.
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Climbers/arborist trainees. Arbor Care is looking for career-minded, motivated individuals, with an eye for quality, interested in relocating to southwest Florida. We offer career advancement, benefits package & more. Please send resume to Arbor Care, 8000 Fruitville Road, Sarasota, FL 34240. Phone: 813-371-3644; FAX: 813-371-5228. EOE by choice & a drug-free workplace.

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TREE CARE INDUSTRY - FEBRUARY 1995
What is common sense is also the law. OSHA Standard 1910.331 states that employers must provide appropriate, documented training to any tree care employee working within 10 feet of an energized electrical conductor. And that is just the first of several regulations with which you may have to comply. ANSI Z133.1-1994 dictates very specific training and operations regulations. Plus, there's a new OSHA standard, 1910.269 which takes effect January 31, 1995. It makes sense—both business sense and common sense—to meet these requirements. But how?

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For more information about EHAP, or any NAA program, or to order, call our toll-free hotline, or send/fax the coupon below.

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**Wildlife And Tree Care**

By Lyle Julian

It's a warm spring day. You're the climber in a tree crew that is in the process of removing a dying sycamore tree from a customer's property. The work is going smoothly and quickly. You're roping down one large section after another and it appears that you will have the tree down to a 20-foot trunk within 45 minutes. Though you're getting a bit winded, you remind yourself that time is money, so you press on. Then, as you're tying off one of the very last sections, you notice a dove's nest with eggs nestled in the fork of a limb. You mop the perspiration from your forehead and consider what to do. You'd like to save the eggs, but the tree has to go and, besides, you'd heard somewhere that once a human being handles a bird's nest the mother bird will never return because of the odor which the handler has left behind. So you tie off the limb and proceed to cut, ensuring the demise of the nest and its occupants.

So, you're down to the trunk of the tree and you can see that the quickest and simplest method of getting it felled is to pull it over in a single piece. It's pretty rotten in places and holed in spots by woodpeckers. As you prepare to drop the trunk, you hear tiny squeaking sounds coming from one of the larger woodpecker holes and remember that squirrels had taken up residence inside the tree. Oh, well, no time to save them. You'd have to piece the trunk down in 2-foot sections and then somehow scoop the young squirrels out of their nest without getting bitten. You're tired and would like to get this job done. So, down comes the tree and the squirrels go the way of the dove eggs.

If you recognize yourself in these scenarios, then perhaps it is time for you to look for another job. Here in south central Texas, as everywhere, trees provide a source of food and shelter for many, many types of animal life. In my years of climbing I have crossed paths with squirrels, bats, raccoons, opossums, countless species of birds and insects, a handful of different types of lizards and not just a few arboreal species of snakes. In almost every case, the confrontation between man and beast must result in the loss of the beast's habitat. While that is often unavoidable, I've learned that with a little compassion, patience and education, these confrontations do not have to end in total disaster for the animal.

First, you must have a basic and underlying respect for nature in general. That means compassion. If you don't have that, you shouldn't be in the tree business.

Second, you don't have to be a sign-waving fanatic to assist an animal that you have displaced, but you will have to sacrifice some of your precious time. Sure, it can be a real pain in the neck to bring the process of removing a tree to a halt while things are going so smoothly. But isn't it worth it? So, have a little patience and don't be so obsessed with the almighty dollar that you cannot bear to use some time to relocate a bird's nest safely to another tree. It's all in your attitude.

Third, educate yourself and your crew. By talking to someone at your local wildlife management association, you can learn exactly how to properly deal with wild animals. For example, a mother bird will not automatically abandon her eggs in a nest that you have handled. She will come back when you're gone. Simply take the nest with its eggs to a nearby tree and place it carefully into a fork so that it will not fall. She'll take care of the rest. Check your telephone directory for wildlife animal refuges and veterinary clinics which handle wild animals and make use of them. Educate yourself and your crew on which species of snakes can be safely handled. These can be put into a pillow case (ensure that there are no holes in the case) and driven out to a spot in the country and released without causing them too much trauma. But, in order to exercise your options, you must first understand what they are, and that means talking to people and reading a book or two.

Adjust your priorities to include the welfare of the wild animals you meet on the job and you will find that the rewards for your conscientiousness will far outweigh any sacrifices you may have to make. For one thing, you'll probably gain a measure of respect and admiration from your customer which goes beyond his approval of your work and will most likely get you more jobs down the road. But, far more importantly, you will feel good about yourself because you made the time and effort to contribute to the well-being of the natural world rather than participate in its thoughtless destruction.

Lyle Julian is co-owner and operator of Competitive Tree Service of San Antonio, Texas.

Do you have a story for From the Field? TCI will pay $100 for published articles. Submissions become the property of TCI and are subject to editing for grammar, style and length. Entries must include the name of a company and a contact person or they will not be considered for publication. Articles and photos must be received by the first day of the month for the following month's issue.
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Rights-of-way managers and municipal foresters arrive at work each day driven by one goal: ensure customer satisfaction by keeping the electricity flowing. One tree limb falling into a power-line triggers telephone calls from angry consumers, complaints from large industrial customers and thousands — sometimes millions — of dollars in lost revenue and repair costs.

To prevent this, electric utilities spend more than an estimated $1.5-billion annually trimming trees. This makes tree trimming one of the largest line items on a utility's vegetation management budget.

With Deregulation prompting sweeping changes at utilities, those that prosper will be ones that use proven cost-cutting measures to shave expenses and become more efficient. The challenge: gain efficiency while lowering costs.

Now a revolutionary technology can help decrease long-term line-clearance costs, while allowing you to manage more trees on your system annually. Tree-growth regulators (TGRs), used in conjunction with proper trimming practices, can help improve line-clearance management making it easier, more reliable and more cost effective.

With New-Generation TGRs, the technology is easier than ever to apply, with little or no negative long-term effects on trees. Economic computer models, extensive field trials and scientific research prove that TGRs work.

Read on to learn how TGRs can benefit your line-clearance program, your budget, your company and most of all, your customers.

**TREE-GROWTH REGULATOR (TGR)**
A specially designed compound applied to a tree to control crown (branch) growth by gently suppressing the tree's gibberellin production—the hormone that causes cell elongation. This reduces a tree's growth and its biomass without significantly altering its appearance.
Expensive trims. A rear-lot tree or any large-crowned tree that requires 45-plus minutes to trim translates into hefty labor, equipment and biomass disposal costs—an obvious budget strain. Using TGRs on these trees saves time and money.

Remote areas. Mike Watson, forestry supervisor at The Potomac Edison Company, uses TGRs in many areas. He finds one use particularly helpful: “A single cycle-buster found under a powerline in a farmer’s front yard can be a great expense. TGRs allow for a predictable trim cycle—even extended trim cycle—letting us defer trimming and save in travel costs to remote agricultural areas,” Watson says.

GROWTH REGULATION
- TGRs affect the production of gibberellins, the growth hormones that affect cell elongation in stems.
- Regulation occurs in cell elongation zone of terminal meristem, which is responsible for controlling branch growth.
- A TGR does not stop tree growth, it only reduces growth in branch tips.
- Overall TGR control depends on tree species, application rate and environmental conditions like soil type, climate and available moisture.

TRANSLOCATION
- TGR moves with water and mineral elements to tree stems through the xylem.
- Upward transport involves movement through functioning xylem cells.
- Transpirational pull moves water and TGR up tree.
- Other tree functions, like photosynthesis, continue.

APPLICATION: CUTLESS TREE IMPLANTS
- For maximum translocation, implants are placed squarely into buttress root flares.
- Squirting water into the hole helps implant dissolve and aids uptake.
- Compartmentalization begins within a few hours.
- Callus growth seals the wound in one to two growing seasons for most species.

APPLICATION: PROFILE 2SC
- Soil injection or soil drench applied around the tree’s base depend on uptake through the roots and tissues of the root collar.
- Even distribution around the tree’s base provides optimal control.
- Roots absorb TGR during active growth; then it’s translocated.

Property owner concerns or local laws. And, TGRs can help with trees that receive less than one full cycle of clearance because of property owner concerns or local laws. That’s why forester Paul Hurysz started using TGRs at Houston Lighting and Power Company (HL&P), which services the fourth largest city in the United States.

While a chain may only be as strong as its weakest link, a circuit’s reliability is only as good as the closest tree to the line,” Hurysz explains.

Unfortunately, five percent of our customers don’t allow us the 10-foot clearance we need. This
The first users of TGRs—utility foresters who helped pioneer the technology—knew that applying TGRs led to better-managed systems. They had firsthand experience managing more trees annually.

Problems came in selling TGRs to management. These foresters simply didn’t have quantifiable “numbers” upper management required to make cost/benefit analysis. The utilities also lacked a rigorous methodology for determining the impact of TGRs on their systems. Because economic analysis and comparison varied within the industry, there was no reliable way to compare the economic benefits of TGRs from utility to utility. DowElanco took these problems seriously and found a solution.

With biomass study results in hand, DowElanco and ACRT Inc. went to work developing a powerful computer program that projects yearly costs associated with normal line-clearance activities. Economist Dr. James Brickley from the Simon Graduate School of Business Administration at the University of Rochester also assisted with the project.

**The goal:** determine how TGRs affect a utility’s bottom line over a 15-year period. TGR decisions could then be based on both short- and long-term information.

**The result:** the TGR Economic Model.

This flexible computer model allows foresters to experiment with different trimming and TGR programs. For example, Carolina Power & Light Company (CP&L) used the model to generate five-year plans for each of the utility’s six divisions and to justify TGR use to management.

“Costs could be adjusted for every division at CP&L,” explains Kitty Nappen, division forester. “This made it really easy to use, and impressed management.”

While the economic model helped CP&L expand its TGR program to other divisions, it was instrumental in Santee Cooper initiating a TGR program.

“Thanks to the economic model, I could show management the cost savings of using TGRs over the next 15 years. It would have been more difficult to get approval without the economic model,” reports Bob Richens, supervisor of right-of-way management at the South Carolina utility.

Even though TGRs add up-front costs to a utility program, Paul Johnston—senior forester at PECO Energy Company—knows that longterm benefits can reduce future tree trimming costs. “For relatively low costs today, we can have significant savings from TGRs in the future,” Johnston notes.

The TGR Economic Model computes short-term costs and long-term savings. It estimates costs and savings specific to each utility by plugging in known variables.

“The economic model is very user-friendly,” notes Web Brasher, DowElanco TGR specialist. “Vegetation managers appreciate the program’s flexibility and convenience. But they especially like the ability to run different scenarios to determine exactly how TGRs can benefit them based on their specific tree species, trim cycles and budgets.”

Using the TGR Economic Model is an ongoing process for many utilities that want to track their TGR costs, while keeping a close watch on the results. Forestry Specialist James Watkins from Carolina Power & Light Company explains: “We plan to use the model once a year to evaluate that year’s lot (TGR project). And to estimate what we can expect in the next few years,” Watkins says. Thanks to the TGR Economic Model, utilities and municipalities can now determine the financial impact of TGRs on their systems—a feat appreciated by foresters and management.

**TGR COST ANALYSIS SUMMARY**

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<td>Total Trees</td>
</tr>
<tr>
<td>Cycle Length</td>
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<td>Cycle Extension</td>
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<tr>
<td>Cost per Tree Trimming</td>
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<td>Cost per Disposal</td>
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<td>TGR Miscellaneous Cost</td>
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<tr>
<td>Additional Trees</td>
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<tr>
<td>Discount/Interest Rate</td>
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</table>

**OUTPUT INFORMATION**

Your savings, in today’s dollars, is: $31,549

The savings for each treated tree is: $5.63

The savings due to using a TGR, when compared to the total costs of your normal trim cycle is: 12%

You could use your $31,549 savings to either trim 5,813 more trees, or TGR treat 14,063 more trees over the next 15 years.
Five years ago, Public Service Company of Oklahoma (PSO) replaced its reactive, hot-spot approach to tree-related outages with a more structured program. The goal: a well-maintained right-of-way where vegetation management efforts would be limited to routine maintenance.

"From the start, we've been looking for quicker and more cost-effective ways of getting the system under control," explains PSO System Forester George Geissler. "It costs less to maintain it than to fix it once it's broken."

Guided by that philosophy, Geissler and his team set out to gain control of vegetation along 3,500 miles of transmission lines and 14,100 miles of distribution lines. One tool PSO relies on is tree-growth regulators (TGRs), which it uses on urban trees.

PSO's interest in TGRs — that of establishing and maintaining reliable trim cycles — is common among utilities. The reason many utilities use TGRs is basic: to keep trees — especially fast-growing species or "cycle-busters" — from growing into powerlines. One or two problem trees can mean yearly visits to a circuit, making regular or "routine" maintenance impossible. Using TGRs on the fast-growing trees helps achieve a circuit that requires routine maintenance at reliable intervals. Another result: more consistent, accurate cost estimates — an advantage that helps in budget planning. Better, more reliable control also eases constant worry about problem trees.

Paul Hurysz, forester at Houston Lighting & Power Company, knows the importance of a reliable maintenance cycle. "Currently, our circuit only holds for two-and-a-half years and then we start experiencing reliability problems. We're using TGRs to help our fast-growing and problem customer trees make it through a three- or four-year maintenance cycle."

The bottom line is that TGRs provide confidence to establish and maintain a reliable trim cycle with the added benefit of a more consistent budget analysis.

"On first thought, you might think that TGRs are going to help you skip a trim cycle altogether. Although that can happen in some instances, the bigger benefit comes from the ability of TGRs to either establish or help you maintain a cycle that fits your utility," explains DowElanco TGR Specialist Bill Massey.

With more efficient system management thanks to TGRs, utilities can spread limited budget dollars effectively. According to Chuck Olenik, system forester at Pennsylvania Electric Company (Penelec), TGRs free additional dollars for more projects.

Forced to pare its tree trimming expenses closer to the bone, Penelec's forestry department focused its efforts on extending — or at least maintaining — trim cycles of fast-growing cycle-buster trees. Olenik knew longer cycles on problem circuits would free up line-clearance dollars for other projects. And it has.

"Not only does the TGR pay for itself, but the savings from TGRs allow us to do some of the projects eliminated during earlier budget cuts," Olenik notes.

Mike Watson, forestry supervisor at The Potomac Edison Company, agrees. "Because of TGR use, we're closer to meeting our desired maintenance goals with the same dollar level," he says.

Not only do power interruptions frustrate customers, they cost money — from thousands to even millions of dollars.

"A tree-related power outage on a distribution line, depending on the voltage, can cost a utility from hundreds to thousands of dollars. If it's a high-voltage transmission line outage, it could cost a utility in the millions of dollars," explains Dick Wells, TGR consultant and retired system forester for PECO Energy Company.

When utilities try to reduce service interruptions, they often look at how to reduce tree-related outages. That's where TGRs can help. Reducing tree growth in the crown helps prevent branches from growing into lines, which prevents the outage, saves in repair and lost business costs and ensures a high level of customer service.

By reducing the need for hot-spotting, TGRs help prevent power outages. Paul Johnston, senior forester at PECO Energy Company, explains, "TGRs definitely reduce the potential of fast-growing trees interfering with powerlines."

John Ellis, vegetation management manager at Texas Utilities Electric, agrees, "TGRs have the potential to help us keep down outages."

"It's no secret that reducing outages and ensuring customer satisfaction are important in the utility industry. As Bill Rees, supervisor of forestry management at Baltimore Gas & Electric, notes, "Although we are vegetation managers at one level, ultimately we prefer to consider ourselves outage reducers."

Reducing outages will always be a primary goal for utilities. Steve Hallmark, corporate forester at Puget Sound Power and Light Company, explains: "Most companies have a long-term goal of trying to reduce outages. To achieve that, they must continue developing new programs and finding alternatives to trimming such as TGRs."

TGR use does not guarantee an outage-free system. However, it does complement trimming operations to help ensure the fewest possible interruptions from fast-growing and overgrown trees contacting valuable lines.

"The greatest benefit of TGRs is cost savings in one form or another."

Removal of electric utilities' vegetation management budgets. It's a given expense for utilities like Houston Lighting & Power Company, which spends $14 million, or 80 percent, of its yearly budget on tree trimming. This is one cost that TGRs can help manage.

The greatest trimming-related expenses involve time, equipment and labor. The next biggest cost is chipping and disposing of the biomass. TGRs can help lower both these expenses by controlling branch and leaf growth in treated trees.

In 1990, ACRT Inc. — environmental specialists from Kent, Ohio — joined DowElanco in a three-year biomass study to look at prominent U.S. tree species such as Norway and silver maples, and willow and water oaks. Evaluating treated vs. untreated trees, researchers recorded trim and chip times; measured the longest shoots and weighed and compared removed biomass.

The results — published in the Journal of Arboriculture — showed up to a 75-percent biomass reduction in treated species. On average, height and growth were cut in half, while trim-and-chip times were cut by more than half.

According to Mike Watson, forestry supervisor and 10-year TGR use veteran, The Potomac Edison Company's biomass numbers are in line with DowElanco's research. With 60 percent of Watson's vegetation management budget dedicated to tree trimming expenses, he knows the importance of biomass reduction.

"The real cost savings from a decrease in biomass comes from the amount of money you save in labor costs," Watson says.

This doesn't surprise USDA-researcher Dr. John Sterrett. With more than 20 years of TGR and plant inhibitor research experience, Sterrett has witnessed, firsthand, how the

Continued on page 3
Reduced Chips
Average per 10 trees

- Without TGRs: 4,700 lbs.
- With TGRs: 1,200 lbs.

Reduced Trim/Chip Time
Average per 10 trees

- Without TGRs: 14.4 hrs.
- With TGRs: 6.5 hrs.

Growth Reduction
Average per tree for three years

- Without TGRs: 63% Less Growth
- With TGRs: N/A

Technology has assisted utilities and municipalities.

"TGRs have helped utilities control tree growth with much less labor," Sterrett confirms. And that labor savings starts with the amount of trimming needed.

"Where you may have had 10 bushels of chips, you now have one," says James Watkins, Carolina Power & Light Company, explaining how TGR use has benefited his company.

Increasing expenses and a growing concern for landfill space has brought biomass reduction to the forefront of utility vegetation management. Utilities dispose of an estimated 50,000 tons of chipped biomass each day, or 13-million tons each year. While some utilities can give away their chips to customers or local businesses, other utilities pay up to $50-plus per ton to dispose of tree trimmings at landfills. The scientific biomass study proves TGRs can help significantly reduce the volume of a community's solid waste and the costs associated with hauling and disposing these chips.

"TGRs will save utility foresters money in reduced trimming and dumping costs," reports Richard Abbott, president of ACRE Inc.

Money saved from decreased trimming time and disposal costs frees up funds for other vegetation management projects like tree-replacement programs, additional trimming or more TGR applications.

Chuck Olenik from Penelec took a look at the specifics. To trim an average urban tree costs Penelec about $55 to $60, including labor and machinery expenses. Applying Cutless* tree implants adds $15 to $20 during the initial year, putting total costs for a treated, trimmed tree at $70 to $80. Cost savings comes a few years later when trimming, biomass disposal, man-hours and associated costs are much less for treated trees than untreated trees, he says.

Mike Watson, forestry supervisor, The Potomac Edison Company, puts it in perspective. "The greatest benefit of TGRs is cost savings in one form or another."


*Trademark of DowElanco
has grown into the residents won't be need to trim their tree but not their drilling holes in a tree. Dick Wells, TGR consultant green leaves. Less trimming may also cause the drilled holes close and compartmentalize within troubled trees, the New-Generation technology tant trees," he says.

manage the oaks and, hopefully, save these impor-

Constant trimming can make them protective them. Dick Wells, TGR consultant who have offered their trees with trimmed trees.

“Look how the untreated tree has grown into the powerlines. The residents won’t be happy when we need to trim their tree but not their neighbor’s TGR-treated tree.”

And that’s good news, because competitive pressures continually remind utilities and municipal foresters that customer satisfaction is the name of the game.

“We’re pleased with the uniqueness we’ve gained from using TGRs,” notes Duke Power right-of-way supervisor Ronnie Wall, who started using TGRs in the Winston-Salem area in October 1993.

Even though Wall knew they wouldn’t see TGR results for 12 to 18 months, he has treated 4,513 trees across nine circuits. “We’re improving our right-of-way practices by incorporating TGRs into the program and continuing to ensure safe and reliable service to our customers.”

New-Generation TGRs provide subtle, uniform regulation. To the untrained eye, differences between treated and untreated trees are barely noticeable. But people who know a tree has been treated with TGRs may notice denser, darker-green leaves. Less trimming may also cause the tree to look thicker and healthier, which research indicates may be true.

In extensive trials, visual evidence shows TGRs help trees hold up better under water and disease stress conditions than untreated trees. Forestry Specialist James Watkins at Carolina Power & Light Company supports this.

“We’re on a year-and-a-half trim cycle in our historical urban areas. Because live oaks have such sentimental value to our residents, we want to protect them. Constant trimming can make them susceptible to disease and damage. TGRs will help manage the oaks and, hopefully, save these important trees,” he says.

Not only do TGRs help foresters manage troubled trees, the New-Generation technology also results in little concern for tree injury. Research shows that with implant technology, most drilled holes close and compartmentalize within one season for most tree species.

However, some still question the impact of drilling holes in a tree. Dick Wells, TGR consultant

TGR-treated trees have an increased root-to-shoot ratio.

TGRs can improve your system by completing the attached reply card, calling the 1-800 number listed on the last page of this article, or by contacting your local DowElanco representative. You’ll get the answers you need to help you make the TGR decision.

“Our research has shown Profile 2SC can improve root development and tree health.”

system must be able to fully support the crown in order for a tree to remain healthy,” Watson says.

During a presentation at the 70th International Society of Arboriculture Conference, Watson told the group of gathered arborists, “Our research has shown that Profile 2SC tree-growth regulator is something that can improve root development and tree health.”

Tree health isn’t the only benefit from New-Generation TGRs according to Dr. Tim Davis who sees Cutless as a new and useful TGR formulation. “This technology is easy to introduce on a system, and it appears promising for utilities,” he adds.

Dr. William Chaney from Purdue University agrees: “I’ve seen tremendous progress in application methods, formulations, dose rates, and the understanding of tree response to treatment with TGRs since I began research on these compounds in the early 1980s. TGRs have a bright future as a tool for the electric utility industry in its tree maintenance program.”

TGR technology has attracted the attention of top-researchers across the country. While it’s already known that tree-growth regulators help trees stay out of powerlines, continuing research can shed light on the other benefits of TGRs.

COMPARTMENTALIZATION IN AN IMPLANT-TREATED MAPLE.
causes a reliability problem. We expect TGRs will hold the trees until their next trim cycle in order to reduce these reactive expenses,” he adds.

**Reactive trimming.** Paul Hurysz spends 15 percent of his budget on reactive costs. And DowElanco TGR Specialist Pete Rausch knows Houston Lighting & Power Company isn’t alone, “TGRs reduce reactive trimming and associated costs, which can run as high as 20 percent of a utility’s total line-clearance budget.”

**Slower-growing trees.** Like many utilities, Pennsylvania Electric Company (Penelec) initially targeted only its fast-growing urban trees like silver maples, willows and sycamores. But positive results encouraged the utility to extend TGRs to slower-growing trees.

“By using them on Norway maples, we can save on future trimming costs and extend the cycle further,” says regional forester Delbert Somerville explaining that Norway maples on Penelec’s circuits have a seven-year trim cycle with a mid-trim during the fourth year. Since treating these slower-growing trees with TGRs, Somerville finds that either minimal or no trimming occurs during the fourth year, which saves time and labor expenses.

Focus-group research conducted by DowElanco confirms Ross’ findings: Homeowners like the fact that TGRs reduce the amount of trimming needed in the future. Research also supports landowner interest in fewer property visits by crews as a result of TGR use. But Duke Power didn’t need research to know its customers were happy with TGRs.

Lost summer Duke Power received TGR media exposure in 17 area newspapers, including a paragraph in USA Today and a mention on local television news. Angela Ballard, company spokesperson, relates customer response in the utility’s 20,000-square mile media coverage area, “We’ve
DowElanco is committed to the advancement of tree-growth regulator (TGR) products. In fact, its New-Generation TGRs are the only ones commercially available in the utility market. Profile* 2SC tree-growth regulator and Cutless* tree implants can increase productivity and cost effectiveness. Each controls tree growth for two to eight years, depending on species and other environmental conditions.

**PROFILE 2SC**

Profile 2SC tree-growth regulator is DowElanco's soil-applied TGR that is easy to use and results in little concern for physical tree injury. Profile 2SC contains the active ingredient paclobutrazol. The water-based carrier in Profile helps ensure subtle, uniform regulation.

Applicators find Profile easy to mix and quick to apply. The soil injection and basal drench methods also offer year-round application opportunities, something the industry appreciates. “Soil application is what we've been looking for from day one. Everybody wanted the technology and now we have it,” notes Dick Wells, TGR consultant, retired system forester with PECO Energy Co.

**SUMMARY**

- Soil-applied TGR allows for two options
- Easy-to-mix and apply
- Quick applications
- Little concern for physical tree injury
- Allows for year-round application
- Subtle and uniform regulation

**CUTLESS TREE IMPLANTS**

The Cutless tree implant is DowElanco’s easiest-to-use TGR that provides negligible impact on the tree. The advantage: Cutless requires very limited equipment. A drill, water bottle and implant is all you need.

Another benefit of this TGR is nearly year-round productivity for crews. With its active ingredient - flurprimidol, Cutless can provide subtle and uniform regulation with minimum impact on the tree. "Cutless is our product of choice. It's very clean, very quick and appears to be, so far, cost effective," says George Geissler, system forester at Public Service of Oklahoma.

**SUMMARY**

- Trunk-applied TGR (closed system)
- Easiest to use
- Negligible impact on the tree
- Requires limited equipment
- Allows for nearly year-round application
- Subtle and uniform regulation

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