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Well folks, you’re it. I’ve been at a meeting that I refuse to miss annually for my profession. It has components of rejuvenation, leadership skills building, provocative speakers that force you to reach further into the future and deeper into yourselves than any mound of e-mails and phone calls can possibly allow you to do at home.

What I’m fired up about this month is the concept of telling your story. We tell all kinds of stories in our daily lives. At a family reunion stories are passed down in traditional oral storytelling mode. They have the quality of familiarity – a few groans might be brought on from the over-telling – but they create in us an identity of who our family is. They provide context, and history, and if we really look closely, they can tell us a lot about where our family is going. They provide security for our young family members – a foundation for them to spring from. And then there is also the element of myth. We do create great mythologies around who we are as individuals, where our place is in the family, and what the epic story says of our family’s contributions to life in our microcosm of experience – and in some cases in the greater community’s experience. And we repeat them over and over and over again. The ritual adds comfort and instills in us a sense of continuity in our lives.

The most important thing that I learned was that in writing the next chapter of your story, those who have lived the story to date can feel as if their past was not honorable. Those are some incredibly strong words, and they hit me like a ton of bricks. If telling our story does not include honoring our past as we build the future, we can send a message that is truly unintended and very disenfranchising for those who gave us the gift of now. None of us would ever want those who came before us, and particularly those who are still with us, to perceive anything but gratefulness, gratitude and thanks for all the care, time and energy that has allowed us to be where we are today.

This concept of storytelling is compelling in terms of sharing a company’s story. Take a moment to listen to what story is being told at your company. What have you passed on? What is it saying about the past? What new story are you writing together? Does everyone tell the same story?

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Mark Chisholm is lowered into position to make the final cut. Note that the limb has already been secured to the second crane.
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This article was written in cooperation with the New Jersey Committee for the Advancement of Arboriculture (NJ-CAA) and is intended for arborists wishing to expand their working knowledge in the field of professional tree care. This tree crane information is consistent with ANSI Z133.1 arborist safety standards and is presented in conjunction with the New Jersey Certified Tree Experts. It is meant to cover some of the ANSI Z133.1 safety standard operating procedures of crane use for tree removals. It is not meant to take the place of competent safety training or be used as such. Other necessary skills such as chain saw safety, approved climbing techniques, safe machine operation and more must also be addressed before attempting to practice arboricultural tree removal. Portions of this article come from the recently released CAA video, Cranes & Modern Arboriculture, and are used with their permission.

Mark Chisholm is lowered into position to make the final cut. Note that the limb has already been secured to the second crane.

Introduction

The work of professional arborists requires a combination of technical expertise, skills learned through competent instruction, experience, and a safe, well-planned approach to every job. This article will hopefully introduce you to some methods and guidelines for safe and proper use of cranes in your next project.

No matter how similar a job may appear to previous work, no two jobs are ever quite alike. That’s because no two trees are the same; neither are their setting and surrounding areas.

Sooner or later most arborists will be called upon to tackle larger jobs requiring the use of a crane. With proper planning and an experienced team that has working knowledge of the equipment and potential hazards involved, an arborist’s job can be accomplished safely and efficiently with the help of these mighty “skyhooks.”

The person specifically responsible for the work shall authorize the use of a crane only when he/she has determined that it is the safest and most practical way to perform the work or gain access to the tree. (Z133 6.7.6.1)

Working near power lines

Operators of hoisting equipment shall be trained and shall maintain a minimum approach distance of 10 feet (3.05 meters) from energized electrical conductors in accordance with Tables 1 and 2. Non-conductive load lines may be operated within minimum approach distances set forth in Tables 1 and 2. (Z133 6.7.1)

Usually, the only logical location to place a crane is at roadside. This might mean that the boom will have to work near or over energized conductors. In order to work near or over the electric lines, the tree work must be performed by a qualified line-
clearance arborist or a qualified line-clearance arborist trainee. You must first contact and get permission from your local electric utility company. Company officials may want to de-energize the lines and get the job done relatively quickly and, more importantly, safely. Good planning, proper equipment, teamwork and communication are essential in performing each tree removal. The prime objective at all times is to maintain optimum safety for the entire crew while accomplishing the task in an efficient and professional manner.

ANSI Z-133.1 is the Accredited Standards Committee for Arboricultural Operations – Pruning, Repairing, Maintaining and Removing Trees, and Cutting Brush – Safety Requirements. Z133 is the safety standard for arboricultural operations. The Accredited Standards Committee recently revised Z133. OSHA compliance officers often reference this arborist industry standard when citing a safety violation for arboricultural operations.

Both ASC/ANSI Z-133.1, sections 5 and 6.7, as well as OSHA 1910.269 require that anyone performing tree work in proximity to electric hazards be qualified and their training be documented.

Z133 defines electric hazard to exist anytime a worker, tool, tree or any other conductive object is closer than 10 feet (3 meters) from an energized overhead conductor rated to 50 kV or less (Figure 1). The area of electric hazard expands 0.4 inch for each kilovolt above 50 kV, ultimately out to 35 feet (10 meters) for lines rated between 785 kV and 800 kV. The standard specifies that only qualified line-clearance arborists (or trainees under the supervision of qualified line-clearance arborists) can work inside of these minimum approach distances. Annex B of Z133 provides safety-training recommendations to qualify workers as line-clearance arborists. OSHA 1910.269 and ANSI Z133 ultimately operate together to direct rigorous, documented training requirements for anyone working within Z133’s minimum approach distances for energized conductors.

ANSI Z133 contains other important provisions pertaining to electric hazards. For example, it advises that there are two different types of electric contact: direct and indirect. Direct contact occurs when someone contacts an energized fixture – for instance, a child climbing a tree and grabbing a power line directly. On the other hand, indirect contact happens when an individual touches a conductive object in contact with an energized fixture. Arborists need to be aware that trees, people, various tools, fences, telecom wires, and many other objects are conductive.

A new stipulation in the latest edition of Z133 is a warning of step potential. Step potential is a hazard that can occur when electricity goes to ground (a ground fault). Remember that when electricity goes to ground, it dissipates in concentric “ripples” similar to those formed when a rock falls in calm water. As electricity dissipates, a voltage difference builds between one “ripple” and another. Step potential develops when a person standing near a ground fault with his or her feet apart straddles that voltage differen-
ence. The danger is that electricity will jump from higher to lower voltage through the body. In effect, step potential constitutes multiple contacts with an energized, conductive object - the ground. So, step potential is indirect contact with high voltage through the ground. Consequently, an arborist (or anyone else) who is merely standing near a ground fault may be injured or electrocuted by step potential, even if that person is not touching an energized object such as a tree.

Another pertinent clause in Z133 requires that anyone non-utility employee who intends to work inside minimum approach distance must notify the operating utility before beginning operation. A utility needs to know if people are working near their lines so it can take appropriate safety measures. This requirement applies only to qualified line-clearance arborists; others should not encroach upon the minimum approach distance under any circumstances.

ANSI Z133 has many other safety requirements and recommendations that cover more than just electric hazards. One requirement is a pre-work job briefing that reviews potential hazards associated with the project, including procedures, special precautions, personal protective equipment, and work assignments as well as electric hazards and other issues. Every arborist must honor the recommendations and requirements in Z133.

Plan ahead and communicate

The party responsible for the crane must be sure to inspect and maintain all wire ropes, gears, chain drives and other parts in accordance with the manufacturer's instructions and guidelines. (Z133 6.7.4)

The crane shall be supported on a firm surface and maintained in a level position. The crane operator must use shoring or other means necessary so the crane can be leveled and so the support medium does not exceed its load-bearing capacity. Outriggers shall be extended and properly set before the crane is operated. The crane operator must test the adequacy of footing and should calculate the crane's lifting capacity prior to any lifting. (Z133 6.7.6 and 6.7.7)

No matter what the location or the pick, the crane will only be as stable as the ground surrounding it. Because of this, firm and level footing must be established and maintained. The outriggers must be monitored throughout the operation for shifting or sinking. If the crane outriggers must be positioned near a foundation or other underground obstacle, a good rule of thumb is to keep at least an equal distance away from the structure as the structure is deep.

The crane operator and climber need to maintain communication with one another either directly or through an appointed signal person. (Z133 6.7.5)

Communication is essential and important to personnel safety and job progression. Ideally, headsets should be used to communicate properly and operate safely, especially with all the loud noise from the chain saws, chippers and other job operations. Everyone involved in the tree crane removal operation must be on the same frequency so they can react as quickly as possible. The crane should be equipped with a digital weight scale so the crane operator will be able to communicate through the headset what the capabilities are before the arborist makes the cut. A green log weight chart (such as the one in Z133) should be used to estimate how much the piece to be cut will weigh. Then the crane operator can take an actual weight reading so adjustments can be made accordingly.

The crane operator, the climber and all the other workers directly involved with the crane removal need to meet prior to the work to review procedures to be followed. (Z133 6.7.6.4)

Pre-job planning and advance preparation by team members will minimize the chance of any surprises along the way. By reviewing one another's responsibilities and the methods to be employed, the actual work should proceed safely and smoothly. Pre-job evaluation would confirm the decision to utilize the crane to remove these trees more safely and economically - as opposed to conventional rigging techniques.

Site preparation is instrumental in allowing the tree removal to be completed as safely and quickly as possible.

Accurate tree identification is crucial in all removal operations in order for the climber to predict tree reactions. Certain tree types require specific cutting techniques and precautions. Therefore, be sure you know the species of tree you are working on, as well as its characteristics and capabilities, so that you can safely perform the project. Like an ensemble of orchestral musicians about to perform a symphony, the players - in this case, tree care workers - must take their positions and await the signal to commence.

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slings, and other means of attachment before use. (Z133 6.7.4)

There are four main types of slings used in the industry:
- Cable (wire rope) choker
- Nylon-webbing sling, stitched "eye-and-eye"
- Nylon endless loop sling
- Dead-eye sling

The cable choker has been used through the years mainly because of its strength and longevity. It is attached easily but can be difficult to work with. It may also develop frays that can cause puncture wounds — even through a pair of gloves. This type of sling may be inappropriate for certain applications.

The most common type is a stitched, eye-and-eye nylon-webbing sling. It is attached in the same way as the wire choker but is much easier to handle. The manufacturer prints strength ratings on a permanently fastened tag. Pay careful attention to the rating associated with the manner in which it will be secured. The weak spot in this style is in the eye itself, due to the fact that there is only one layer of material in each eye.

The nylon endless loop sling is easier to work with. There are no small eyes to thread, and since there are no eyes sewn in the ends, the strength rating is nearly double that of the previous style.

The common dead-eye sling has the eye left attached to the hook of the crane and an appropriate hitch is used to connect it to the tree. It may be incorporated as an adjustable sling when a third leg is needed. This will add more control over horizontal rotations when balancing is vital. A ¾-inch sling with an exotic fiber core has a breaking strength of just under 40,000 pounds.

As the crew members initially prepare to begin the job, each one should check and double-check his equipment. There are a number of key safety considerations that must be met, especially regarding the use of a crane prior to lifting the climber into position.

Supporting a climber from a crane requires extra care and diligence, and safe operating procedures, including:
- Riding the load line of a crane while it is under load tension isn't allowed, except under very specific circumstances.
- The person specifically responsible for the work shall only allow the arborist to remain attached to the crane while it is under load when it is determined that there are no reasonable alternatives and tying into the tree would create a greater safety risk due to its hazardous condition.

Other considerations and possible alternative methods include but are not limited to:
- Securing to the tree and detaching from the crane before it comes under load
- Using an aerial lift device
- Tying into an adjacent tree
- Using a second crane for the climber

A qualified arborist may be hoisted into position using a crane, provided that he/she is tied in with an arborist climbing line and arborist saddle and secured to a designated anchor point on the boom or line. (Z133 6.7.6)

The arborist climbing line must be se-
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cured to the crane in such a way that it does not interfere with any damage prevention or warning device on the crane, and so that no part of the crane compromises the climbing line or any other component of the climbing system. (Z133 6.7.6.3)

Once the climber is tied into the crane, the crane operator can ease the strain of climbing by hoisting and positioning the climber into the tree as needed. The operator would also have the ability to lower the climber to the ground should a problem arise. The climber can assert his own degree of control by using the climbing system for positioning as well.

The lifting and supporting shall be made under controlled conditions and under the direction of the chief arborist or an appointed signal person. (Z133 6.7.6.8)

The first limbs the climber should remove are those that may interfere with the crane’s movement or restrict visibility. A standard face and back cut may be used for more horizontal portions. This will allow for a gradual loading of the cable when the proper cut and tension are matched. Branches may shear off when they come into contact with the boom or neighboring trees. This is one reason no one should be in the drop zone until the load is on the ground.

The crane operator needs to be familiar with the potential hazards and operational techniques encountered in tree work. He has to remain at the controls and attentive to what’s happening in the air while a load is suspended.

The climber should strive to attach the tree section in a manner that would allow as little movement as possible when detached. Dynamic loading must be avoided at all costs. That is why one should never attempt to attach a piece that is out of reach for the crane or above the hook height. A sudden jolt could spell catastrophe for all involved. Instead, try using other techniques like rigging the piece into the tree with a rigging line first and then attaching it to the crane.

Just because it is a crane removal doesn’t mean that a rope should not be hung in the tree for lowering smaller pieces or to transfer the load in the event of an emergency. Also, don’t hesitate to reposition the crane if necessary.
The crane boom and load line must be moved in a slow, controlled cautious manner with no sudden movements when the arborist is attached. The lifting or lowering speed shall not exceed 100 ft./minute. The crane shall be operated so that lowering is power controlled. The crane carrier cannot travel at any time while the arborist is attached. (Z133 6.7.6.10 and 11)

The operator should pre-tension the sling to the approximate weight of the load itself before the cut is made. He can then be sure that the sling or slings are set and that shock loading will be minimized. It is important to understand that the pulling power of even a small crane can easily tear a sling apart if too much tension is applied. The tree itself can also be fractured before the cut is made.

Depending on the type of cut and lift desired, the controller can either hold tension for the duration of the cut, as in lifting vertical sections, or release a percentage before making the final cut, as in performing a snap cut.

An overlap or snap cut can be used to help predict when a limb will be detached from the tree. The amount of overlap needed will vary depending on the type of wood fiber, height and diameter of the section as well as how close to plumb (vertical) it stands. Some climbers and operators prefer a front-to-back snap cut where the boom is raised to break the limb off, improving the boom angle while detaching the pick, thus adding boom strength or capacity simultaneously. Others favor a side-to-side snap out, making it easier to read visually.

The crew cannot use guesswork to figure the pick weight or the crane’s capacity. A boom angle indicator helps the operator calculate his lifting capacity from a particular set. The climber or someone on the crew should calculate the weight of every pick. A green log chart for estimating the weight can then be referenced to a green log chart for estimating the weight. Constant communication among the crew members and crane operators throughout the procedure ensures that every individual step in the operation is handled in a safe manner.

When it is time to remove the trunk portions, two slings of equal or similar length can be used in opposing directions, laced over opposite sides and hooked directly over the center. This will almost guarantee little or no movement when it is removed, provided the proper tension is applied.

When the climber, crane operator and crew member are all properly trained and prepared for the task at hand, the work can take on the look and feel of a well-choreographed, artistic performance.

“Cranes and Modern Arboriculture” is available on video from The New Jersey Committee for the Advancement of Arboriculture (NJ-CAA). It features two-time World Tree Climbing Champion Mark J. Chisholm. The tape illustrates safe operating procedures (SOP’s) being performed on a pair of large hazardous tree removals on the grounds of Princeton University in New Jersey. This tape costs $42. To order, contact Aspen Tree at (732) 928-5747 orvisitwww.treebuzz.com.

The NAA recently released the “Model Company Safety Program” which outlines the crane inspection guidelines required by OSHA and the ANSI Z133 standard operating procedures.

George J. Klinger is the Director of Loss Prevention with the National Insurance Programs (Tree-Pro) of New Jersey. He has over a quarter of a century of risk management/loss control expertise in the tree care industry and has been a member of ASC/ANSI Z133.1 for the last 20 years.

Mark J. Chisholm is a New Jersey certified tree expert (NJ-CTE) and an associate of ASPEN Tree Expert Company in Jackson, New Jersey. He is also a two-time World Tree Climbing Champion (1997 and 2001).
New OSHA Crane Rule Looming?

The draft of a notice of intent to convene a negotiated rulemaking committee for revision of a worker safety standard on cranes is in the approval process at the Department of Labor. There has been no estimate of when a notice on updating the standard might appear in the Federal Register. Even though promulgating a standard could take years, the tree care industry needs to be proactive to make sure its unique concerns about the use of cranes are acknowledged.

In the draft notice, OSHA describes the rulemaking project and asks for public comment on who should be considered interested stakeholders and serve on the committee to revise the rule. OSHA will also ask for nominations of committee members, and will be indicating a range of what they think is a workable size for rulemaking committee. Federal government guidelines indicate that a negotiated rulemaking committee should have no more than 25 members.

Crane Committee’s Work

An OSHA advisory work group made up of 38 crane manufacturers, rental companies, and union representatives has been discussing revisions to the standard - 29 CFR 1926 Subpart N that applies to cranes, derricks, hoists, elevators, and conveyors - for three years. The work group had made a lot of progress in coming up with recommendations.

Once the committee is formed, they would have to decide whether to use the work group’s product as a starting point.

Members of work group have already indicated they would like to be part of any negotiated rulemaking committee if OSHA decides to use that process.

As the work group stands now, there is a pretty good representation among employers, unions, and crane makers, but a negotiated rulemaking announcement would likely attract more interest groups - the tree care industry, for instance.

Just as OSHA appears ready to begin the formal process of revising the standard, the chairman of the work group is stepping down. Larry Edginton, who has led the group for three years, is taking a new job and announced he is giving up the voluntary leadership role. Committee members said Edginton, the safety and health official with the International Union of Operating Engineers, has been an effective advocate for the crane standard revision at OSHA.

The new acting chairman of the work group will be Jim Ahern, of Ahern & Associates Inc., South Charleston, W.Va.

Direct Final Rule Not Favored

When the group began meeting, several members suggested that OSHA simply use the direct final rule process to reference the latest version of the American National Standards Institute (ANSI) and the American Society of Mechanical Engineers (ASME) B30.5 standard—Safety Code for Crawler, Locomotive and Truck Cranes. The current OSHA rule references a 1968 version of that voluntary standard.

The agency’s attorneys have resisted the idea of a direct final rule, and the members do not have the legal expertise to argue that point. Also, members of the work group believe that OSHA officials are prejudiced against consensus standards developed by ANSI committees, believing that they are controlled by industry.

OSHA has a different perspective on why the direct final rule process would not work for the crane standard. They feel that the process only works for standards that are truly non-controversial. If an adverse comment is introduced, then the procedure cannot go forward. Also, there cannot be a significant economic impact for employers in a direct final rule. In the course of updating a rule, parts of which date from the late 1950s, it is highly likely that this would pose another significant obstacle. Due to the way economic impacts are calculated, even a relatively small cost item can be deemed significant once it has been multiplied by the number of employers, cranes, or construction sites it affects across the country.

Why Revise?

The crane industry has been seeking a revision of the standard for several years since the existing standard is out of date. The standard was originally promulgated in 1979. The most recent revisions were in 1996.

The voluntary consensus standards on cranes are updated much more frequently. ANSI/ASME published a revision in 2000.

From the tree care industry’s perspective, revision to the standard could represent a considerable improvement, as long as the revision addresses the work practices that are both unique to the industry and fundamental to the way it employs cranes in tree work.

OSHA’s rule is so old that, at this point, most regulated parties would welcome a new rule.

But it seems that OSHA officials do not relish the idea of another negotiated rulemaking effort.

OSHA’s most recent experience with using negotiated rulemaking to create a construction safety standard was steel erection. The process from creation of the committee to an enforceable rule took seven years, and still faces a possible court challenge. Promulgating the standard that regulates the utility line clearance industry took over 10 years.

Peter Gerstenberger is vice president of business management, safety & education for the National Arborist Association.
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How the Family Tree Grows

By Ariana Zora Ziminsky

Most people working in the tree care industry will agree – this type of work runs in your blood. You live it every day, even if you aren’t technically on the job. Those who own their own tree care businesses know the work comes home with you and is evidenced by aerial lifts in your front lawn and dump trucks in the driveway.

As many people find, when work and life blend together so seamlessly, it is only natural that the next generation follows in the footsteps of their parents, grandparents, and maybe even great-grandparents. After all, how can you avoid climbing and pruning as a teenager when your pop had you sitting in a saddle before you were even out of diapers?

Family tree care businesses make up the majority of industry firms. Each all-in-the-family company has its own way of running its operation, but there are critical ingredients for decades of proud family work that will remain for generations more.

The key to a successful family business lies in the details. Here, several family tree care business share their stories and describe how they “grew up” to become the successes they are today.

Starting small, and building to success

There is one thing all these tree care companies have in common – they all started out small. Really small, sometimes. Edwin Butcher, founder of what is today Ohio’s successful Madison Tree Service, began his business March 23, 1946 – “The day he got married,” daughter Rusty Girouard proudly recalls.

“He took his crosscut saw, saddle and rope,” and hopped on a trolley to the work site each day, Rusty recounts. For several years, the small business ran out of the family’s basement. Trucks and equipment were parked in the yard, and Rusty admits among her earliest memories are visions of a spray truck in the driveway and trucks parked across the street.

Today, Madison Tree Service has 35 employees – six of which are family members.

The success story of Ira Wickes/Arborists had humble beginnings in Depression-era New York City. Ira Wickes Sr. planted the seeds of his family tree business in 1929, tackling work with little more than “a Model T and a handsaw,” Ira’s grandson, John M. Wickes, says today. Ira teamed up with is wife, Helen, for the family business that began in the suburbs, catering to upper-class Tuxedo Park.

These days, with 30 seasonal employees, Ira Wickes/Arborists is still advertising for qualified employees to help handle the company’s very busy workload.

Likewise, Bruce Walgren Jr. of Walgren Tree Experts in Connecticut knows his grandfather, Paul Walgren Sr., started his business single-handedly in 1926. It was a one-man operation at first, run out of the family kitchen. Eventually, Bruce’s father (Bruce Sr.) and Bruce’s uncle (Paul Jr.), took over the business from Paul Sr and expanded it into two separate divisions, one of which was sold about 10 years ago. The remaining business serves more than 9,000 clients in Hartford and has 25 employees.

In addition, a stern Jacob Wolf set the stage in 1920s for decades of his hardworking, successful family business, Wolf Tree Experts, Inc., in Knoxville, Tenn. Known for a rock-solid work ethic and little tolerance for slacking, he and his family created a business that grew from fewer than a dozen employees in the 1950s to more than 500 in 2002.

Today, Jacob’s grandson, Tom Wolf, recalls the high standards his grandfather set for employees. “(Jacob) expected a lot,” even of his family members. “If you could pass his tests and cut the mustard,” Tom says, “you were in!”

How they grew

As these small-but-secure firms grew in size, so did their families. Eventually, as the owner’s children got old enough, they generally tended to lend a hand, “helping out” in the field or lending a hand with the spray hoses.

“I don’t think at that time (as a child working for my dad’s business) there was any intent to run our own business,” Edwin Butcher’s son Jack says today. “It was just something that dad said I would do, and I did. You were there, you were a male, you worked.” Expectations were simple for the three Butcher boys. Jack, John and Richard: “You did what they asked you to do, and if you didn’t do it, they’d let you know you weren’t doing what you were supposed to do,” says Jack.

Bruce Walgren Jr. followed in his father’s and grandfather’s footsteps after growing up around the family tree care business. As Bruce says, “I didn’t know what else to do.” So he attended UMass-Amherst, got his bachelor of science, “and came back to work with my grandfather, my father and my uncle.”

Ira Wickes Jr., having already followed in his father’s footsteps, was a little clever in coaxing his son John to gradually step in and work for the family firm, along with John’s brother, Jim. In 1983, John graduated from college with a degree in psychology, and started working with his brother and father to “kind of get direction... while going on job interviews” for work in the field of sales and marketing.

Ira Jr. told his son he would teach him how to sell for his company, and before John knew it, “one thing led to another, and I said, ‘This isn’t so bad,’” he recalls. “And I’ve been doing it for 20 years.”

So what did these folks do right that made their businesses a success?

They have a plan

The biggest mistake a family business can make is “the failure to plan for change,” says Mike Henning, family business advisor and a fellow at the Family Firm Institute.

Ideally, family businesses of all sizes
should get together on a regular basis to discuss current issues and plan for the future. "Take time to plan as a family with regard to its relationship to the business," Henning advises. "We see that those who do business planning... based on how the family impacts the business and vice versa, and creating some type of accountability factor" are the ones who are most successful.

It is easy to look back now and see that these companies were successful in their handoff from generation to generation. They doubled in size from one generation to the next, and are still going strong today. Henning knows that it takes a lot of planning and behind-the-scenes work to keep these businesses successful through the years.

"Going from the first to second generation, we have about 60 percent failure rate," according to a study cited by Henning in which a "generation" is defined by 25 years. "From second to third generation - at the end of the 50-year time period - we have 85 percent failure rate. Only 15 percent make it. And then in the next generation - moving up to 75 years - slightly less than 1 percent succeed."

They key to being part of the successful 1 percent, Henning says, is planning and accountability.

"It seems like those that are more the cream of the crop - or in the top 15 or 20 percent in their industry in the country - these are the people that take time to plan," Henning emphasizes.

John Wickes, grandson of Ira Wickes Sr., swears by the plan he and his siblings worked out as their father, Ira Wickes Jr., handed off the business. "When we took over the business in 1988, we had a board of directors that consisted of my father, an attorney, an accountant, and a consultant," John Wickes explains, "and we came up with a plan to transfer the business and divide up the responsibilities. We purchased life insurance on each one of us. We had a buy/sell agreement. We had a strategic plan."

Although the plan has had modifications along the way - for example, accounting for sister Jeri and her children worked out as their father, Ira Wickes Jr., handed off the business. "When we took over the business in 1988, we had a board of directors that consisted of my father, an attorney, an accountant, and a consultant," John Wickes explains, "and we came up with a plan to transfer the business and divide up the responsibilities. We purchased life insurance on each one of us. We had a buy/sell agreement. We had a strategic plan."

The Butcher children created their own plan through the years, and had it set by the time their father retired. In the mid-80s, the four "kids" realized it was about time to plan how the business would pass to them. They looked around and figured, "Who fits best into which role?" and built from that base, careful to leave room for aunts, uncles, cousins, in-laws, and other family members who wanted jobs in the company.

"We tried to fit the jobs that they were in to their personalities and their talent," Rusty points out. Ultimately, the Butchers set up a corporation and divided it into shares. They established life insurance and planned for things such as retirement.

Tom Wolf and his three brothers - all owners in the business - started weekly management team meetings "when it became real evident that the second generation would retire, and we thought it would be helpful for us to sit down together once a week."

There they discuss growth plans, employee issues, day-to-day operations and anything else that might come up. In addition, once a year, they take a two-day retreat - recently with professional business advisors in attendance - to plan the direction the business will take for the upcoming year, and beyond.

"We try to operate more like a business than just a family," he says. If your company is without a plan, how-
ever, you are not alone. According to a Mass Mutual / Arthur Anderson study, only 34 percent of family companies do business strategic planning. These families instead are more focused on the competition. “They feel like if they just work harder, they’ll beat the competition,” remarks Henning. “Well, that doesn’t work. You’ve got to work harder and smarter. You need to plan.”

“You have to think along the terms of not so much ‘Me, me me and what do I have to get out of this,’ ” he continues. Rather, “the people who are successful long-term think more along the lines of stewardship. They want to build the company and make it bigger and better and stronger. They will take what they need conservatively from the business, move to members of the next generation having already set the pattern, and hoping they will do the same.”

**Even with a plan, there are obstacles**

The best of plans can’t solve everything. One bone of contention that seems to come up among family business owners is inequality among the work performances of different owners and/or family employees. And keep in mind, an owner and an employee can be two different job descriptions.

“The person who is not pulling his weight, 99 times out of a 100, they know they’re not,” Henning says. “And generally, they’re dissatisfied.”

It is an issue that needs to be addressed. Henning recommends that the family work with the employee or owner who is not giving 100 percent, and encourage that person to seek guidance from a career professional. He also recommends that every position have a written job description, written goals, and accountability that goes beyond just what mom or dad says.

When approaching the situation, “take it from a positive position,” Henning encourages. “Most of them are pretty darn gung-ho and are really trying. Unless there’s something else wrong. Maybe they’d just rather do something else.”

The key is to identify the issues the family member is struggling with, and to find the best solution for that person. Often, the answer lies outside of the family business.

“Career testing can give them a positive way to go forward.” Henning suggests. “We’re not trying to get rid of them from the family. We’re just trying to help them so they can have a meaningful career.”

**Trust, Commitment and Teamwork**

The foundation of a solid family business comes down to a few words: trust, commitment and teamwork.

Trust is formed when the earlier generation trusts the next generation to run the business.

“You have to let the next generation know that it’s OK to make a mistake,” Henning explains. “You are going to make mistakes just like the previous generation did when they started the business.”

Allowing for mistakes means the business can be open to new ideas, new growth, new challenges and new success.

“Many family business owners are very conservative, very content with what they have done,” Henning notes, “but, with that, they are professing a culture of. ‘You kids, you grow up, you take care of this business, you do as we’ve done. We’ve been successful. You do as we do.’ And they don’t allow the next generation to make a mistake.”

If the next generation can’t take chances, then the company is likely doomed to become stale and perhaps get overrun by the competition, Henning says.

Sometimes, though, it can be difficult for the founder of a company to hand the reins over to his or her children. Rusty recalls that it was hard for her father to allow his children to step in and take over. “He didn’t want to give up control,” she recalls. “He doesn’t like conflict, so he would just ignore the issue. He was happy to have us take over those problems, as long as he was part of the business.”

Tom at Wolf Tree Experts notes that his grandfather Jacob was forced to let his children run the business in the early 1960s when he became sidelined following an accident. “They ran things while he was recuperating,” Tom recalls. After Jacob saw how competent they all were, he stepped back a little and watched them go.

This trust in the next generation is critical to the second component of success: Commitment. Henning recalls one consultation where the owners of a family business were concerned that their 35-year-old son was not totally committed to the business. At the same time, however, Henning saw “a little bit of... ‘Dad doesn’t trust the kid’s ability to run the business.’ ” The mistrust was keeping commitment at bay.

With competent family members committed to the business, there is one more important factor in success: teamwork. This can include family and non-family members, but is essential.

As the only owner running Walgren Tree Experts, Bruce Walgren relies heavily on his non-family employees to be true team workers. “I have a great group of guys working for me now,” Walgren says, “They are wonderful and have been here 10, 15 years.” They key to their success relies heavily on teamwork. His philosophy, Walgren says, is simple: “There’s no ‘I’ in ‘team.’ ”

Tom Wolf and his brothers know that teamwork – accomplished in part by their weekly management team meetings – is what makes their company a success. “We may not all agree on something, but when we come out of a meeting, we are committed to what the group decides. We feel like we’ve got to all come out being one.”

At Ira Wickes/Arborists, the family knows there is one more key element to their business surviving and thriving: Pride and tradition.

“Tradition is the heart behind the business,” John Wickes says. “The history and tradition (are) ... the reasons why we’re so successful. We’ve been in this county longer than people have lived here.”

“There’s a lot of family pride,” he emphasizes. “Absolutely.”

“Competition is rough,” Henning acknowledges. “And companies can’t get past it to realize that the core of business is people coming together – you can trust them.” It isn’t all strictly nose-to-the-grind-
Family owners of Wolf Tree Service are, back row from left, John Wolf, Tom Wolf, Paul Wolf Jr. and Mike Wolf; front row from left, David Wolf, Robert Wolf and Paul Wolf Sr.

stone business, he adds. “It’s an all for one, one for all attitude.”

“Those that capitalize on that,” he sums up, “seem to be able to last the longest – and have the most fun.”

What lies in the future?

Right now, of the 36 or so employees at Madison Tree Care, six are family members. Cousins and other relatives tend to wander in and out of the business, but not everyone is serious about taking it over. Jack’s son Jon, 22, is very enthusiastic about working for the family business, even though he admits the job wasn’t exactly thrust upon him.

“I definitely didn’t grow up like they (Jack, John, Richard and Rusty) did. I wasn’t an adult laborer, and I didn’t have the pressure to be,” Jon says. After some teenage growing pains of “not wanting to do anything every day, all the time,” the reality of the business set in, and kind of grew on him.

“You know your father is president of the company, and you know he is out there doing this stuff, so you know that things aren’t easy,” Jon says. “(So) you just go along with it. Then you start liking it. Then you try other things, and you find out that you don’t like those other things.”

Jon, however, isn’t the only one intent on coming into the business. Two more of Jack’s sons, Matthew and Jason, 24-year-old twins, are already crew leaders at Madison.

Owner Bruce Walgren finds that mapping out the exact future of his company is a little daunting. “I have a hard enough time worrying about today, rather than the future,” he admits. Working on his own as 100 percent owner, all the responsibility falls on his lap. Well aware of all that is involved in running the business – especially with rising insurance rates, countless regulations, and a seven-day workweek – he isn’t sure he wants to pass the headaches on to his daughters, who right now are teenagers.

Bruce’s sister, Debi Walgren, who works in the insect and disease control portion of the company, has two young boys who could be potential business owners, but right now, it is too early to tell if they even have an interest in the industry.

Similarly, Tom Wolf isn’t sure if the next generation will be there to pick up where he and his brothers leave off. “To be honest with you, there aren’t any young males coming along at this point,” Tom says. His two daughters, ages 12 and 15, are still a bit young to be helping out in the summertime, so they haven’t been able to experience the flavor of the work.

John Wickes, too, knows it is too soon to tell whether the children in his family will take to the business. When the time comes for them to decide, however, John knows that the choice is “up to them. I’m not going to make that decision for them.” And no matter what they decide, the Wickes family will support their next generation.
The Care of Trees recently announced that Mike Cook has been named national vice president of sales, a newly created position within the company.

Since 1990, when Cook started with The Care of Trees, he has held many positions, including director of safety, utility manager and district manager. He began his career with the state of New York in the Bureau of Pesticides, where he learned about the field of arboriculture and The Care of Trees, and decided to pursue a career in the field of tree care.

Cook is certified by the International Society of Arboriculture and is affiliated with the Metropolitan Golf Course Superintendents Association, Golf Course Superintendents Association of America and the Westchester County Cornell Cooperative Extension.

Cook graduated from State University of New York with a bachelor of science in forestry resource management. During college, he worked at West Point as a forest technician. He grew up in Westchester County, N.Y., and still resides there with his wife, Lisa, and two daughters, Courtney and Julia. “My goals are to increase national sales, and to have fun while we’re doing it,” says Cook.

The Care of Trees President Scott Jamieson said, “With his many years of experience and proven sales performance, Mike is the ideal person to be the first-ever national vice president of sales for The Care of Trees.”

Call backs
A printing error resulted in the incorrect captions appearing next to some photos in the April 2002 issue of TCI. The photos appear again here, with the correct captions:

At left: You can’t wear just any clothes when chain saws and other potentially dangerous equipment come into play. Tim is sure to keep safety his top priority in his spruce green poplin industrial shirt from Dickies and MillWorks chain saw pants. At right: Karen stretches after a long day’s work. She has been able to keep things “light” with rugged lightweight Arborwear pants, while she miraculously keeps things “white" with the washed flannel-lined jacket from Dickies.

Kelly takes off her forest green hat and relaxes in her Dickies performance nylon jacket, green Arborwear belt and Carhartt midnight blue canvas utility pants.
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TREES CARE INDUSTRY - MAY 2002
Last month, I discussed how in settling and building this nation our forefathers reduced the eastern forests from an original cover of around 95 percent of the land to a low of 20 percent in 1910. This horrendous destruction of habitat, mostly to make way for farms, took a dramatic toll on our wildlife. The good news is that during the past 100 years we have learned how resilient our land is and how successful our conservation work has been as a result. Forests now shade 53 percent of the East and 33 percent of the entire United States (up from a national low of 20 percent in 1920). With this improvement in habitat, wildlife is rebounding in the East as well. Virtually every state east of the Mississippi River has far more forestland and wildlife today than in 1950— even though we continue to harvest timber for our many wood product needs. In addition, urban areas have grown outward into what had formerly been farmland. In this article, I’ll explain how this progress was accomplished.

Imaginative, influential people gradually began to realize that the horrible destruction of forests and habitat they were witnessing could not continue. It was clear that unless something was done fairly quickly, their children probably would have no trees to use and enjoy. For example, a mountain called Timber Butte was clear-cut in the late 1800s to supply the props and shoring for the many copper mines around Butte, Mont., and it still has not been reforested. Timber famines were forecast by almost everyone.

A wise man once advised that the best time to plant a tree is 20 years ago. J. Sterling Morton, a newspaper publisher in Nebraska City, Neb., certainly felt that way. In 1872 he convinced his state legislature to designate Arbor Day as an annual tree planting celebration. Thousands of schoolchildren have planted many thousands of trees each year since then across the nation.

In 1875, a Cincinnati physician, Dr. John Aston Warder, formed the American Forestry Association (now called American Forests), our nation’s oldest conservation organization. He and the AFA worked closely with the American Association for the Advancement of Science to have Dr. Franklin B. Hough, also a physician, appointed by Congress in 1876 as Federal Forest Agent and funded with $2,000. This was the forerunner of the U.S. Forest Service. In 1882, Warder and other conservationists conducted the very well attended First American Forestry Congress at Cincinnati’s Music Hall. Many plans were formulated about the proper directions and actions the new conservation movement should take. An excellent description of our nation’s first conservation meeting can be found beginning on page 27 of the October 1982 edition of American Forests Magazine.

One major outcome of this meeting was that Morton’s Arbor Day went national after thousands of Cincinnati schoolchildren and residents, along with Forestry Congress delegates from across the country, planted many trees in an abandoned grape arbor that is today Cincinnati’s beloved Eden Park.

In 1885, state officials in New York created the huge Adirondack Forest Reserve...
and a commission to protect and manage it. In the same year, California, Colorado and Ohio established state boards of forestry. More importantly, in 1886 Dr. Bernhard E. Fernow, trained in forestry in Germany, was appointed as chief of the U.S. Division of Forestry and rapidly conducted research with several states that led to the genesis of the National Forest System.

In 1886, Dr. Bernhard E. Fernow, trained in forestry in Germany, was appointed as chief of the U.S. Division of Forestry and rapidly conducted research with several states that led to the genesis of the National Forest System.

In 1891, Congress authorized withdrawing from the public domain Forest Reserves that by 1897 totaled 38.3 million acres. That year, responding to hard work by AFA and the Boone and Crockett Club, Congress passed the Organic Act to assure proper care, protection and management of western public forests in a successful attempt to protect them from the unbridled despoliation that was sweeping through the eastern forests. Its stated purpose was to preserve clean water flow from the forests and to provide "a continuous supply of timber for the use and necessities of citizens of the United States."

Gifford Pinchot, America's first native-born professional forester, took over the leadership of the U.S. Division of Forestry in 1893, and helped form the Society of American Foresters in 1900. In 1905, he worked closely with the AFA and Congress to establish the U.S. Forest Service in the Department of Agriculture to manage our National Forests under the provisions of the Organic Act.

From 1901 through 1909, Pinchot, worked closely with President Teddy Roosevelt to add more than 148 million acres of western public domain lands to the National Forest System. Pinchot practiced all his life what he believed and wrote, "Conservation means the wise use of the Earth and its resources."

In 1710, the first community forest in the United States was established at Newington, N.H., and has yielded continuing community benefits, such as lumber for schools and churches, for more than two centuries. In 1760, another of America's earliest community forests was created at Danville, N.H. In 1781, Essex Junction, Vt., planted thousands of trees to protect the watershed feeding the town's reservoir.

Although for many years city trees had been protected by tree wardens in several New England towns, formal urban tree care began in the late 1800s when Massachusetts, Pennsylvania, New Jersey and New York passed enabling laws. Other eastern states soon followed.

The Trees and Parks Division of Washington, D.C., was organized in 1872, and by 1909 had planted 95,000 trees and initiated a program to care for them. Around 1880, Kent, Ohio, resident John Davey began preaching across the nation about how to properly care for yard, park and street trees, because he had seen such abuse during his local travels when compared to tree care in his native country, England. His book, The Tree Doctor, published in 1901, became an instant best seller in Ohio and led to the 1909 incorporation of his already very successful Davey Tree Expert
President Theodore Roosevelt and Forester Gifford Pinchot are shown here on a 1907 excursion of the Inland Waterways Commission on the Mississippi River. The duo collaborated to establish a vast national forest system and to bring it under management.

The F.A. Bartlett Tree Expert Company was founded by in 1907 to supply services to the southern Connecticut, Westchester County and Long Island, N.Y., areas.

In 1902 the Minnesota Forest Reserve was established and became the first forest reserve created by an Act of Congress rather than Presidential Proclamation. Professional forestry schools began at Cornell in 1898, Yale in 1900, and Michigan Agriculture College in 1902. Thanks to J. Sterling Morton's dedicated work in Nebraska to plant thousands of trees in the Sandhill Counties, by 1903 his state had a large, highly productive seedling nursery in Halsey, Neb. – a model other states soon followed. That same year also saw the founding of the Ohio Forestry Association as a non-profit organization to encourage unified forest conservation.

Essential forest research began to receive national recognition when the first forest experimentation station was created in Arizona in 1908. It was soon followed by similar facilities in Colorado, Idaho, Washington and Utah. In 1910, The U.S. Forest Service opened its Forest Products Laboratory in Madison, Wis. In 1911, the federal government also began close cooperation with the states in forest fire protection and prevention.

The year 1911 clearly separated the western forests from our eastern abused lands when Congress passed the Weeks Act. In addition to providing matching funds to states for forest fire protection, this extremely important law set the stage for the U.S. Forest Service to begin reforesting cut over, burned down, farmed out, highly eroded and often tax delinquent private land – mostly east of the Mississippi River where no untouched public domain land remained. The Weeks Act authorized purchasing, rather than setting aside, land for National Forests to protect watersheds. One of the first purchases of private property under the Weeks Act was in the mountains of North Carolina, which became part of the Pisgah National Forest. Since then, all of our almost 50 eastern National Forests – including the Wayne in Ohio, the Hoosier in Indiana, and the Daniel Boone in Kentucky – were purchased in horribly abused condition. The Forest Service then began to enhance them dramatically through the use of scientifically proper

President Theodore Roosevelt and Forester Gifford Pinchot are shown here on a 1907 excursion of the Inland Waterways Commission on the Mississippi River. The duo collaborated to establish a vast national forest system and to bring it under management.
fire protection, insect and disease control, tree planting, and timber harvesting techniques. Today many of these national forests are the most improved, productive, and beautiful lands in their respective states. They are so aesthetically pleasing, in fact, that well-meaning people who do not know about this history of abuse, use and rejuvenation now want to "save" the trees by stopping many of those same practices that restored our land and could continue to improve it.

During this same period, most states, if not all, followed the national forest example by purchasing, enhancing and protecting state forests and watersheds. Often these state forests are close to the national forests and are protected and managed cooperatively with the U.S. Forest Service. They, too, are some of the most beautiful lands in their states.

Much of the reforestation was accomplished by a virtual army of tree planters that fanned out from CCC camps in the 1930s to help reforest the land. Together, they planted billions of seedlings. Also contributing is the American Tree Farm Program, which was started in 1947 by the forest industry. It still provides education, incentives, and recognition to 65,000 owners of 25 million acres who follow professionally written forest management plans to improve their forests. Remember, 80 percent of our forestlands are privately owned.

During the same time that this rejuvenation of our forests was taking place, similar accomplishments were being made in the soil conservation, agriculture production, and wildlife management fields. Each has its own fascinating history. These specialties all worked hand in hand to improve our environment dramatically over what it was just 50 years ago. Following the dust bowl of the 1930s, the efforts to protect and build soil took off with the Federal Soil Conservation Service and similar state agencies that teach farmers about contour plowing, rotating crops, cover cropping, minimum tilling and grassing waterways to reduce wind and water erosion.

In the mid-1940s, the first county Soil and Water Conservation Districts were formed to provide local conservation leadership. Almost every county in the nation now has an SWCD, each of which is funded 50/50 by the county and state. Each is also provided technical help by the USDA Natural Resources Conservation Service (formerly the SCS), and is governed by a locally elected board of volunteer supervisors.
Reforestation plans helped restore such national treasures as the Pisgah National Forest in North Carolina.

For each county, available from the local SWCD office, is a very valuable guide to what each of the many local soils is capable of doing without extra engineering and cost. If you plan to purchase land or are hired to add something to the land, check out the soil survey first.

In the early to mid-1900s, when mechanized equipment rapidly replaced animal power, farms became more efficient because farmers dedicated less land to growing animal feed. Modern pesticides and fertilizers were improved and became more widely used. Then assistance in the form of Ag Extension agents, SWCDs, and representatives from equipment, fertilizer and chemical companies helped farmers produce greater yields per acre. That is why we can lose some farmland to roads, houses, shopping centers - and splendid county park systems - without going hungry. And that's why most of the remaining small farmers can also put some of their acres into conservation easements, riparian buffers and wildlife habitat.

With leaders such as Aldo Leopold, a forester turned wildlife management pioneer and writer, the profession of wildlife management brought many species of animals back as the habitat improved in the East. Over $10 billion of this work has been funded since the mid-30s by an excise tax on firearms, ammunition, and other hunting supplies. Following hard work by hunting groups such as the National Rifle Association, Izaak Walton League and Ducks Unlimited, Congress in 1937 passed the Federal Aid in Wildlife Restoration Act (commonly called the Pittman-Robertson or P-R Act) that levies an 11 percent tax on hunting supplies. This program is administered by the U.S. Fish and Wildlife Service and provides states with a reimbursement of $3 for every $4 the state spends on wildlife habitat restoration, wildlife biologists, hunter education and safety, research, and surveys. It was (and still is!) so successful that in 1950 Congress passed the Federal Aid in Sport Fish Restoration Act (commonly called the Dingell-Johnson or D-J Act) that did much the same thing for the restoration of fish and their habitat. This tax ultimately brings in much more money than the P-R funds since a motorboat costs more than a shotgun.

Because of all this hard, smart work and the resiliency of our land, we now have a far better environment, more forests and wildlife, cleaner water and far less soil erosion east of the Mississippi River than we did 50 years ago. The quality of this land is far better than it was in 1900, too. Just as important, our original western forests have not been destroyed as those in the East were.

Although we made so much progress in the 20th century restoring our eastern land, we should not rest on our laurels. We need to continue celebrating Arbor Day and making sure our children do, too. We must continue to practice good urban tree care. We need to practice conservation on the back 40 and encourage our neighbors to do likewise. And, we need to seriously consider some of the proposals of the smart growth and farmland preservation folks because pretty soon urban growth into the suburbs could begin to threaten environmental improvements. Knowing the history of our forests can help you challenge untrue, emotional statements with facts to help continue the rejuvenation and progress.

A book summarizing the changes in our forests, "American Forests - A History of Resiliency and Recovery," by Douglas W. Mac Cleery, is available for under $10 from the Forest History Society at (919) 682-9319. Steve Sandfort is Cincinnati City Forester and Supervisor, Hamilton County Soil and Water Conservation District.
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A friend, "Mark," just related a story that highlights a tremendous mistake many people make when leading and managing employees. Mark’s previous boss had just talked with his current boss and he had raved about how great Mark was doing and that Mark was exceeding all his expectations.

In a subsequent conversation, Mark was told about this by his previous boss. When hearing this comment he responded by saying, "That’s a surprise. My current boss has never told me that he is pleased with my performance. He has been supportive and helpful and even talked about the great results the organization has achieved, but never told me that I was doing well or that he was even pleased with what I had done. As a matter of fact, I can’t remember him ever telling me how he felt about how I was doing in the entire nine months I have been in this job." Does this sound familiar?

This situation points out a key failing of many managers and leaders. Many believe that effective, highly motivated individuals don’t need reinforcement or praise. Some mistakenly feel that to get the best from employees, they need to be constantly challenged or pushed rather than given compliments to reach their full potential. While some high performers may be their own greatest critics and continually strive to achieve new heights, they, like everyone, need positive reinforcement and recognition from superiors.

Recognizing and acknowledging what someone does well doesn’t lessen their motivation or cause them to become content with their current performance level. In most cases, it actually increases the individual’s desire to excel. Ask yourself when you have praised the positive performance of the high performers you work with. When have you seen others praise positive performance? Remember, positive performance is what you want to see continue and therefore must be reinforced. It doesn’t have to be just the few fantastic things that occur, but it can be one of the many things employees do on a smaller scale and on a routine basis.

A key leadership principle that I stress in workshops and publications is “performance should never be a surprise to an individual.” The high performers are not the only ones who need candid, accurate, and detailed performance feedback. If an individual is performing poorly, he or she should know this, know what must be done to correct it, and how long he or she has to resolve or correct the problem. Problem performers must have the need for change identified — and they must recognize the need for improvement.

If employees are meeting or exceeding expectations for a person with their training and experience, they should know this also. It is important to note that the expectations you have for an employee increases with tenure, training and experience. As you increase what you expect from the employee, your performance feedback should reflect that expectation.

Only when employees clearly know how they are performing can they take the necessary steps to improve. For example, an athlete would not continually attempt to improve his or her performance and increase scoring effectiveness if no one kept score and, more importantly, if no one applauded when he or she scored. I venture to say that we would not have professional athletes — no matter how highly paid they are — without the challenge of scoring and praise of the fans. If that is true, remember it is important to keep crew leaders and crew members appraised of how they are performing.

To make performance feedback meaningful, it is important to tell employees specifically what you expect. It is difficult, if not impossible, for an employee to fulfill vague, ambiguous or uncommunicated expectations. Take the time to meet with each crew leader periodically and explain exactly what is expected of a person with his or her tenure and training in that job position. Then he or she can communicate the expectations to the crew. It is appropriate to expect higher results as employees learn and develop more experience in a situation or job.

Don’t just focus on end results. Include activities and tasks that employees are required to accomplish and that lead to the desired results. Clearly define the quality and quantity of activities and results expected. This way, crew members can properly evaluate
their own performance, and their evaluation can then provide an objective benchmark for evaluating employee performance. Clearly defined expectations make evaluation more objective, easier to communicate, and, if necessary, defined.

Telling people what you expect of them is good, but it is only the first step. Take the time to observe the employee’s performance and give candid performance feedback on how he or she is doing. On a crew, the leader gets to see the members’ work first-hand. For those who manage crew leaders, however, it is not so easy. Take the time to follow up on completed jobs, and communicate your evaluations to the leader and crew. Don’t just tell them when there is a problem. Be sure to let them know when the job is done well. If there is a problem or deficiency, explain the areas where they fall short and what they must do to improve.

Don’t focus on just the negative aspects of an employee’s performance or behavior. It is important to tell people what they are doing well and where they meet or exceed expectations. This not only helps employees improve, but it also reinforces or builds their motivation. When people exceed expectations, it is very important to let them know they are doing well, which rewards or reinforces that performance. Remember, “What is rewarded or reinforced tends to be repeated.” Are you giving attention and rewards to what you want repeated?

Avoid the mistake of some managers who only address performance deficiencies or who just work to improve poor performers. Recognize and praise a superstar’s performance as well, even if that level has become customary or routine for the individual, because without reward or reinforcement, it could easily drop.

Remember to praise the solid, consistent performer (not a superstar and not a problem employee) because he or she may represent the greatest opportunity. This individual may be able to make substantial improvement with a little coaching and assistance. The high performer may not be able to improve a great deal more and the low performer may not improve to your minimum expectations even with your best effort.

As the season gets hectic and busy, don’t forget to notice everyone’s performance. Take time to train, develop and reward employees to build positive performers. They enable the organization to succeed. How well you recognize positive performance and address performance deficiencies will be a key factor in customer satisfaction and your success this season.

Wayne Outlaw is the author of “Smart Staffing: How to Hire, Reward, and Keep Top People for your Growing Company.”
Protect Trees From Lightning
(Add a profit center to your business)
By Robert E. Cripe

One of the most enthusiastic promoters and endorsers of lightning protection for trees was the late Bob Felix, who served for almost three decades as executive vice president of the National Arborist Association. On numerous occasions he urged tree company owners to add lightning protection to their line of services. Many long-

Summary of Damage Process
A lightning strike to a tree usually follows a specific pattern, as given below:
A. The current front rolls in the phloem and xylem cambium-initials with some tissue heating and disruption of intercellular connections.
B. A majority of the current flow breaks out to the bark surface (termed a surface flashover).
C. A pressure wave focused on a thin portion of the bark and wood pounds against the tree.
D. The large pressure wave first compresses the bark and wood toward the center of the tree with a surface compression wave moving around the tree.
E. Tissues are then subjected to an almost immediate tension force as the shock wave rebounds in the tree.
F. Wood and bark splits, and tissue interconnections are shattered, leading to internal and externally visible injuries.
G. The compression and tension portions of the shock wave in the tree can lead to annual ring separation, breakage along old compartment lines, loosening of bark and wood pieces, and the propelling of loose tissue pieces away from the tree.

Therapeutics
Preparation, risk reduction, and installing conductance systems in trees before a lightning strike is the best way to minimize damages. Once injured, time is of critical importance. The faster treatments are commenced, the better the biological results. Starting treatment processes within 8-24 hours, especially if little drying of tissues has occurred, can provide a window of treatment opportunity for watering, preventing water loss, and using pressure to reattach tissues. After 16-36 hours, compartmentalization processes have been initiated and reinvigorated actions will be more appropriate.
Due to site, tree, and injury differences, no specific treatment procedure could include:
A. Institution of watering/irrigation program for at least one and one half growing season.
B. Installation of crown misting and wind protection for one full growing season.
C. Using belts and surface pressure to pull/push slightly displaced tissues back into near original position. (Applied for 6 weeks)
D. Application of a temporary white plastic sheet over injuries to minimize water loss. (Applied for 4 weeks)
E. Removal of clearly dead and seriously damaged branches. Do not prune. Delay green-wood pruning until tree allocation priorities are clear.
F. Apply a preventative pesticide to open surfaces, if warranted. Be sure pesticides and carrier do not damage new parenchyma cells generated on xylem surfaces.
G. Delay any nitrogen fertilizations one season.
H. Protect soil surface and soil health across the tree rooting system. (light mulch, small amounts of organic matter, etc.)

This information was reprinted from Coder, Kim D. 2001. “Lightning Damage Process in Trees.” University of Georgia, School of Forest Resources. Publication number FOR01-19.
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established tree firms have provided tree lightning protection systems for their clientele. Since only a limited number of colleges and universities include lightning protection for trees in their arboricultural curriculum, many young graduates are unaware of the need for this service and have to get their on-the-job training from established firms providing tree lightning protection systems.

Codes and standards
Tree lightning protection installation standards and codes — in use since the early 1900s — have been created by the National Bureau of Standards, Underwriters Laboratories, National Fire Protection Association, Lightning Protection Institute, and more recently the National Arborist Association. At the present time, the final draft of a new ANSI A300 Standard for lightning protection installation is under review. The standard is titled “Tree Care Operations - Tree, Shrub, and Other Woody Plant Maintenance Standard Practices.” When completed, this standard will be the most complete installation guideline and standard of practice in the tree care industry. In studies conducted by UL dating back to 1923 and encompassing more than 103,000 lightning protection installations, UL found that properly constructed and correctly installed lightning protection systems are approximately 99 percent effective. Other manufacturers and tree firms that provide lightning protection system services confirm this fact. Davey and Bartlett have installed tens of thousands of tree systems over the past several decades and report that they have no record of protected trees being damaged by lightning.

Adding lightning protection
What prompts a tree company to add this service? Mike Ezzo, owner of Cavalier Tree Service of Gainesville, Va., states, “Six months ago one of my customers asked if I would provide lightning protection systems for several of his valuable trees. I had not installed tree systems before. I ordered the VHS training video from Independent Protection Co. and after reviewing it several times with my employees, decided to order the tree equipment, and we installed our first systems. We encountered no problems with our first four systems and now plan to advertise and promote tree lightning protection along with our other services.”

Jim Sivils of Texas Tree Co. in Houston, Texas, got into the tree protection business much in the same way. “I was called to take a look at several 180-year-old live oak trees on a large plantation and to make recom-
mendations,” he recalls. “The trees had old systems that were in disrepair and I recommended that we replace them with new effective systems. We had no problem getting started. We used the IPC installation video, literature, and guidelines and have continued to train our employees.”

Sivils recommends that those just getting started should allow adequate time for hands-on work on the first one or two installations. After that, workers become more efficient and install the systems much faster.

**How a system works**

Many old wives’ tales and myths abound relating to lightning and its strange ways. These include:

- Lightning never strikes twice in the same place.
- Lightning always strikes from sky to earth.
- Once a lightning protection system is hit it is no longer functional.
- Lightning rods (protection) are no longer used; you never see them.
- I didn’t know trees could be protected from lightning.

As a thunderstorm develops, negative charges build up in the lower part of the clouds closest to the earth. At the same time, positive charges build up in the earth below. As the clouds move, the ground charges move along directly below the cloud charge. The dry air, which is a nonconductor, acts as an insulator and keeps these charges apart.

As the air becomes moist and rain begins to fall, the moist air tends to be a better conductor and the cloud charge (in the form of a leader stroke) starts downward toward the earth in 150-foot jagged intervals. At the same time, the ground charge is seeking an upward path to neutralize with the cloud charge. A tree equipped with a lightning protection system provides a low-resistance traveling path for the ground charge to travel through the copper cables upward and out the points - the two charges meeting approximately 150 feet above the top of the tree in the “striking distance.”

A tree not equipped with a lightning protection system will hold the ground charge in its non-conducting trunk and branches and the cloud charge explodes on and within the tree, causing damage all too common to arborists.

Tree lightning protection is not only a needed service in protecting historic and aesthetically valuable trees, and due to the uniqueness of this service, an arborist company can develop a new profit center to an expanding business.

Employee Retention Starts With Recruiting

By Keith Regan

For tree care firms, finding good employees isn't easy. Keeping them can be even harder. For small companies and large national firms alike, issues of how to recruit and retain the best tree care workers are always on the front burner.

"It's something we think about a lot," confirms Mary Sandborn of Moran's Tree Service in Accokeek, Md., which employs six full-time field personnel. "We've probably trained 10 people who have gone on and become our competitors by starting their own businesses."

Workers have a variety of reasons for leaving tree care companies -- or even the industry itself. As in the rest of the business world, those reasons have changed over time. Employment experts say money is not always as important to employees as other issues, from fringe benefits and overtime. Employment experts say money is not always as important to employees as other issues, from fringe benefits and working conditions to the ability to move up.

For tree care companies, added hurdles to keeping employees from straying include the sometimes hazardous nature of the work and the seasonal nature of the business in some parts of the country.

Moran's makes every effort to be a good place to work, according to Sandborn. And because finding high-quality workers "off the bat" is never easy, Moran's provides extensive training as well. "We offer uniforms, company contributed health insurance, dental insurance, and a company retirement plan to which we contribute," Sandborn relates. "I have taken them to training each year and have safety training on a regular basis. We offer a lot to an individual that looks at the long term."

From the Beginning

Increasingly, tree care companies are focusing on recruiting as the point at which to strive to find employees who will become future leaders within a company.

"Recruiting and retention definitely go hand-in-hand," stresses Joe Bones, a recruiter and safety trainer with the Mideast division of Bartlett Tree Experts.

Bones often focuses more on what he calls "soft skills" when looking for new employees, such as the recognition of the importance of being on time, having an open mind and being a team player.

"You can train the technical skills," Bones says. "The technical talent a young worker might bring is not insignificant, but if they can't understand those basic tenets of being a conscientious employee, that's a lot harder to teach."

For some companies, that means finding ways to access workers who have sought out the tree care profession, such as those who have studied at the country's urban forestry and arboriculture programs.

"There was a long time when people just fell into this business," recalls Tim Jackson, manager of national recruiting for Davey Tree expert Company. "Now, people are getting into it because they want to."

But finding those young people most interested in establishing long careers in the tree care profession has never been easy. Until recently, the education and practical side of the arboriculture field remained somewhat disconnected. That is starting to change, notes NAA staff arborist, Bob Rouse, who runs the NAA's Career Days program at TCI EXPO.

"Events such as Career Days have helped give advisers a much more realistic view of the industry," explains Rouse. For instance, Rouse gives a practical test at TCI EXPO that students then return to their college advisers. "It shows them what the industry needs them to know, which really helps students as they emerge and start looking for jobs."

All Together Now

The gap between education and practical knowledge will be closing even more this November. For the first time, TCI's Seventh Annual Student Career Days at the will also coincide with the Student Society of Arboriculture's (SSA) national meeting. That change means that both students and companies can focus their job matching efforts on a single event at the Midwest Express Center in Milwaukee.

"To me this is a tremendous advantage, to get all these students close to the trade show where they can see us at our best," says Bones. "It's important that we show our professionalism and show we can cooperate with other companies. It's about improving the industry as much as about individual companies."

Bartlett is a lead sponsor of this year's event, along with Stihl chain saws and Weaver Leather. Other companies provide financial and manpower support. For instance, Davey brought a crew to help run the tree-climbing competition at last year's event.

Rouse notes that while each event usually draws about 200 students, organizers expect about 400 this year as the two events merge. In addition to connecting companies and employees, these events also help create a new generation of arborists eager to improve the industry's image.

"We have people who came to EXPO..."
and wound up working at companies that weren’t involved and they worked to get them more involved in the industry as a whole,” Rouse says.

**Climbing the Ladder**

According to NAA staff arborist and SSA Director Tim Walsh, the change helps bring together an already closely knit community and industry.

“These students start coming to these events and they get a chance to meet the people behind the textbooks, the people who have been reading about,” he says. “By the time they come back for the second or third time, those people recognize them. This is a neat community. It’s more like a family than an industry.”

Walsh, too, has noticed the change in what students expect of their careers.

“When I was first an undergrad all people cared about was salary,” he remembers. “I keep asking students and salary is still on list – but a lot more people are more concerned about enjoying what they do, liking who they work for, respecting the industry and having room to advance. They need to make a living, of course, but those other things are important to them as well.”

Christine Erler, now an arborist working in sales at SavATree, looked beyond salary as she chose where to take her first job. Three years ago, when she was a student nearing graduation at the University of Wisconsin at Stevens Point, she attended an NAA conference in Baltimore.

“It was definitely a positive experience,” recalls Erler. “We got to see the industry and get a sense of what was out there for opportunities.”

Having an array of tree care companies explain what they offered also helped Erler know what she wanted from a company.

“I wanted to go out and learn whatever I could,” she emphasizes. After starting as a route coordinator, she recently moved into a sales position. “Every day is a new experience. My whole goal when going to school was to focus on the conflict between people and trees and helping to ease that. This is an opportunity to be out there. I feel like the possibilities are endless.”

**United Front**

At the same time students are placing salary lower on their list of factors in choosing a company, they expect more from their potential employers. That’s one reason that the Career Days events at TCI EXPO are important, stresses Jackson.

“The students we see are very career focused,” he says. “They are already dedicated enough to give their education over to this field. A lot of us landed in this field accidentally, but they seem to have figured out already it’s what they want to do.”

Jackson adds that students rarely start out by asking what companies pay. “They want to know what their job will be, how they’ll be challenged, what their next step will be. Advancement is a key factor, I believe, in their choice.”

Davey starts all employees in the field, where they learn the company’s approach to tree care. Then, promising employees can move on to become foreman, salespeople, and into service tech jobs.

Since Davey employs about 6,000 people in the U.S. and Canada and expects to hire about 500 workers this year alone, “They can always see another step up on the ladder,” says Jackson.

Bones has had similar questions from his recruits to Bartlett. “They ask about geography a lot, if we have a location in a place they want to work.” Bartlett’s strong connection to the country’s arboriculture education programs helps students understand what the company offers as well.

“The students today want to be involved in production,” relates Rouse. “But they also want to work their way up and be important people in the company one day – where they can be in a position to give back themselves.”

In his role of Director of the SSA, Walsh has recent proof that young people are willing to make sacrifices to become valuable tree care professionals. In the spring, when most college students were enjoying a week of fun in the sun, six students drove halfway across the U.S. to visit Dr. Alex Shigo and spend time at the NAA headquarters. They filmed their trip to show fellow students what they learned.

“They came out for personal reasons, to try to inspire other people about the opportunities out there,” states Walsh. “I think it’s a great sign that students are taking their career opportunities so seriously and getting so involved.”
Scientists at Oak Ridge National Laboratory are studying the rhizosphere to understand how the eastern deciduous forest is affected by CO₂ enrichment of the atmosphere, and what the feedbacks are from the forest to the atmosphere.

Rooting Around in the Rhizosphere

By Lana Robinson

Arborists who explore the root zones of ailing trees in an urban landscape often find poor soil and impaired root systems. Sometimes, injuries caused by construction, along with building debris, are discovered. More often than not, a probe into this important zone beneath the tree canopy reveals additional problems: soil compaction, insufficient organic matter, poor fertility, and frequently, creeping soil pH caused by alkaline irrigation water or fertilizer treatments of turf. Often absent or scarce in these manmade landscapes are the numerous life forms that flourish in the healthy surface soils and plant rhizospheres of forests, where trees originally evolved.

Unfortunately, transplanted trees are typically ripped from their initial home with less than 10 percent of their original root systems intact, and can take a decade or more to regenerate fully-functional, absorbing root systems in their new environment. In order for the tree to restore itself, the soil must contain the proper organic matter and associated microbes to carry out its forest-sustaining soil processes. Otherwise, the arborist is forced to maintain these trees with a row crop mentality that involves regular applications of pesticides and chemical fertilizers. These treatments, when used in excess, can inhibit or delay normal root function and natural soil processes and may increase the susceptibility of the trees to stress and pests.

A vibrant, fertile soil contains a complete complement of beneficial microbes, including plant-growth-promoting rhizosphere bacteria and mycorrhizal fungi - root-inhabiting, symbiotic fungi that inhabit the trees' fine-absorbing roots, dramatically improving their ability to absorb water and minerals. These beneficial microbes are essential to the survival and development of plants and trees growing in the stressful natural environment of the outdoors, according to Dr. Mike Kernan, a scientist in the Technical Services division of Plant Health Care, Inc. in Pittsburgh, Penn. In soils of their native forest habitat, Kernan says, these beneficial bacteria and mycorrhizal fungi are abundant, along with rich organic matter and loose soil structure.

“Urban and suburban soils outside the forest setting have been turned over, plowed over, built on, and thoroughly abused. The soil does not resemble, nor does it have the same composition, as soil in the forest, either chemically or biologically. There is less mineral fertility and there are far fewer microbial partners to collaborate with in urban and suburban soils,” explains Kernan, noting that all woody plants today, regardless of their habitat, have developed partnerships with soil microbes to survive the various stresses that nature regularly presents.

Trees and shrubs do best when their roots are colonized by mycorrhizal fungi. The fungi grow out from the roots and penetrate vast volumes of soil, where they efficiently absorb water and minerals, which are transported back to the roots. In this way, the tree’s ability to extract soil nutrients is dramatically increased. The fungi also benefit because they have access to simple carbohydrates or sugars produced by the tree. Studies suggest that mycorrhizae can increase the absorptive surface area of root systems by more than 700 percent over non-mycorrhizal roots. In addition, this fungus-plant alliance increases the tree’s tolerance to drought as well as its ability to withstand compaction, high temperatures, heavy metals, salinity, toxins and less-than-ideal pH.

Rhizosphere bacteria, or rhizobacteria, aid plants by converting insoluble mineral sources, such as phosphorus, into a soluble form for root uptake. Some bacteria fix gaseous nitrogen from the air in soil; help break down organic matter; improve soil structure; and produce substances that stimulate root growth. At the same time, the roots provide life-sustaining nutrients to the bacteria.

Healthy soils are also a haven for other organisms, including actinomycetes (curious microbes that have characteristics of both bacteria and fungi), algae, protozoa (single-celled organisms like amoebae), arthropods (“bugs”), and earthworms. The burrowing activities of the soil animals aerate the soil and provide avenues for air and conduits for water, not just for entry down but also for capillary return. Their decomposing bodies increase the soil’s organic content. Working in concert, the organisms provide services to long-term plant health in the natural environment.

Large, well-established populations of microbes and other organisms in the rhizosphere make it more difficult for disease
organisms to invade and take over. Competition among the various microbes, both good and bad, keeps everything in check. While disease organisms can enter and establish a presence in a biologically balanced soil, it is difficult for them to overwhelm all the other microbes, to the point where they dominate. Disease organisms are present in natural soil environments. But due to competitive processes, they are typically unable to devastate the host trees. "It can stress them a little, but unless it is given the chance to over-populate, it can't effectively infect the tree," says Kernan. "On a farm, they grow acres and acres of one crop. The soil biology is limited. Without competition, a single disease organism can more easily over-populate, resulting in a serious disease like potato blight, for example. That's something that wouldn't often occur in a forest, where plants grow in mixed stands among other organisms in soils that are characterized by a vibrant and varied microbial population. There, it would have to compete with well-established organisms. The disease pressure is different under these two settings - the natural forest setting and the manmade landscape. All of these things underscore our strategy of bringing the forest back to the city, from a soil perspective," he says.

These natural ecosystems do not require additional external fertilization to maintain normal growth, development and function because the organisms in the rhizospheres continually recycle nutrients. Dr. Mike Amaranthus, Mycorrhizal Applications Inc., says, "It's a 400 million year old relationship, the way nature did it. In a lot of manmade environments, phosphorous fertilizers are used when there is already plenty of phosphorus in the soil. The problem is, the plant can't access it. Nature has divided these organisms. Mycorrhizae produce enzymes, specific chemicals that extract phosphorous and other nutrients from the soil, like a little miner. Roots cannot produce enzymes. We have tried to circumvent that linkage."

A former professor at Oregon State University and author of more than 40 research studies on the subject of inoculating plants with mycorrhizal spores and hyphae, Amaranthus' company grows mycorrhizae for forest nurseries, industry and soil manufacturers. "We emphasize using diverse, specifically selected mycorrhizal fungi that improve plant establishment, vigor, and growth. I am also the scientific advisor for ROOTSinc. They do a lot of evaluation and testing, which is a real advantage because I get to see the finished product. I get to see how it works," he says.

According to Amaranthus, because mycorrhizae are much more efficient at pulling nutrients out of the soil plants can get by on less water and fertilizer. "Mycorrhizae can cut water down for turf 20 to 30 percent, so they are much more efficient than roots alone. Mycorrhizae increase the surface area plants can utilize several hundred times. You have all those fine filaments radiating, and integrating. The microscopic threads out there effectively enlarge the root system," he explains. "Actually, a thimble full of soil can contain several miles of filaments. This works as a catchment, all these organisms. That's why in a natural ecosystem, you don't see loss of nutrients. You don't get leaching and you don't see water leaving. It can't escape. It's a great conservation tool."

When did these vital partnerships between plants and microbes begin? S.C. Hood, in the Hood Laboratory Report, states: "It is probable that this symbiotic relation began when the first primitive plant forms left the primordial sea and took to the land. There were primitive forms of fungi and algae, both of which had developed in water. When cast on dry land, as separates, both were helpless. The fungi could not make carbohydrates. The algae could not secure mineral nutrients from the rocks. But united in a part-
nership, both could survive. The algae made carbohydrates for both, and the fungi extracted from the rocks the mineral elements needed by both of them. [There is nothing to suggest that this relationship does not persist to the present, especially in the lichens, the first builders of soil. In their development of complicated structures, higher plants kept a part of this early relationship.]

Dr. Donald H. Marx, chief scientist for Plant Health Care, says over 95 percent of the green plants in the world today form symbiotic alliances with mycorrhizal fungi.

“These unique, root-inhabiting fungi colonize either the outside of fine absorbing roots (ectomycorrhizae) or the inside of the roots cells (endomycorrhizae),” says Marx. “Ectomycorrhizae occur on about 10 percent of the world flora, or about 2,000 species of woody plants. Trees belonging to the families Pinaceae (pine, fir, larch, spruce, hemlock), Fagaceae (oak, chestnut, beech), Betulaceae (alder, birch), Salicaceae (poplar, willow), Juglandaceae (hickory, pecan), Myrtaceae (Eucalyptus), some Ericaceae (Arbutus) and a few oth-

er form ectomycorrhizae.

“In North America, there are more than 2,100 species of fungi that form ectomycorrhizae with these forest trees; worldwide, there are over 5,000 species. Most of these fungi produce mushrooms or puffballs, easily seen on the forest floor. Billions of spores are disseminated by wind from these fruiting bodies that spread the fungi to new locations. Ectomycorrhizae are only found on trees; they don’t typically occur on non-woody plants. Most ectomycorrhizae can be recognized by examining roots with the naked eye since they form swollen, and often fuzzy, fine root tips in different shapes, sizes and colors.”

Endomycorrhizae are the most widespread of all mycorrhizal types and comprise three groups: Ericaceous endomycorrhizae; Orchidaceous endomycorrhizae; and Vesicular-arbuscular mycorrhizae (VAM) endomycorrhizae. Although they can only be seen under a microscope, structures (vesicles and/or arbuscules) are produced by these fungi inside colonized root cells. These fungi produce large spores on their thread-like strands (mycelia), typically in the soil outside the roots. Because of where they are (underground), and their size, this kind of spore is spread very slowly to new areas by animals and insects in the rhizosphere.

According to Marx, every tree treatment affects the rhizosphere in one way or another. Thus, the more you know about the rhizosphere, the more likely you are to use treatments that help instead of harm the tree.

“Fertilizers can be of great benefit to trees growing in soils low in mineral elements essential for growth. And by introducing mycorrhizal fungi and natural beneficial soil micro-organisms, the plant roots can develop an increased ability to absorb soil minerals as well as a regenerating source of soil minerals (i.e., nitrogen fixation) with obvious benefits to the host plant. The suppression of certain antagonistic soil micro-organisms is also of benefit to the treated plant,” he said.

Management techniques also matter. Over-pruning can impair the tree’s ability to serve the energy requirements of the root zone, resulting in root diseases and decline
or death of the tree. Over-watering interferes with the respiration processes in the tree roots, since roots need adequate air exchange.

Since the mid-1990s, the mycorrhizal fungi technology has been modified from forestry to accommodate commercial arboricultural conditions. Numerous trials have demonstrated that trees respond favorably when inoculated with spores of the stress-site fungus *Pisolithus tinctorius* (Pt). Root responses to this fungus appear greatest on trees also treated with soil-injected organic biostimulants and micronutrients.

"A knowledgeable arborist, landscaper or golf course superintendent will consider the below-ground needs acquired by plants from their former natural environment and design management practices in our manmade landscapes to fulfill these requirements," stresses Marx.

Taking a soil profile is a good start. Comprehensive soil testing includes measuring several items: the number of individuals or biomass of each group; the types of organisms present and which is dominant; how active the organisms are; and the relation of soil organisms to plant-available nitrogen.

**Prerequisites to healthy root development and function include:**

1. good quality organic matter;
2. organic mulch over the root zone of woody plants;
3. the largest possible volume of quality soil (correct pH, good water storage and physical properties, reserve mineral elements) for maximum root expanse;
4. adequate amounts and varieties of mycorrhizal fungi and beneficial soil/root bacteria.

Inoculants of mycorrhizal fungi and bacteria can be introduced to roots and soil at the nursery level, at planting and seeding stage, or during tree and turf maintenance. Following these steps has been shown to improve establishment of trees and other plants and also to enhance the above- and below-ground health and function of established plants in artificial landscapes.

In general, a plant may only need to be inoculated with mycorrhizal fungi once in its lifetime. If the plants should undergo periods of extreme or unusual stress and/or show symptoms of decline, re-inoculation can be beneficial. Recent studies have

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shown that mycorrhizal fungal inoculation of mature trees is beneficial and can double the tree’s root density.

If a mature tree is undergoing decline, inoculation with mycorrhizal fungi and rhizosphere bacteria may be beneficial. Inoculants can be applied as a vertimulch or injected into the soil/root zone of the mature tree.

Several companies today are selling mycorrhizal inoculum commercially. Some advertisements claim survival and growth benefits by adding mycorrhizae to either the roots or directly in the planting hole during the transplanting process. Costs vary depending on the product and the size of the tree.

According to Michael Behler, vice president of the Sarasota, Florida-based Horticultural Alliance, Inc., “People were skeptical of mycorrhizal products at first, thinking it might be snake oil. Now, more and more universities and researchers are putting out reports and studies showing that in the right applications, you can get phenomenal results.”

Today, Horticultural Alliance, Inc.’s biggest clients are arborists, followed by commercial landscapers.

“Much of our business is generated by putting on presentations for commercial landscape architects,” Behler notes. “We tell them, ‘You’re planting a couple of thousand trees. They need to be treated.’ Commercial landscapers bid on the jobs. Then they call us wanting to know more about it, how to use it and where to get it.

“Keep in mind that any above-ground condition that affects root growth will also affect mycorrhizal development,” says Marx. “High light intensity and low-to-moderate soil fertility encourage colonization. Check the product labels for specific instructions about the application of fungicides, insecticides and herbicides, as these can affect the mycorrhizal fungi.”

Finally, Marx advises arborists to learn as much as possible about mycorrhizae. “I believe these microorganisms will be universally specified and used within the next decade. In fact, I predict that within 10 years, most plant stock with be inoculated with mycorrhizal fungi and their roots will be fully colonized with mycorrhizae upon delivery. It is important to remember that the application of mycorrhizal fungi goes beyond the simple use of a product. By acknowledging the importance of the plant root system, and by designing management programs that nurture and protect that system, we become better, more successful plant and landscape managers in the long run.”

Lana Robinson is field editor in the Information and Public Relations Division of the Texas Farm Bureau, based in Waco, Texas. She regularly covers agricultural issues for Texas Agriculture, The Growing Edge, Texas Neighbors and frequently contributes horticulture features to other green industry publications.
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Introduction

The Cincinnati Park Board’s Natural Resource Management Section is responsible for planting and managing all city-owned trees located within the public right-of-way, along 200 acres of interstate highway property and 5,000 acres of parks. Cincinnati’s 20 years of forest revitalization have helped to transform the once-static urban greenspace into a city with a conspicuously visible and viable urban forest. During this period, more than 40,000 street trees, 30,000 highway trees, and several thousand park trees have been planted. The results include enhancement of the neighborhood streetscape, replenishment of the park’s tree inventory, and improvement of highway aesthetics. The two decades of new plantings have elevated the city’s tree canopy to 37 percent, which compares favorably to most Midwestern cities.

Despite these successes, the task of acceptable reforestation is incomplete. Cincinnati’s forest canopy study revealed that 20 of our 52 communities do not have enough trees to meet minimum canopy cover criteria. These communities represent the urban matrix that includes schools, homes, businesses, threatened waterways, and unstable hillsides. Increased forestation would significantly benefit their economic and environmental quality. Regardless of the city’s well-funded street tree program, tree canopy goals cannot be exclusively met through this initiative. To maximize the environmental benefits, reforestation must take place on private property, in parks, vacant lots, schools, and other locations where funding for tree planting does not currently exist.

CITYgreen as an analysis tool

American Forests, a conservation organization headquartered in Washington, developed CITYgreen, an ArcView based Geographical Information System product, to perform analysis of digitized tree canopy images and to quantify benefits of trees, such as storm water reduction, carbon storage, and air quality. The program can analyze both regional and local ecosystems. The regional analysis uses satellite images to analyze canopy change over a
period of time. The local analysis uses hand-digitized tree canopy sample plots to provide detailed information on resources and the values they provide on a neighborhood scale.

The Cincinnati Park Board wanted a local analysis for the entire city, an area comprising 52 communities, over 88 square miles of wooded hillside, forested riparian corridors, and intensely urbanized inner-city areas. However, sampling sites throughout the city and hand-digitizing each tree would have been extremely labor intensive and time consuming because of the number of sample sites necessary to determine the percentage of canopy cover within each of 52 distinct communities. Additionally, the Park Board wanted to create a tree canopy shape file that could be shared and used by the entire county within our Cincinnati Area Geographical Information System (CAGIS). This task could not be realistically accomplished by either regional satellite imagery or hand-digitization of 80,000 street trees and hundreds of thousands of park trees.

A new way to see the forest and the trees

The Park Board contracted the services of an aerial photographic imagery company to fly over the city and provide true-color, 1-meter resolution digital imagery in the form of photographs and digital geo-referenced raster imagery. The digital image of the city was broken into 47 tiles approximately 30 MB each. The University of Cincinnati Geography Department used classification software to “select” (by pixel color) the forest canopy and individual trees from the image and then classified the digital tiles. The entire city image was classified and divided by community boundaries to determine the canopy coverage percentage for each community. The resulting image shows as two color bands - one representing trees and one representing all other aspects including turf, buildings, roads, and rivers.

CITYgreen will not recognize raster image files for analysis, so CAGIS used ArcInfo software to convert the images from raster images to vector image (shape) files. A tree canopy file was developed for each community. The trees within the public right-of-way and within parks can then be selected and manipulated or stored as a separate theme shape file and shared with other CAGIS users.

The classification process was highly accurate. The classified tree canopy image was overlaid on the aerial images and edited for accuracy. The primary causes of error were water bodies with a high algae content and reflected light caused by water or sunlight exposure.

Reforestation Task Force

The Park Board’s Urban Forestry Advisory Board created a Reforestation Task Force (RTF) to develop planting plans for
those communities that do not have sufficient canopy coverage. The task force was composed of landscape architects, foresters, community groups, stream specialists, and utility representatives. The task force worked to create planting goals and standards, identify and target communities that are deficiently forested, develop realistic plans to meet stated goals, and explore partnerships and funding opportunities. The RTF developed detailed planting and implementation plans for all 20 targeted communities. The plans will be implemented over a 20-year period.

Goals included:
- Creating planting goals and standards;
- Maximizing tree canopy coverage and species diversity;
- Identifying priority planting areas and communities;
- Exploring corporate and community tree planting partnerships;
- Educating citizens on tree care and the importance of planting trees;
- Quantifying the benefits of proposed plantings using CITYgreen;
- Implementing planting plans.

The RTF used tree canopy standards determined by American Forests, which recommend a minimum of 40 percent coverage for residential areas, and 25 percent coverage for mixed commercial/residential areas. The group decided that 10 percent coverage for central business districts was more practical than the 15 percent recommended by American Forests. The group also decided that unstable hillsides and riparian corridors should have 100 percent coverage. The RTF used the 100-year flood plain as the riparian corridor limit and an existing GIS layer designated unstable hillsides. Major thoroughfares and community entrances were identified for future beautification opportunities.

Using the digital tree canopy images, the Park Board created a base map for each community. Property ownership was designated as either public or private. The maps also included buildings, vacant lots, residential areas, sidewalks, pavement, buildings, streams, slopes, and parcel lines. Foresters surveyed each community and mapped potential planting locations based on the criteria determined by the RTF. The trees were designated as private, public property, street right-of-way, or potential seedling areas. The trees were then digitized in ArcView with the property designation and planting cost listed in the database.

CITYgreen was then used to simulate the growth of the proposed digitized trees and to project the tree canopy at 20 years of growth. Environmental and economic benefits of the reforestation were calculated on a neighborhood scale. Benefits such as energy savings per household, carbon storage, and air pollution removal were listed on each community plan.

A workshop was held and community representatives were invited to attend and make comments or changes to the plans. Comments were written on notes and attached directly to the plans. The plans were adjusted or corrected where appropriate and sent to other city agencies for review and finalization.

The Cincinnati Park Board then demonstrated the CITYgreen carbon storage modeling to environmental scientists from Cinergy, our local energy provider. Cinergy asked for written grant requests. The Park Board used the carbon storage numbers from the plans to detail specific planting projects. Cinergy pledged $40,000 for planting in 2001-02.

The $40,000 will be used to purchase approximately 500 containerized trees for habitat restoration in the Carthage community along the Mill Creek and 240 2.5-inch caliper trees for reforestation in the Over-the-Rhine and Camp Washington...
communities. The three neighborhoods selected for funding have documented tree canopy deficiencies. Camp Washington and Over-the-Rhine have canopy coverage of only 16 percent and 19 percent, respectively, while 25 percent is considered the minimum. Carthage was targeted because it is lacking in tree canopy coverage and has the additional need of Mill Creek reforestation to reconnect the Caldwell-Seymour greenway. The reforestation of these communities will help promote a symbiotic relationship between the residents and the associated ecosystem by improving air quality and elevating the biological health of the Mill Creek.

In exchange for the funds, the Cincinnati Park Board will work with Cinergy to publicize the plantings and will offer the rights to the stored carbon to Cinergy. All trees will be planted on public property by various city agencies, non-profits, and volunteers.

Conclusion

High-resolution imagery conversion is a highly technical and somewhat expensive process. The cost to fly the city’s 100 square mile area (88 square miles plus overlap and turnaround space) was $8,900. Photography was required regardless of the plan to convert the image because of the need for quality images to hand digitize tree populations in the traditional analysis method. It is also cost prohibitive to purchase ArcInfo and IMAGE software systems. The cost for The University of Cincinnati’s Geography Department to classify the entire city was $19,000, for a grand total of $27,900.

Reforestation plans are valuable visual tools, and, when evaluated with CITYgreen, allow benefits to be modeled and quantified. The promise of these benefits, both environmental and economic, can lead to a wealth of funding partners. With the cooperation of city agencies, neighborhood community councils, residents, non-profits, and corporate involvement, reforestation plans are enthusiastically in progress.

In 20 years, after the trees have matured, the planting projects in the three targeted neighborhoods will increase the tree canopy by up to 3 percent in Over-the-Rhine and up to 1.5 percent in the other communities. When combined with trees planted through existing funded programs such as Spring ReLeaf (a privately funded tree distribution program) and the street tree program, tree canopy goals can be met in each of the three communities.

The Urban Forestry Advisory Board and the RTF are working to find a way to implement the reforestation efforts in all 20 communities. Fund-raising success, partnership opportunities, and increased street tree plantings will drive the reforestation effort. Already the canopy study has helped leverage the Cinergy funds as well as a $40,000 grant from the Ohio Department of Natural Resources and $16,000 from the city’s air pollution abatement program.

High-resolution imagery can be used to analyze forest ecosystems as well. In large communities it has many advantages over sampling and hand digitizing tree populations, including a tree canopy layer that can be developed and trees that can be viewed in GIS systems with other infrastructure. It is important to bring trees into the same realm as utility poles, fire hydrants, and other utilities so that city engineers and architects can plan around them when improving a street.

David N. Gamstetter is Supervisor of Urban Forestry, Cincinnati Park Board, Cincinnati, Ohio. Len Thomas is with the Office of the University Architect, University of Cincinnati, an Urban Forestry Advisory Board representative, and leader of the Reforestation Task Force.

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As a management consultant, I believe that every company has the potential to grow and develop. A business is a living, breathing entity that, if nurtured with the greatest of care, will exceed the owner's expectations and the expectations of employees.

Many things have become uncertain since Sept. 11. But amid all of this confusion and uncertainty, one thing is abundantly clear for employers. In the words of Winston Churchill, "This is no time for ease and comfort; it is the time to dare and endure."

If managed properly, this shift in business can foster teamwork and loyalty among employees. Among shifting priorities, businesses are going to turn their attention from the recruiting war to the retention war. Owners will begin to focus more on hiring smart, building loyalty, and raising retention among their current workers, keeping employees productive and increasing training for managers who need to learn how to deal with this new phase in employment. If profit margins decline, keeping employees motivated and productive will become an even greater challenge.
The 15 ways to motivate employees detailed below are the building blocks of the foundation of a successful business. Tried-and-true business absolutes, they make a difference in a business and in corporate leadership. They were derived from the nearly 15 years of consulting with small, medium and large organizations and industries. Throughout this time, our company had the privilege of helping resolve thousands of employment dilemmas. As a result of all these experiences, these 15 ways were born.

Every business problem stems from a human resource problem. Whether the issue is finances, quality, sales or operations, people are behind every decision or action. This is why a company’s greatest assets are the right people. Owners who implement the 15 ways tomorrow are not going to have the wrong people. Employees do not read minds. Owners who implement the 15 ways tomorrow are not going to have the wrong people, or even the right people by throwing a training video on and telling them they need to watch it.

Want to start off on the wrong foot? Don’t show them where the bathroom is. Don’t give them a tour of the business. Don’t explain anything about your trucks, and make sure you don’t introduce them to anybody. Many employees look forward to that first day on the job with great anticipation and excitement. Capitalize on that and roll out the red carpet. Treat them like they are important from the start.

3. Create and promote a strong culture rooted in integrity, trust and the mission of your business.

The ultimate goal should be to become an employer of choice – one that emphasizes development and growth with the organization. Employers of choice are profitable and have a positive community reputation. They offer attractive compensation packages, promote a distinct corporate culture, and have strong leadership. Managers set the tone for a corporation’s culture. A company can define the greatest culture on paper and have a beautiful mission statement hanging on the wall, but if the managers act like jerks, employees will defect faster than you can say “leadership training.”

4. Comply with all state and federal employment regulations.

People want to work for a business they can trust. If a company owner intentionally violates regulations in a way that is perceived as cheating or endangering employees, credibility and integrity are in question. When employees turn around and cheat the owner, who is to blame? Take a look at some of the regulations imposed on tree care firms. Today’s employees are educated about Wage and Hour Laws, Fair Employment Regulations, Americans with Disabilities Act, Family and Medical Leave Act, Workers’ Compensation, Immigration and Naturalization Service rules, and, of course, everyone’s favorite, the IRS. Employers send the wrong message if employees think they are getting the short end of the stick. Loyalty works both ways, and employees are very
good at reading messages. Employees do not expect owners to be perfect. They do, however, expect a sense of reasonableness and a balance when it comes to compliance. Always do the right thing.

5. Discuss compensation changes with employees before implementation.

Pay is the foundation upon which the house of retention is built. If you change people’s pay plans, commission rates, wage calculations, or pay dates, explain all changes at least two weeks in advance – preferably four. When employees are surprised by a change in their pay, they lose motivation quickly. Dollars do better if they are accompanied by sense. Use good sense and inform people well in advance of pay changes.

6. Give employees an opportunity to improve.

Over the years, I have watched traditional forms of punishment in the workplace fail. In fact, in many businesses it is commonly known that once you receive a verbal warning and then a written warning, you are on the path to termination. Many employees view that progressive disciplinary process as a means to justify a termination rather than to achieve rehabilitation. For example, an employee with a bad attitude may be brought into the office for a discussion. He is told there is a problem with his attitude, given examples, and asked to shape up or make changes.

Rarely does the employee agree that he has a bad attitude. A couple weeks later things are not any better, so the owner or manager pulls him in again and explain that he’s being written up. Once again the employee disagrees.

What has been accomplished? Absolutely nothing. The employer might have a piece of paper in the file, but the employee hasn’t been helped to change.

The ultimate goal of coaching is to make a positive difference in the performance of the employee. So many times we see this fail. Documentation is important. More important is to get the employee to agree that he or she has a problem. They cannot change unless they agree they have a problem. The problem with traditional punitive punishment is that it does not take the step of asking employees to agree or to commit to a change. What is needed is a two-way conversation and communication that is problem focused, solution oriented, respectful and one that communicates trust.

Most managers forget that the ultimate goal is coaching for better performance. You don’t have to make people feel bad to get them to act good. When you bring in the employee for a discussion, instead of saying, “Bob, you’ve got a problem,” why not start off the conversation by saying, “Bob, I’ve got a problem and I need your help to solve it.”

Putting a little spin on the wording can make a big difference on how a conversation comes across. Employees will be much less defensive. Until that employee actually agrees that the behavior or actions are a problem, then he or she cannot commit to changing.

7. Never talk about discipline or criticize others in front of employees.

When we conduct employee opinion surveys around the country, the No. 1 complaint from employees is that their supervisor or manager berates them in front of other people.

Do the opposite. When was the last time you had a conversation with someone that was positive about an employee? Maybe you were talking positively to an employee about another employee, John. When he came around the corner, you didn’t have to stop talking quickly. Instead, you could include him. I keep this posted at my desk in my office: “Little minds talk about people ... Average minds talk about events ... Great minds talk about ideas.”

8. Follow through on promises. Your credibility is at stake.

When an employer doesn’t follow through on promises, people immediately lose trust. Leadership functions on the basis of trust. When trust is gone, the leader soon will be. This type of erosion of trust occurs slowly and usually starts off with something small. A manager promises to do something minor and doesn’t follow through. If it becomes a habit, employees view managers as unable to cope because the job is too big for them. Ultimately, trust is eroded.

9. Communicate professionally with employees

I defend businesses against EEOC charges of discrimination. In 95 percent of the cases, it’s not a company’s action but
a manager's words that leads to legal liability. I will never understand why managers and leaders can't keep their conversations on a professional level. What often begins in fun results in offending someone. There is a thin line between humor and illegal discrimination. Many jokes and comments are racially, religiously or sexually offensive. Even seemingly innocent jokes or comments about someone's age or approaching retirement can come back to haunt a company if that employee sues for age discrimination.

An owner who can't communicate with people narrows his chance of success. This applies to your verbal and written messages, memos, and e-mails. What an owner says and how she says it communicates volumes to employees.

10. Focus on employee strengths.

In dealing with employment challenges around this country, we found that people are at their most productive when they are in a position that lets them draw on their natural strengths and allows them to be themselves. When people feel the need to act unnaturally they experience stress, which lowers productivity and leads to job dissatisfaction. Owners don't need to know a lot about people's weaknesses, but they do need to know about strengths. Building on strengths is much more productive than trying to correct weaknesses. Obtain information about people's strengths through in-depth questioning during the interview process. Get the information you need before bringing them aboard. If an employer understands an individual's personality and motivation, he will be in a much better position to communicate effectively with them and to achieve results through them. This is true with current employees or potential candidates.

11. Encourage and praise.

If you threaten a generation X'er, he or she is likely to walk out the door faster than you can eat your words. Threatening simply is not an effective management tool. The best bosses communicate by learning to connect workers to the big picture and the strategy of the business. They know how to give regular feedback to employees. They treat people with respect and sincerely want their employees to excel—and they send that message regularly. They involve employees in decision making. They learn to deflate their own egos and they know how to encourage personal growth, not just professional growth. They make work fun and they are flexible. These are not skills that a lot of people have. The three hottest skills in demand for managers are negotiation, facilitation and cooperation.

12. Keep personal problems to yourself. Know where to draw the line.

The No. 1 job of a leader is to develop people. Leaders who get to close to employees will lose their objectivity and ability to make tough decisions in the employee's best interest. Personal friendships that cross the line in business can impair judgment and objectivity, while leading to hurt feelings when difficult decisions have to be made.

Personal friendships that cross the line are not healthy for the business. This is a tough one for small business owners because they may have people who have been loyal and made a huge difference in the business. A working owner/arborist may be right there in the field every day with employees/friends. The owner wants to be friends and build a feeling of family. It is very tough to know where to draw that line, but it is very important to draw one.

Talking about problems at home with employees will lead them to see you in a different light. If personal problems continue unresolved, they will begin to wonder if you can handle the decisions on the job. People will not follow a person whose leadership skills are weaker than their own. Keep your personal problems to yourself.

13. Always project a friendly demeanor.

Given a choice, people would rather surround themselves with individuals who are happy. One of the ceaseless wonders of the world is indeed the power of a smile. A simple piece of advice, but how often do you smile at your workers? Take the time to communicate a positive feeling to workers.

14. Give employees an opportunity to provide input on pending changes to policies.

The greatest compliment you can pay someone is to ask for her opinion. If an owner comes in and changes a process without asking for the advice of the people who will carry it out, he communicates a
very negative message — that he doesn’t really care or value the employees’ opinions. Some of the best ideas are locked up inside the hearts and minds of employees. Why not ask them to share their thoughts?

It is amazing the ideas that people will share with managers. An employee opinion survey is a terrific way to find out how people think and what they feel about the business and the people who run it. Employee opinion surveys help open lines of communication and improve morale by providing employees with an opportunity to vent frustrations. They help enhance management’s credibility by sending a message of positive concern, and they can alert managers to causes of dissatisfaction. Ultimately, a survey can lead to increased productivity, morale and revenue by offering a chance to correct problems before they become bigger issues.

15. You don’t know everything there is to know.

As leaders, you can have the very best of equipment, buildings or technology, but without the right people you will not build your business to last. Employers of choice have begun to recognize that profits result from committed, enthusiastic, happy employees, which starts at the top of the organization.

Summary

Each day, company leaders are called upon to set the tone for the business or department. If employees have negative attitudes, check the attitudes at the top. The real secret behind the success of the 15 ways outlined above is attitude. None of us were born good leaders. It takes wisdom, judgment, counsel, guts and the right attitude.

A minister by the name of Charles Swindoll wrote a short piece about attitude that sums things up better than I could:

“The longer I live, the more I realize the impact of attitude on life. Attitude to me is more important than facts. It is more important than the past, than education, than money, than circumstances, than failures, than successes, than what other people think or say or do. It is more important than appearance, giftedness or skills. It will make or break a company, a church, a home. The remarkable thing is we have a choice every day regarding the attitude we embrace for that day. We cannot change our past. We cannot change the fact that people will act in a certain way. We cannot change the inevitable. The only thing that we can do is play on the string we have and that is our attitude. I am convinced that life is 10 percent what happens to me, and 90 percent how I react to it. And so it is with you. We are in charge of our attitudes.”

Share this with your employees.

Jean Seawright Pileggi is the president of Seawright & Associates Inc., which develops compensation plans, performance evaluation systems, management training programs, strategic plans for organizational development, employee policy manuals, affirmative action plans, job profiles and other employment programs. This article was excerpted and adapted from a presentation at TCI EXPO 2002 in Columbus, Ohio.
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Every industry has its cycles, and right now some stump grinder manufacturers are seeing an interesting swing in their market. They are finding a surge in popularity to the newer high horsepower, self-propelled machines. This isn’t to say that tow-behinds or smaller units are a thing of the past. Far from it. What stump grinder manufacturers are saying is their customers are finding they like the convenience and versatility of the self-propelled machines.

“Self-propelled machines are gaining in popularity,” relates John Bird, sales manager at J.P. Carlton Company, of Spartanburg, S.C. “Most of the manufacturers have added a line of machines with higher horsepower. They go more places, do less lawn damage, and perhaps are easier to use than a comparable tow-behind.

“Traditionally, companies owned a large tow-behind and a small self-propelled machine,” Bird continued. “Now they are trading in the two machines for a larger self-propelled one.” In other circumstances, some companies are trading in the two machines and buying two self-propelled ones. It all depends on the needs of the tree service.

In a perfect world with unlimited capital, companies would own a machine for every task they have. However, it isn’t a perfect world and money does matter. All company owners have to make decisions to suit their needs. That is why it is important to realize that any direction can have its compromises. A large tow-behind is great for banging out stumps near curbsides. The compact lightweight models can go anywhere and be carried inside most anything. A small self-propelled machine is perfect for those stumps in a backyard with a fence. A large self-propelled can do both, but you give up something in every situation.

In the backyard, you can get to the stump, but the machines are longer and heavier. They can be more difficult to get through a gate, and if the lawn is mushy, they can leave a rut. In the curbside situation, the self-propelled machines have less horsepower and will take longer to complete a large stump.

Other factors to keep in mind are that tow-behinds have higher centers of gravity, more width, and greater depth. This gives them a longer arc to grind the big stumps without having to re-align. The higher center of gravity allows tow-behinds to pull more chips into the containment skirt instead of the hole. When a self-propelled machine leaves chips in the hole, valuable power is wasted on the chips instead of the stump. Finally, a self-propelled machine simply cannot go as deep as a comparable tow-behind.

One other important point is money. Self-propelled stump grinders cost several thousand dollars more than similar horsepower tow-behinds. This makes sense, since you have to pay for the drive and steering mechanisms. The other increase in cost is for a three-quarter ton truck and a heavy-duty trailer. The person who goes around with a compact 4-by-4 and a small self-propelled stump grinder is going to have to upgrade in his pulling capacity significantly.

So with all these compromises, why is the market share shifting to large self-propelled machines? Well, the answer comes down to

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68 TREE CARE INDUSTRY - MAY 2002
J.P. Carlton builds the highest quality stump cutters available. For more information, or to arrange a demonstration call: (800) 243-9335.
versatility. Yes, you give up power, swing width, and chip containment with the larger machines; you stand a greater chance of rutting a lawn. However, large self-propelled grinders are capable of doing just about any stump, whereas the smaller self-propelled machines and large tow-behinds are limited in the stumps they are able to handle easily.

“The guy who uses the large tow-behind will always be there,” explains J.R. Bowling, sales manager at Rayco, of Wooster, Ohio. It’s not even a problem that people trade in two machines for one, because, as Bowling says, “Our sales have increased since the large self-propelled machines became available. There are so many more people buying them.”

“Almost half of our customers are guys who just do stump cutting,” estimates Bowling, “and for them the RG50 (a large horsepower self-propelled grinder) is the machine. It just makes sense.”

Bowling also argues that even though the self-propelled machines are more expensive, they also have the highest earning capacity. More stumps reached equals more earnings made.

So how do you decide what to buy? Well, as John Bird from J.P. Carlton recommended, you should do a “needs analysis.” First analyze what part of your business is full-service. You want the stump grinder to make money, but you also have to give value to the machine because it helps you get jobs that the guy without it cannot do. When you do this, you also need to be realistic. Very often people look at higher horsepower machines and want one, but don’t have enough business for it, or don’t consider where the bulk of their stumps are located. If all you are doing is one to five stumps per day, then it is conceivable to own just a small self-propelled grinder. Vermeer, Carlton and Rayco all make machines that can fit into this niche, as does SRI, Inc., the manufacturer of the Kan-du stump grinder.

The larger machines are necessary when your production increases. A more obvious part of the needs analysis is deciding where the bulk of your stumps are. If most of them are large and located where you can back a tow-behind to them, then that is the obvious choice. However, if you find yourself crossing a lot of lawns and the stumps are large, then you want the large self-propelled unit.

One person who has looked at his market is Tim Frick, owner of the Stump Cutters in Merrill, Wis. Frick has been grinding stumps for four years and owns a large Vermeer 672 tow-behind and a Vermeer 252 self-propelled. He is happy with his setup because he can reach the bulk of his stumps with his tow-behind.

“Once you go big, you don’t want to go back,” advises Frick. He also notes that, “You get into these bigger stumps and you need a place for all the chips.” The only major change he would make if he could snap his fingers and design his own machine would be to put a larger engine on his small self-propelled. (More on this idea below.)

Frick would be a great candidate to trade in his two machines for one larger self-propelled unit, but because he has looked carefully at his market, he feels his combination of machines works best.

Another person in the stump grinding business is Dan Fullem, owner of the Stumpbusters of Medina, Ohio. Fullem
has been in the business happily for five years. "Dealing with different people and different properties makes my job interesting," he insists. "I'd rather do this than go to the same job everyday."

Fullem has a Rayco Super Jr. and predicts he will probably trade up to the RG50. He likes the small machine, however, for towing on his trailer because, "It hardly feels like I am pulling anything behind my truck." He sees the RG 50 in his future and hopes to get one soon.

New trends

One new trend in the stump business is putting 75 hp engines on smaller tow-behind frames. This allows the worker with a compact 4-by-4 pickup to have incredible power with a smaller machine. However, as John Bird is quick to point out, "There's no substitute for physical capacity and dimensions." In other words, you can get the smaller stump grinder with a large engine, but as before, there will be compromises. You aren't going to have near the containment capacity and the machine is more expensive than the traditional smaller tow-behinds.

Not-so-new trend

In detailing the various strengths and weaknesses of various sizes and horsepowers, it would be remiss not to mention several features of the Kan-du stump grinder. It can squeeze through a 30-inch gate yet spread to 4 feet when grinding. It has the ground speed of a fast walk and can grind a hole 24 inches deep. The flywheel telescopes out from the neck, allowing the operator to grind a stump behind flowers or a small shrub without trampling over them. John Rhoads, president of SRI, notes that they have an even mix of tree services professional and those who just do stumps for customers.

Charles Kirkhum, owner of the Stump King in Hewett, Texas, runs a Kan-du. He likes the machine because, "In four years, I've only had two jobs I couldn't reach." Kirkhum points out that one of the main reasons for his success is because a lot of the tree guys don't want to get into stump grinding. This is an im-
portant point worth emphasizing. With any machine – a Carlton, Rayco, Vermeer, or Kan-Du – there is a real skill to operating them. It takes time before an operator becomes good, and the machines can be dangerous in the hands of an inexperienced worker. In today's world of low unemployment, some tree companies have just found it easier to outsource their stumps.

What to do

Take the needs analysis seriously.

Some companies are switching to the larger self-propelled units, while others are happy with their present setup. Think about your market – where the bulk of your stumps are located and whether there is enough income from the stumps to warrant a new machine. With the right amount of business, a new stump grinder is probably in your future.

Michael Roche is a certified arborist and owner of Stowe Tree & Landscape in Stowe, VT.
A Celebration and Sharing of Management Talent

The NAA’s Winter Management Conference is tailored to promote the success of tree care companies. Seminar topics are practical, yet exciting, and promote personal renewal and energy for the upcoming year. The conference also celebrates success in the profession. Below are some NAA members honored this year.

Parr honorees
The entries in NAA’s Freeman Parr Awards program epitomize marketing and communication excellence for this industry. Winners were selected in four categories: Brochure, Newsletter, Company Web Site and Special Entry. For a complete listing of winners, go to www.naatarb.com.

Blair honored with Award of Merit
The NAA’s Award of Merit is the highest honor this organization bestows. Each year, the NAA selects a person, company or institution for outstanding service to the field of arboriculture. The contributions of this year’s winner extend beyond the NAA and truly encompass the entire field of arboriculture. The 2002 Award of Merit was awarded to Donald F. Blair.

Safety Award winners lead the way
(L-R) Safety Committee Chair Joe Tommasi presents NAA Safety Awards to Jim McGuire of Hartney Greymont in Needham, Mass., Terry Schroder on behalf of Derek Stroden of Swingle Tree Company, and Randy Owen of Owen Tree Service in Attica, Mich.

Bartlett accepts Chairman's Award
The Chairman’s Award, first presented in 1994, is awarded at the discretion of the chairman of the National Arborist Association. This year’s recipient was chosen because of his continuing commitment to improving our profession. He should be recognized for his demonstration of leadership, his contributions of time and effort — as well as the generous sharing of technical and safety information for the benefit of the industry as a whole — this year’s award was presented by NAA Chairman Mark J. Tobin (left) to Robert A. Bartlett, Jr.

Swinging away for Felix Fund
Sixty-four golfers survived 80-degree temperatures, mild trade winds, the chance of sunburn, and gorgeous views to participate in the Robert Felix Memorial Golf Tournament. Winning team: Frank Gifford, Curt Wedbush, Vince Newendorp, Tim Gamma.
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If sap is the lifeblood of a tree, sucking pests are like little vegetarian vampires, draining away their host's health and vigor one sip at a time.

From apple aphids to cottony scale to spider mites, sucking pests constitute one of the most serious threats to tree health faced by the arborist. A diverse group, the various organisms that feed on tree sap cannot easily be categorized according to a single symptom or behavior. Members of this large group do have a few things in common however, and a basic understanding of the similarities and differences can help keep the little sapsuckers under control.

It should not come as a surprise to know that most species of sucking pests are insects. Aphids, scale, plant bugs and others have adapted to a diet of tree sap by evolving specialized mouthparts for piercing plant tissues and sucking the juices within. While a small population of sucking bugs can usually be tolerated by a healthy tree, the cumulative affect of hundreds or thousands can put a tree in serious jeopardy.

Many of the sucking insects that attack trees hail from the Order Homoptera, which includes such well-known insects as cicadas, leafhoppers, and aphids. As a group, homopterans exhibit a wide range of body types and behaviors, and often have host-specific camouflage to protect them from predators while they feed. This camouflage can make detection difficult for the arborist as well, and makes close and thorough inspection of plant material an absolute necessity. Stressed trees and new plantings are particularly susceptible to attack by sucking insects, and should be inspected regularly to avoid outbreaks.

Arguably the most troublesome of the homopterans, aphids, are frail, pear-shaped little plant suckers with the ability to increase their populations to outbreak proportions seemingly overnight. A few dozen aphids can quickly give rise to several thousand, producing a new generation as often as once per week. Keeping ahead of the pest's ability to reproduce itself can be quite a challenge, since a single surviving female can produce new females parthenogenetically - without the need for a male. In addition to this type of asexual reproduction, sexual reproduction may happen several times per season as well, with winged males and females mating and seeking out new hosts for future colonies.

Aphids can be recognized easily by their distinctive body type. Their small, pear-shaped bodies may be winged or wingless, and are carried around relatively slowly on very thin legs. The most distinguishing features of the aphid are the cornicles, which are small, wax-secreting projections at the rear of the aphid that look like twin tailpipes.

When present in large numbers, aphids can have a variety of effects on the host tree, although they rarely do enough damage themselves to kill their host. Typical aphid symptoms include stunted growth, curled or puckered foliage, yellowing and early leaf drop. Some species may also cause the formation of galls on leaf petioles. While these symptoms are certainly distressing for the homeowner, the real danger comes from viruses and other disease organisms that can more easily gain a foothold in a tree that has been weakened by extensive aphid feeding. Aphids can even serve as vectors for disease, introducing the disease organ-
Aphids feed exclusively on the sugar-rich sap of the host plant. In their quest for other valuable nutrients, aphids excrete large amounts of a concentrated, sugary fluid known as honeydew. Large aphid colonies often coat cars, houses and other plants with a sticky layer of honeydew - making an unsightly mess that often leads to the growth of sooty mold, a black fungus that can ruin the aesthetics of any landscape. Getting rid of the aphids is the only effective way of getting rid of the mold.

Because aphids often have many overlapping generations reproducing simultaneously, effective control is often difficult to achieve. Aphids have many natural enemies that help to keep their overall population in check, so it is usually a good idea to avoid nonselective chemical controls unless absolutely necessary. A strong blast of water may be all that is necessary to wash away the fragile-bodied aphids and significantly reduce their population. Selective pruning can also be helpful in aphid control. Species that thrive in dense, moist canopies are often forced to look elsewhere when the tree is effectively thinned.

Another sucking insect that has earned its place on the arborists’ most wanted list is the scale. Like aphids, scale insects suck tree juices, reduce plant vigor, and can produce honeydew. Unlike aphids, however, scale insects feed from beneath a protective, immovable “shell.” This protective armor makes control of the adult form extremely difficult, allowing the insect to increase in population and seriously weaken or even kill the host tree.

Symptoms of scale infestation can include yellowing, leaf drop, and limb dieback. The presence of scales often gives the tree an overall stressed appearance, which may at first be attributed to lack of water.

These symptoms are often well advanced by the time the arborist becomes involved, since the insect is not recognized easily as a pest by the homeowner. Appearing as small bumps or disks with a smooth or waxy surface in adulthood, scales are only mobile when newly hatched. The young crawlers spread out over the host plant in search of a suitable attachment site for feeding. Applied pesticides are most effective during this crawler stage, making proper identification of the particular scales species and precise timing essential for adequate control. Horticultural oils, injections and insecticidal soaps can be used effectively against both crawlers and adult scales.

Not all sucking pests are insects, however. Many species of mites enjoy dining on tree fluids as well. Relatives of ticks and spiders, mites are extremely small and highly mobile arachnids that use their tiny sucking mouthparts to extract the juice from individual plant cells. Mites are most likely to become a problem in hot, dry en-
environments, where, if ample food is available, they can produce a new generation every two weeks.

The classic symptom of spider mite infestation is the accumulation of small amounts of webbing along twigs and branches, but almost any mite species will produce a distinctive stippling effect on the leaves where they have been feeding. As feeding continues, the light dots yield to a general yellowing of the leaf and then to leaf drop. Because of their small size (less than 1/16 of an inch), mites can be exceedingly difficult to locate and identify. It is often necessary to tap an infested branch or leaf over a sheet of white paper just to locate the tiny pests.

Once mites have been identified as the culprit, horticultural oils and miticides are usually effective in getting the population under control. As with aphids, a forceful blast of water can go a long way in reducing the mite population without applying chemicals.

With any pest, the most important aspect of controlling sucking insects and mites is adequate prevention. The likelihood of a pest problem for a tree increases exponentially whenever the tree is under stress. Regular watering and fertilization and an effective pest inspection schedule can prevent sucking pests from becoming a serious health threat. Prevention, combined with proper identification and a carefully planned control program, will help ensure that all the trees in your care remain healthy and vigorous.

David Munson is a certified arborist and biology teacher in Rockland, Maine.
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Fall from Tree Injures Gen. Hugh Shelton

Former Chairman of the Joint Chiefs of Staff Gen. Hugh Shelton was hospitalized recently after the 62-year-old fell while trimming a tree in his back yard the prior weekend.

Shelton complained to doctors that he lost feeling in his fingers and his toes, but the Pentagon said he is not paralyzed and that the feeling has returned.

Shelton will undergo spinal surgery and is expected to make a full recovery.

Battle Brews Over Historic Kapok Tree

A developer who wants to build a mansion near a treasured 80-year-old kapok tree in Florida found himself in hot water recently with nearby residents who protested the construction plan and claimed the developer would end up killing the beloved tree.

According to a report in the Miami Herald, residents of idyllic Coconut Grove argued that even after the developer, Jose Ibarra, agreed to put up a circular fence 20 feet from the base of the trunk while doing construction, it would not be enough to ensure the tree was out of danger. More recently, a proposal by Ibarra to carefully trim the tree’s root system to make way for a septic tank drainfield was also cause for protest.

Concern surrounding the construction arose as early as last November, when the local homeowners association hired an arborist to check the condition of the tree. The arborist found that Ibarra had covered the roots with three feet of soil and filled in a natural sinkhole next to the tree.

Ibarra, who said he is complying to city code, defends his actions and insists he is protecting the tree and plans to keep it a distinctive part of the property.

Tree Sculptures to Aid Colombian War Widows

Remember the “cows on parade” campaign that made its way from city to city, around the world?

Now, there are “trees on parade.”

Bogota, Colombia, is the site of dozens of shiny brass “leaved” and basketball-hoop-bearing tree sculptures that have been created to help raise money for orphans and widows of police officers slain in Colombia’s nearly four-decade-long civil war.

One-hundred-and-thirty-four artists were called out to create the tree forms. Each artist was give a tree and told to create whatever he or she wished.

The trees will be sold and proceeds will help the war-torn families buy homes.

Arborist Removed from Tree Removal Process

An arborist’s analysis of a seemingly dead tree may not be necessary if a new ordinance is passed in San Jose.

Under a proposed change to the municipal code, home owners wishing to cut down a “dead” tree on their property will not be required to hire a certified arborist to ascertain that the woody plant is no longer alive. The homeowner will still need a permit, a hearing, and a notification of neighbors. A staff member of the city may also verify the condition of the tree.

In addition, the Audubon Society requested the homeowner inspect the trees for any birds who have made their home there.

“If you take a tree down, you impact a lot of things,” Rhonda Berry, director of Our City Forest, a non-profit group that helps the city and neighborhoods plant and care for trees, told the San Jose Mercury News. “The urban forest is a dynamic system. Trees interact with each other, wildlife, air temperature, soil. There are different elements of the urban ecosystem, and the most significant piece of that is the tree.”

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* Please circle this number on the Reader Service Card for more information.
Re-discovering Old Treatments

By James Mayes

I own a small tree company in north Texas, close to Denton. We have had a very heavy outbreak of hypoxylon canker in our oak trees. Three years ago, everyone in the area believed that the only solution was to cut them down. But how can you tell your customer, who just spent $40,000 per acre, that half the trees he paid for have to come out? It’s not easy.

So when one of our customers pleaded with us to try anything, rather than watch 40 of his trees hauled away, we did. A few of the trees were 50 to 75 years old. Our treatment? We scraped off all of the canker that we could. (Mind you, these trees were still in the first stage, where the bark becomes powdery and cakes with white or yellow flakes.) We simply took our old pole saw blades and scraped off all of the bark that was infected. We kept scraping until we reached good wood. Then we watered and fertilized all of the trees we scraped. That was three years ago.

We also gave an estimate to this client’s next-door neighbor to do his trees the same way. He did nothing. Within a year, the neighbor had lost all of the trees that had canker spots. As for my customer? Three years after the scraping, none of the 40 trees show signs of infection. He hasn’t lost a single tree! We have been scraping the canker now for three years and I have hundreds of satisfied customers in the area who call me to thank me because I saved their trees. The spots are closing, and the trees are looking healthier than ever.

The only time we haven’t been able to save a tree is when the bark is already peeling off. By that point, the disease has reached the cambium layer and is traveling through the tree already. But we have scraped some trees where we took off complete circles around them, leaving only a thin layer of good bark.

I can say now that even though we have probably removed 3,000 trees that were dead when we gave the estimates, we have also saved about 3,000 trees that were affected in the same yards. Remove the dead ones; scrape the live ones. I would say that scraping that many trees without losing any of them is a pretty good success rate. I just feel sorry for all of the neighbors of my customers who lost half of their trees.

James Mayes is the owner of Tree Care of Denton in Krum, Texas.

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