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NAA in 2000: Off to a Great Start!

If you’re not an NAA member and are eligible for membership, you should join. Value to the industry of commercial arboriculture is what we are all about, and NAA is lining up to deliver.

In January, we held a focus group to assist in the evaluation of existing programs. Thanks to your colleagues’ expertise, they helped us finalize the content of a four-part “Groundworker” video coming out in the summer. We’ll be revising our Home Study and evaluation of existing programs. Thanks to your colleagues’ expertise, they helped us finalize the content of a four-part “Groundworker” video coming out in the summer. We’ll be revising our Home Study and evaluation of existing programs. Thanks to your colleagues’ expertise, they helped us finalize the content of a four-part “Groundworker” video coming out in the summer. We’ll be revising our Home Study and evaluation of existing programs.

An Accreditation Task Force is hard at work building a business-based program, which will help the industry benchmark how their businesses are run. It will also increase the public’s image of our industry and provide a “track” to help businesses reach minimum acceptable operating standards. This is to be accompanied by a “Business Management Academy” that will provide the educational opportunity to assist in reaching accreditation. We plan to launch the beginnings of this program in 2001.

New technology emerges in February, with various pieces installed throughout the spring and summer. Expanded online capacities will be available starting this summer to allow members to register for conferences, change their own membership information and eventually purchase services online. Soon, NAA will be available to members 24 hours per day, 7 days per week, at your convenience—without placing a long distance phone call.

Those of you who are members received the revitalized Reporter, developed to meet direct feedback from the membership about what they want in a monthly newsletter. We hope you are pleased. It’s just the beginning of what is to come.

If you attended the Winter Management Conference, you were privy to celebrated national speakers who provided management leadership in everything from succession planning to marketing. As part of our Business Management Academy, we’ll be bringing more of these kinds of sessions and workshops to TCI EXPO 2000 in Charlotte, so all our members can be a part of these stellar educational programs.

NAA is also growing internationally. Our presence in the U.K. is expanding, and new members are joining daily. We’ll be visible at shows around the country and encouraged your colleagues to become part of the fold.

If you attended the Winter Management Conference, you were privy to celebrated national speakers who provided management leadership in everything from succession planning to marketing. As part of our Business Management Academy, we’ll be bringing more of these kinds of sessions and workshops to TCI EXPO 2000 in Charlotte, so all our members can be a part of these stellar educational programs.

NAA is also growing internationally. Our presence in the U.K. is expanding, and new members are joining daily. We’ll be visible at shows around Britain, at European conferences and sharing your expertise with your colleagues worldwide. New workshops are in the planning stages there, and strategic alliances are being formed internationally. We plan to have an online Q&A area, too, where you can talk to arborists in other countries. This exchange of information and participation in setting the standards for worldwide tree care will only cement your position as leaders in your field.

Our ongoing representation of the industry in regulatory and legislative affairs peaked with our recent interaction with OSHA. They attempted to use an illegal process to require the use of a full-body harness in our industry. NAA called them on it, threatening litigation in order to achieve the desired end result—dialogue with OSHA within the required process of notice and comments when changing the interpretation of a standard. NAA prevailed, and OSHA has rescinded that letter. NAA has also formed a strategic alliance with the American Nursery and Landscape Association. With a much larger government affairs staff based in Washington, D.C., they provide a depth of experience in this area that NAA needs in order to serve the membership. By helping to monitor legislation and regulations that could harm our industry and providing appropriate introductions to influential leaders, NAA is well positioned to continue its work on your behalf. Again, if you’re not a member, this is a perfect example of why you should be. We are at work protecting your interests every day.

NAA is also moving our offices this month to Manchester, N.H.—only five minutes from the interstate and the airport—for those who wish to visit us. We are expanding our space while reducing our lease costs—redirecting expenses into membership services. We’ll be down for one day (Friday, March 24) when the phones and computers are moved. For your convenience, calls will be forwarded from the old phone number for about 60 days.

This is just the start of NAA in the 21st century! Thank you to all the volunteers who have been part of focus groups over the last year, served with us on committees, hosted me at your offices, attended workshops, helped us at the NAA booth around the country and encouraged your colleagues to become part of the fold.

We are determined that your association will provide you value in the 21st century. We’re out of the starting gate, and we’ll leave it to you to call the race and tell us how we’re doing!

Cynthia Mills, CAE
Publisher

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Arborists looking for ways of providing additional support for codominant stems now have new systems entering the market that make use of different materials and attachment devices.

Cover Photo
Photo courtesy of John Ball
Standard One Ton Forestry Body: Model MP-11

Overall Body Dimensions:
Length 138” Height 60” Width 92”

Chip Box Material: (galvannealed)
1. Floor ...................... 10 ga. plate
2. Sides (removable) 3'-6" high . . (2)pc. design-
   12 ga. plate
3. Top: (removable) 8' long .... 14 ga. plate
4. HeadBoard (stationary) .... 12 ga. plate
5. Tailgate (270° swing) ...... Expanded Metal
   w/tubing frame
6. Runners ..................... 6” structural channel
7. Cross members .............. 3” structural channel
8. Side vertical supports ...... 3” x 3” sq. tubing

General
1. All G-60 galvannealed material
2. Sides: Fabricated in (2) pcs. for easy removal
3. All wiring in conduit
4. Sealed lexan lens lights meet FMVSS 108
   specifications
5. Anti-sail mud flaps
6. Hydraulic dump hoist
7. Safety body prop
8. Trailer light connector 6 pole; Elec.
   back up alarm
9. Pintle; or pintle/ball combination trailer
   hitch with tow hooks
10. Bodies: mounted, undercoated, coal tar epoxy
    coating inside chip box, primed and painted
11. Stainless steel tool box hinge pins
    w/grease zerks
12. Tool Boxes - “Weatherproof” - Bulb type weather
    stripping
13. Top includes (4) corner lifting eyes
14. Chipper Air Exhaust Vents

Tool Boxes (14 ga. galvannealed material):
1. Underbody tool boxes:
   (two) 48” long x 20” high x 17” deep
2. Locks: Slam locks, keyed alike with hidden
   theft resistant rods

Cross Box:
1. “L” cross box - which includes
   underbody tool box
   Cross box: 24” long x 92” x 37” high across chassis
   rails; (6) swivel rope hooks; (1) shelf; (3) gal. water
   cooler holder

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TCI's mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the nonprofit National Arborist Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.
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Maintaining the structural integrity of trees is a critical element of arboriculture. As Dr. Alex Shigo remarked in *A New Tree Biology*, "Trees are large, heavy objects that can kill you if they fall on you."

Every year people are injured or killed and property is damaged due to tree failures. Obviously, reducing tree failures is an important duty we have as arborists, paramount to all others. Evaluating a tree failure that resulted in the death or serious injury of someone is certainly among the most sobering professional experiences an arborist might face during his
or her career. However, even in situations where no target exists, if the tree fails, we still lose the tree. There are many instances, with historical trees, for example, where the tree has tremendous value. Maintaining structural integrity is valuable in itself.

So what can be done to reduce the possibility of tree failure? First, it is important to understand where failures occur. Johnson in his US Forest Service Technical Guide, R2-1, *Tree Hazard Recognition and Reduction in Recreation Sites*, noted that about two-thirds to three-fourths of the reported tree failures in Western U.S. recreational areas were located in the lower trunk to roots. While it could be argued that this is a regional study, the results are not too far from other, more national surveys. A review of the list of inherent failure patterns for selective trees in Nelda Matheny’s and Jim Clark’s book, *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*, will find that whole tree, root/butt and trunk failure constitute the majority of failure patterns. This is an important reminder for arborists assessing hazards in trees—remember our limitations. Trees can fail at the ground roots, root collar, lower trunk, upper trunk-scaffold branches and in the canopy. We cannot do much to correct defects in the first two categories and our options for the third are limited.

The chain saw is our primary tool for managing tree structure, by either removing defective branches or entire trees. However, not all defects or potential defects can be removed and still maintain the appearance and vitality of the tree.

Codominant stems (two stems of similar size originating at the same point) are probably the most common example of this type of dilemma. These stems often develop included bark and become weakly attached. Codominant stems of most concern are those that form along the lower trunk. As they increase in height, these codominant stems also tend to spread apart as their branches extend further out from the common center. Wind loading also increases as the canopy volume continues to expand up and out. In addition, codominant stems often do not develop the same degree of taper as single stems and are more prone to excessive swings under wind load. All these factors increase the possibility of failure. Yet, the decision to remove one of these large codominant stems to reduce the risk of failure is not an easy or simple one.

Obviously the appearance of the tree would be drastically altered if one of the two stems was removed, and for this reason alone, tree owners rarely consider this option. But arborists have a few more reasons to avoid this type of pruning. Arborists should be cautious about removing large portions of the living canopy. The removal of this large foliage area can have a negative impact on the lower trunk and root system that was supported by photosynthates produced by the removed foliage. In addition, codominant stems are a special case—they do not form the collars that normally occur with branches—and thus are more vulnerable to decay. These problems make support systems a preferred option in many instances.

Arborists have always looked for ways of providing additional support for codominant stems. While steel support systems have long been employed for such purposes, there are many new systems...
entering the market. These new support systems, which make use of different materials and attachment devices, have made us reexamine our thinking about almost all aspects of this type of tree work—probably long overdue, since our basic materials and placement guides have changed little in the past 50 years.

Cobra is one of the better known alternatives to traditional steel support systems. For those not familiar with Cobra, it is a 12 mm (about ½ inch) hollow, polypropylene rope system that does not require any drilling into the tree for support. Instead, the rope is hitched around each stem through a splice made by inserting the rope back into itself. Plastic expansion plates are inserted in the portion of the rope cradling each stem. These expansion plates (also referred to as inserts) spread out the rope so the load against the stem is distributed over a larger surface area. These plates are also covered with an anti-friction sleeve to reduce abrasion and maintain a dry surface. To complete the system, a rubber shock absorber is placed into the rope between the two stems to help reduce the impact of the dynamic loading from the swaying. The name, Cobra, is very descriptive as the hollow rope "swallows" the expansion inserts and rubber shock absorber to complete the system.

Arborists, while intrigued by this new system, had many questions: how quickly does it degrade when exposed to ultraviolet light; will squirrels feed on it; and will it injure the tree? We began an investigation of some of the properties of Cobra to begin answering these questions.

How quickly does the rope degrade when exposed to ultraviolet light?

We installed Cobra in two trees and left the material in place for six months (May to October 1999) and 14 months (August 1998 to October 1999). We were testing for strength loss due to ultraviolet light exposure rather than loading, so the ropes were hung loosely in the trees rather than providing support. Ropes from the same box were also kept in the lab building, out of the weather, for use as the control. The breaking strength of the ropes was evaluated on tension-testing equipment in the Civil Engineering Department at South Dakota State University dur-
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The Cobra rope that had been left in the box had an average breaking strength of 4,068 pounds, about the advertised strength of two metric tons. The rope left on the tree for six months had an average breaking strength of 3,903 pounds, about a 4 percent strength loss. The material left on for 14 months had an average breaking strength of 3,698 pounds, about a 9 percent strength loss. Strength loss of polypropylene due to ultraviolet light exposure is not a linear relationship; the loss of strength is most rapid in the beginning and then levels off. Thus we do not anticipate strength loss to continue at this rate. One interesting, though not unexpected, result of the test was the rope beneath the sleeves, regardless of the length of time in the tree, had very little strength loss. Obviously, the anti-friction sleeve protected the rope from the ultraviolet light.

We also installed Cobra following the manufacturer’s recommendations during August 1998. In October 1999, increment core borings were made just beneath where the expansion inserts were in contact with the bark. Corings to a depth of 1 inch were taken at two points in this contact area and at another two points approximately 10 feet below. A microscopic examination of the cores did not reveal any difference in growth between the wood beneath the expansion plates and elsewhere along the trunk. While this was not a detailed enough examination to truly answer the question, there does not appear to be any detectable injury. Any differences that are detected in future tests may be minimal due to the nature of this support system.

**Does Cobra injure the tree?**

Some confusion remains about how the draft of ANSI A300 Part 3 deals with synthetic fiber tree-support systems. Original drafts did not address synthetic fiber systems in order to allow these systems to gain more field testing in the United States.

A number of commenters during the first public comment period noted that the failure to address these systems could be construed as an endorsement of steel support systems over synthetic-fiber systems. Since this was never the intent, the committee decided to change the definition of cable and casing to include synthetic fiber systems.

In this way, the new ANSI A300 Part 3 Tree Support Systems will not unintentionally limit the use of synthetic systems.

The only specific requirement placed on synthetic systems, in addition to those placed on conventional systems, is that synthetic systems be UV resistant (steel systems are required to be corrosion resistant). Further research may clarify if this requirement is met by rope construction alone, as Dr. Ball's research might indicate, or if additional protectorants are needed.

The ANSI-accredited Standards Committee A300 recognizes that there are many solutions available. Some arborists choose conventional systems, some modify conventional systems with compression springs to add flexibility, and others use synthetic fiber systems such as Cobra and Sky Brace. All can be installed according to ANSI A300 Part 3 standards!
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Cobra is a dynamic, not static, support system. It is not designed to be under constant tension, continuously exerting pressure against the stem. Cobra provides support only when it is needed, for example during strong wind loads, so the tree can continue to adapt to the increasing load rather than becoming dependent on a static support. Thus the rope is not held tightly against the stem nor is it under constant pressure.

**Do squirrels chew on Cobra?**

Squirrels seem to have the ability (and stupidity) to chew on almost anything, from weatherproofing on electrical conductors to Manila ropes. Obviously there was the question, considering what squirrels will eat, will they chew on Cobra? While it is nearly impossible to do a realistic feeding trial with squirrels, we did place the material in hackberry trees that were inhabited with high squirrel populations. In fact, the squirrels managed to girdle and kill a number of small branches in the trees. There were no chew marks or cut fibers on the material that was examined after a year of use, so it does not appear that squirrels feed on the material. In our discussions with other arborists who have used Cobra, none had observed any squirrel problems with their installations.

**What is next?**

The information we have at this time is limited. We intend to continue testing strength loss over a longer time period. We also will be examining strength loss due to loading, really cycles to failure. In addition, we plan to study the actual forces that support systems are subjected to in a tree. While we know the breaking strength of Cobra and steel cable of various diameter and composition, how much strength is needed to support two 10-inch diameter stems in a 40-mph wind? Studying the materials without also studying the loads is putting the cart before the horse. Understanding the dynamics of loading in trees is critical to our understanding of support systems.

**Some pointers on Cobra installation**

Based upon our experience with the system, as well as those of other arborists, here are some installation pointers. Generally, the Cobra standard is sufficient for most jobs. If you are supporting very small branches, fruit trees for example, mini Cobra is appropriate. Cobra plus should be used when the codominant stems are greater than 20 inches in diameter at the fork.

Installation at the proper height is critical. Cobra should be installed at a height above the fork equal to 20 to 25 times the diameter of the stems to be supported. For example, if just above the fork each codominant stem is 10 inches in diameter, then the installation height is between $10 \times 20 = 200$ inches (about 16 feet) and $10 \times 25 = 250$ inches (about 21 feet) above the fork. Installation within this range will ensure that the loading on the system is within the limits of the Cobra material. Sometimes, however, the branching in a particular tree makes it difficult to install Cobra at the recommended height. Installing at a higher point will reduce the stress on the support material but increase the stress on that portion of the tree. Installing at a lower height increases the stress on the support material, but is generally the preferred option. To increase the strength of the system in this situation the following have been suggested: double the rope by feeding two ropes completely through one another (we have not tested this tech-
The expansion insert spreads the rope so that the load against the stem is carried over a larger surface area. Use an expansion insert that is at least twice as long as the diameter of the stem at the installation height. For example, if the stem is 6 inches in diameter, the expansion insert should be at least 12 inches. There are several sizes of expansion inserts available. Once the proper size expansion insert is selected, slide it into the hollow rope. The starting point for this insertion is at a point as far from the end of the rope as the length of the expansion insert itself plus 1-1/2 to 2 feet. This means for a 6-inch diameter stem, the starting point for the insertion is 2-1/2 to 3 feet from the end. This will provide enough extra rope at the end to form the splice and growth loop. Next, place an anti-friction sleeve over the expansion insert. The sleeve should be several inches longer than the expansion insert. Now apply an end cap on the rope by forming the plastic cap around the end and applying heat with the Cobra blowtorch or similar devise.

Place the rope with the expansion insert and anti-friction sleeve around the stem. Usually this installation is made just above a branch, as this will provide a natural cradle to support the stem. The expansion insert should be placed so it covers the entire distance where the rope is in contact with the stem. The anti-friction sleeve should be long enough that it covers all the rope that is in contact with the stem. The primary reason Cobra develops slack is from the sleeve being too short and the rope coming in contact with the bark. The exposed rope can catch on the bark and, with the natural swaying of the stem, be pulled back through the splice. A long, properly placed anti-friction sleeve prevents this from occurring.

Once the expansion insert and anti-friction sleeve have been correctly placed, splice the rope. The splice is made by inserting the tail with the end cap through the rope. The rope splice is 6 inches long, then the tail is brought out to form a loop. The primary function of this loop is to adjust tension so only about 1 foot of loop is needed. After the loop is made, slide the remaining tail back into the rope.

The function of the shock absorber is to dampen the low oscillation swings due to the gentle swaying from a light wind. A high oscillation swing, such as during a strong gust, is dampened by the rope. The rope will elastically stretch approximately 7 percent under load. The shock absorber can be inserted at any convenient distance.

Once the Cobra system is installed around one of the stems and the shock absorber is in place, repeat the procedure around the opposite stem. Do not use a come-along to pull the stems together. Cobra should be installed so it is only hand tight and the loops used to adjust tension. Once the rope is hand tight, place your weight on the rope to pull out the slack. Now readjust the tension and you are finished.

Finally, remember that installation of any tree support system is as much an art as a science. Each tree and situation is different and must be evaluated as such.

We would like to acknowledge the helpful review of this article by Erk Brudi, Munich, Germany.

John Ball is an associate professor of forestry and Travis Konda is an EIT graduate engineering student at South Dakota State University in Brookings, S.D. For more information contact John Ball by e-mail at: John_Ball@sdstate.edu.
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These four hazards are chief concerns of OSHA inspectors

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Employee Recognition

By Wayne Outlaw

Is recognizing employees for positive performance necessary? Some managers think it’s enough that employees are paid salary and benefits. But, if you want positive performance, it must be recognized and rewarded.

It has been said, “What gets rewarded, gets repeated.” Without recognizing and rewarding the behavior we want in our company, it will disappear. It is essential that top management look at what they are rewarding and ensure they are rewarding the things they want repeated.

Recognizing and rewarding employee performance includes a variety of actions, such as praising or acknowledging performance, increasing the individual’s responsibilities, increasing pay and providing promotional incentives or contests. The supervisor has a large responsibility to carry it out and there is a large payoff when it is done well.

Praising performance is one of the strongest motivators for individuals. Praise comes in many forms. It can be as simple as saying, “You did a great job.” Telling peers in a meeting or group how well someone has performed is also very powerful.

One owner started calling each employee on his or her birthday to wish him or her a “Happy Birthday.” When the foreman first called an employee to the phone for a call from the owner, the employee’s response was, “What did I do?” Now that word of the birthday call is out, you can see employees waiting for their call. If it doesn’t come until late in the afternoon, some have been known to ask if the owner forgot. A simple, genuine gesture that recognizes a key event in the employee’s life shows the company sees the employee as a person.

Written praise is even stronger than verbal praise. A handwritten note or letter to an individual recognizing performance is even more effective than verbal praise. A letter or note written by a supervisor to a top manager praising the employee can have a dramatically positive effect.

Recognizing Tenure

There are many different rewards employees can be offered to recognize their contributions of tenure. Expand your thinking and look for things people really value.

- Some organizations give the employee additional or incremental vacation based on their years of service.
- Some recognize each employee’s anniversary with the company with a special announcement and celebration.
- If employees are given a company vehicle, some upgrade its quality after milestone anniversaries.
- Most organizations provide service pins, charms or rings to recognize tenure.
- Logo merchandise, such as t-shirts, sweaters, jackets and even belt buckles can be offered as rewards for contribution and tenure.

Simple, but genuine, rewards make a clear statement of your appreciation and recognition of an employee’s efforts and loyalty.
If employees are performing well and can move to more responsible positions in the future, the manager should begin by gradually adding responsibilities.

This will allow them to grow and reduce the possibility that when moving into a new position, the change will be too drastic and they will fail.

Incentive pay is one of the most effective rewards for performance. Companies that tie their bonuses and pay increases to performance, as a rule, obtain greater results and profits. To be effective, the reward needs to be tied directly to a specific performance or behavior the employee can repeat. The closer in time positive behavior is to the receipt of the reward, the greater the motivating power of the reward.

A strong and consistent program of recognizing excellent performance will produce results in a tree care company. Many organizations recognize a few people, such as the foreman of the month. This, however, may not be effective in motivating and rewarding the performance of others.

If some employees feel the criteria does not allow an equal chance to win, recognizing only one employee or group will not motivate or increase performance. Effective recognition programs provide the opportunity to achieve for the entire group, not just the same few. If the same people are being recognized month after month, that is a symptom of a problem in the recognition program.

Promotions or contests are a great performance motivating incentive. The length of a promotion or contest depends on your objectives. Many people feel that for a promotion to be successful it has to have large or expensive prizes, but this is not true. The creativity and thought in the development, planning and publicity of the contest determine its success, not the prizes. Remember, recognition of achievement by others is, in itself, a motivator. The weekly report of standings or statistics to the entire group, such as no lost days to injuries, may be the greatest benefit of a contest or promotion.

Money is most often the worst prize because it is spent and quickly forgotten. The best prizes tend to be items such as a computer game or a television that remind the employee and those close to them of past success. Awards or prizes such as plaques and trophies that are highly visible to the rest of the company can also be great motivators.

Remember that the prize isn’t always the greatest incentive. The excitement of competition, recognition by peers and pride of accomplishment are often more stimulating. The work itself can be a motivator.

In summary, having talented employees who consistently perform at high levels is essential to the success of a tree care company. The way to keep them and keep their performance at a high level is to consistently recognize employees and their contributions. Create a positive work environment to create positive workers.

Wayne Outlaw, author of Smart Staffing, can be reached at (800) 347-9361 or www.smartstaffing.net.

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TTCI
Bandit Industries introduces the 14-inch Model 254 hydraulic feed, disc-style chipper. Its 287-square-inch opening is 25 percent larger than the Model 250XP and the easy climb feed wheel-tensioning system makes feeding larger pieces easier and reduces movement of material in the infeed hopper. The increased opening and powerful feed system reduce the need to trim. The unit is available with three knife pockets that enable it to chip smoothly with less vibration, and the knives stay sharp longer, reducing maintenance costs. A 360-degree swivel discharge spout, hand crank swivel discharge spout and a variety of gas and diesel engines up to 135 hp are offered. The unit weighs 7,800 pounds, is 100 inches high, 89 inches wide and 186 inches long. For information contact Bandit Industries, Inc. at 800-952-0178 or 517-561-2270.

The Vermeer BC1000 brush chipper unites European style and quietness with American power and productivity. This “quiet” machine includes a clutchless PTO, rubber mounted engine and feed housing, rubber torsion suspension, a noise reducing design and an optional sound abatement package. The standard unit, available in the U.S. and Australia, is powered by an 85 hp (63 kw) Cummins diesel engine and the European model has a 54 hp (40 kw) Deutz engine. Different undercarriages are available in the U.S., Europe and Australia. The split fiberglass engine hood provides access to all engine components including drive belts and pulleys. The feed opening, 10-inch by 17-inch (26 x 44 cm), is the largest in its class and the cutter drum handles debris to 10 inches (25 cm) in diameter. The unit is equipped with a 66-inch feed table. For information call Daryl Bouwkamp toll-free at 888-VERMEER (837-6337)

Denison Hydraulics of Marysville, OH, assisted Shinn Cutter Systems in improving the hydraulic control and power of their land clearing attachments. Shinn’s SC-2 Land Clearing Attachment, which can remove an 8-inch, 40-foot tall pine tree in less than two minutes and reduce it to chips the size of your thumb, now relies on Denison’s P11 piston pump with torque limiter control and M11 motor for its cutterhead. By eliminating hydraulic spikes and shocks, the drum cutterhead accelerates smoothly, easing the stress on the hoses and other components, thereby improving operation efficiency. The Shinn cutterhead carries 40 replaceable teeth that can be indexed in increments of 90 degrees and the drum speed varies from zero to 1340 rpm. The SC-2 can replace a typical land-clearing fleet of machines making clearing a job site a one-man, one-machine operation. The Shinn unit can be purchased as an attachment for an excavator or as a complete land-clearing package. For information on Denison Hydraulics call 937-644-3915 or visit their web site at www.denisonhydraulics.com. For information on Shinn Cutter Systems call 704-786-5321.

Dymax Tree Shears, useful in a variety of applications, come in five categories. The 10-inch Land Clearing Tree Shear, for Skid Steer and small wheel loaders, is ideal for pasture reclamation and hedgerow maintenance. The 14-inch Land Clearing Tree Shears and the 14-inch Forestry Tree Shears are available for hydraulic excavators as well as the Skid Steer and small wheel loaders. The 14-inch Forestry Tree Shears, ideal for thinning operations on a variety of terrains, feature a double arm plantation grapple and optional accumulator, which is particularly useful when multiple trees are sheared at once. The three machines feature ground level cutting, eliminating stump problems and leaving the terrain smooth. The 16-inch and 20-inch Forestry Tree Shears for hydraulic excavators are the perfect tools for forest utility work such as power line right-of-way maintenance. The double arm grapple securely grabs the tree as the shear arms are activated and the optional accumulator is ideal for thinning in small logging operations. For information call Dynax at 800-530-5407 or e-mail scbaldner@midusa.net.
Wood-Mizer Products' LT25 entry-level sawmill is now equipped with a 20 hp Kohler gas engine for 25 percent faster cutting. This allows the mill to achieve cutting speeds of up to 30 feet (9.8 meters) per minute. It can cut logs up to 32 inches (81 cm) in diameter or 16 feet, 8 inches (5.1 meters) long. Log deck upgrade options are available giving it the same loading and handling capabilities as the LT 30 industrial mill. It also offers an easy-to-use hand crank system that adjusts the cut and feeds the blade. For information contact Wood-Mizer Products, Inc. at 800-553-0182 or visit their web site at www.woodmizer.com.

EFCO/Olympyk introduces the model 940, a lightweight (8.8 pounds) 38cc chain saw offering high performance in an easy-to-handle design. It develops 2.4 hp and was engineered with a flat torque curve for strong cutting power at all rpm. Features include an inertia/manual chain brake, five-point anti-vibration system and a combined choke/half-throttle control for fast starting. It has a zero idle flow, gear-driven automatic oiler and a top cover that allows quick access to the air filter and sparkplug without tools. EFCO/Olympyk products, manufactured in Italy by Emak, are imported and distributed in the U.S. and the Caribbean by Tilton Equipment Company. For a dealer near you call 800-447-1152.

Buckingham Manufacturing's new Master II Saddle-Model 13902 is a harness from the Arbormaster collection. New features include: a center attachment point, multiple tie in points for overhead suspension and work positioning, formed D-ring to ease attachment, multiple elastic keepers to contain excess straps, less strap between legs for comfort and greater mobility and a polymer clip to keep leg straps from loosening. For information call Buckingham Manufacturing Co., Inc. at 607-773-2400.

EFCO/Olympyk introduces the model 940, a lightweight (8.8 pounds) 38cc chain saw offering high performance in an easy-to-handle design. It develops 2.4 hp and was engineered with a flat torque curve for strong cutting power at all rpm. Features include an inertia/manual chain brake, five-point anti-vibration system and a combined choke/half-throttle control for fast starting. It has a zero idle flow, gear-driven automatic oiler and a top cover that allows quick access to the air filter and sparkplug without tools. EFCO/Olympyk products, manufactured in Italy by Emak, are imported and distributed in the U.S. and the Caribbean by Tilton Equipment Company. For a dealer near you call 800-447-1152.
Your Voice Needed on Chain Saw Standards

The Accredited Standards Committee B 175 invites public comment on its proposed revisions to the American National Standards Institute (ANSI) B 175.1 1001 Standard for Gasoline-Powered Chain Saws – Safety Requirements. B 175.1 is a voluntary national standard that establishes safety requirements for the manufacture and use of portable, hand-held, gasoline-powered chain saws. It contains definitions of terms relevant to chain saws and their use and guidelines for certain chain saw features. The standard also contains test procedures and specific performance requirements concerning vibration, sound levels and bar nose kickback.

The public comment period commenced with an announcement in ANSI’s Standards Action on Feb. 11, 2000 and will end on April 11, 2000. Copies of the proposed revisions to the standard can be obtained for $25 from Secretariat, ASC B 175 Committee, 4340 East West Highway, Suite 912, Bethesda, MD 20814. (Make checks payable to PPEMA). Comments on the proposed standard should be sent to the Secretariat at the above address.

New Division for MTI

MTI Insulated Products has announced the formation of a Pre-Owned Equipment Division to service this market. It will have its headquarters in Fort Wayne, Ind., with a marketing support office located in Milwaukee, Wisc. All equipment will be completely inspected and reconditioned at MTI or selected dealer locations. The first equipment, 26 S5-50 forestry packages featuring the S5-50 and the VS-50 aerial device, will be available early in the first quarter of 2000. The equipment can be viewed at MTI’s Web site: www.tecoint.com, or call Brad Bowditch at 219 478-7201 or Frank Gruning at 414-321-9012.

Reference Material Online

The Morton Arboretum in Lisle, Ill. recently made its Plant Collections Catalog available on the Internet. The catalog is unusual in its breadth of information, according to the arboretum. Catalog entries include each plant’s scientific and trade name, location on arboretum grounds, geographical range and hardiness. Accession information detailing when, from where and by whom a specimen was added to the collection is also listed. Users can copy, cut and paste information making the database a handy reference tool. Visit the Web site at www.mortonarb.org. The Morton Arboretum is a 1700-acre non-profit outdoor museum established in 1922 by Joy Morton, founder of the Chicago-based Morton Salt Company.

Strategic Staffing Workshop at Kiawah Island

Owners and top managers of green industry businesses may find of interest a three-day seminar (March 10-12) designed to analyze an organization’s current staffing situation and assist in the development of strategies to ensure the organization is staffed with top-performing employees— even in today’s tight labor market.

Conducted by Wayne Outlaw, a staffing expert, consultant and author, attendees will analyze their company’s staffing situation and need for human capital, as well as receive techniques and strategies other companies have used to ensure quality applicants. They will build a strategic staffing plan, which can be implemented immediately. To assist in implementation, Outlaw will provide complimentary consulting for 60 days, by e-mail and fax, to answer questions.

Participants will receive:
♦ strategic staffing system CD with forms and tools, which can be revised to meet company needs;
♦ staffing manual with a list of resources;
♦ autographed copy of Smart Staffing: How to Hire, Reward, and Keep Top Employees for Your Growing Company;
♦ sample pre-employment evaluation instruments, including an integrity instrument;
♦ complimentary review of attendee’s strategic staffing system.

After the seminar, company owners should find they have: decrease in turnover and an increase in employee satisfaction by hiring the right people; fewer legal problems by keeping hiring methods within legal guidelines; better ability to compete successfully for top performers; a system for comparing candidates’ credentials; better productivity quicker from recruits; higher profits due to workforce stability; and increased employee commitment.

For more information and a complete description of the topics to be covered, call 800-347-9361; Fax: 843-881-1758; Web site: http://outlawgroup.com/strategicstaffingworkshop.htm; E-mail: StaffingWorkshop@OutlawGroup.com.
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The Widow Carter paced anxiously back and forth like an expectant grandmother. The Widow’s favorite Oak tree had developed a mysterious illness that only a master sleuth could diagnose.

“What the Sam Hill”, the Widow exclaimed, as Big Al Fontaine strutted across the yard, probing, sniffing and collecting leaf samples, with number one man, Max Bunyan, dogging his heels. Magnifying glass in hand, searching every detail in the yard, the pair resembled the famous duo of Sherlock Holmes and Dr. Watson (minus the big hat and that funny tobacco pipe that swoops down like a saxophone).

“Insects, My dear Max!” Big Al proclaimed at last, as he stuffed the collected leaf samples into a plastic Ziplock bag.

In today’s market, the professional Arborist is no longer “climbing spikes”, “chainsaw’s” and a “pickup truck” (with a shattered back window). Nowadays, lifesaving measures are taken to preserve monumental trees, as opposed to the former radical option of total removal (and give em a price to stack the firewood).

As with any other aspect of our specialized industry, one must have the proper equipment. Climbing folks require ropes, saddles, etc. Managers always seem have a cell phone within arms reach. So, naturally, consultants must be equipped with the necessary tools to discover what might be giving grief to a tree.

Nothing is handier than packing your “fixens” in a duffel bag. Some suggestions for your “bag of tricks” are: Camera, binoculars, small shovel, whisk broom, soil probe, tree tags, increment borer, tape measure, plastic bags for soil samples and leaf samples. (Most laboratories will take them in plastic bags). Let’s not forget the device that really gets in there and helps us see the otherwise unseeable. The portable microscope actually brings the “lab” into the field and comes in many shapes and sizes.

Armed with the latest in technology and of course, experience we can now offer diagnostic services to the public, which only a short time ago these same tree ailments were solved with conventional methods of pruning or removal. Remember that it is imperative that an accurate diagnosis be given, so that the proper treatment may be administered.

The Widow Carter will thank you.
Tangling With OSHA
Rules, regulations and rights

To those looking for a quick point in this article, there are actually three.

**Point One:** OSHA is generally out of control.

**Point Two:** For the time being, through the efforts of the National Arborist Association (NAA) and its member companies, the tree care industry has preserved the right to use a body belt and lanyard as fall protection in an aerial lift truck. It remains questionable, however, if arborists are going to be considered loggers. Point Three is at the end—you may skip forward if you like.

The most recent example of the muddle that OSHA is in is the November 29 letter from OSHA to an employer in Texas that warned the employer was responsible for the safety of its tele-commuting employees. The letter was quickly withdrawn, but not before it set off a firestorm of opposition from the business community and members of Congress.

OSHA’s interpretive letter to the Texas company called into question the relevance of this sort of guidance, its applicability and its legal effect on companies. The business community’s interpretation was that OSHA’s letter amplified the agency’s rules without a formal rule making, or in the words of NAA legal counsel Steven Semler, “... as an end run around the required statutory processes.”

The rules governing the writing of regulations to implement a law are elaborate, and they require the opportunity for public comment before final decisions are made.

The rule-making process has become more laborious and contentious over the years as Congress has added more requirements that agencies must meet to justify starting the procedure. A recent example relevant to the tree care industry is the promulgation of the so-called Vertical Standard, CFR 29 part 1910.269, which regulates the utility line clearance industry. That rule-making process took over 12 years from start to finish—appallingly slow by anyone’s standards.

Many industries and their allies in Congress view the Agency’s use of less formal advisories, guidelines and interpretations as a way for the Agency and the current Administration to circumvent the rigors and restrictions of rule making.

The NAA supports this view. Folks at OSHA have told us this plainly to our face.

OSHA’s attempt to change its regulations by letters of interpretation has twice been the victims of OSHA’s attempt to change its regulations by letters of interpretation. In each case, the NAA was forced to threaten to sue OSHA to protect members from such abuse before OSHA retracted its interpretation.

The first issue was OSHA’s claim that tree care fell under their Logging Standard. That interpretation was rendered in a March 4, 1998 letter from the then-Director of Compliance Programs. It was refuted in a March 6, 1998 letter from NAA legal counsel back to OSHA, and finally the interpretation was retracted in a June 22, 1998 letter from the Deputy Assistant Secretary to NAA.

The second issue was OSHA’s interpretation that line clearance bucket operators had to wear a full body harness/fall arrest lanyard, delivered to NAA in a December 13, 1999 letter. The NAA response came on January 12, and the retraction was received January 31.

Which leads to **Point Three.** At press time, the NAA had been invited to provide comments and testimony before the House Government Reform Committee’s Subcommittee on National Economic Growth, Natural Resources and Regulatory Affairs. We hope to initiate a dialogue with Congress that just might allow us to head off these useless confrontations in the future and allow us to concentrate on the business of protecting worker safety.

Peter Gerstenberger is director of business management, safety & education for the National Arborist Association.
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Safety Programs & Loss Control Can Reduce Insurance Premiums

By George J. Klinger

Loss Control is the prevention and/or reduction of all types of accidents, claims or losses. This includes worker injuries, vehicle accidents, equipment damages, liability and property losses. An effective loss control program can reduce your insurance costs, claims and injuries.

The cost of accidents

For owners of tree care companies, the indirect costs of accidents come right out of net profits. Indirect costs stem from such things as lost production; the time spent investigating accidents and filling out reports; recruiting and training new employees; damage to tools, equipment and property; and the loss of customers because of not being able to meet promised schedules.

Although costs vary in amount from business to business, they usually average four times the direct cost paid by the insurance company. This means that an accident for which the insurance company pays $2,000 could, in the long run, cost your company more than $8,000. Let’s say, for example, that your net profit margin is 10 percent. You would have to increase your sales by more than $80,000 to make up for the profits lost because of a single accident.

Occupational injuries and illness cost money and can affect more than your workforce. You’ve got medical bills and equipment repairs. You also have lost time on the job, which upsets the customer, and can possibly affect your credibility. The good news is that you can avoid and control these expenses if you have an effective safety program.

Insurance company safety concerns

What makes safety good business for NAA members? Without a doubt, when an insurance company looks at a tree
care company wanting insurance coverage, the first thing they do is ask about your safety program and how you educate your employees about safety. Your answers may make the difference between being insurable or not.

Since the most common types of insurance claims involve workers' compensation and vehicle accidents, insurance companies look at both people programs and equipment policies when assessing whether to insure a company.

A safety program can:
- Prevent and control injuries, vehicle collisions and other incidents
- Lower the cost of running your business
- Boost productivity
- Make employees feel better about their jobs
- Help you finish the job on time
- Enhance your company’s reputation

Participating in the NAA’s Tailgate Safety program and using its many other resources to enhance a safe crew and workplace is good business for arborists, according to Devin Blazier, senior vice president at TreePro, which provides specialized arborist loss control guideline programs and safety report checklists to insureds.

Management sets the standards

The owner or manager sets the mission of the company and should be following ANSI Z133.1 safety standards. From the initial contact with clients through the performance of tree care services, safety standards should be apparent. The appearance of the workers, quality of work performed and especially the job-site safety standards are all interrelated in the reputation of that tree care company.

Management must dictate these “occupation-specific” safety standards and demand enforcement by crew chiefs and all their workers.

OSHA uses the phrase “Competent Person” in many of its safety standards, which it defines as “one who is capable of identifying existing and predictable hazards ... and who has authorization to take prompt corrective measures to eliminate them.” A tree care company’s competent person is the owner, foreman or crew chief who is responsible for running the job. This person is empowered to make sure the crew performs the tree care work in a high-quality, productive and safe manner, dictated by the company’s arboricultural standards. The crew workers should also be empowered to identify and correct hazardous working conditions.

According to OSHA, the most frequently cited violation of safety standards for general industry (including arborists) is a lack of written programs for hazard communication. Other common violations were a lack of documentation of:
- Personal protective equipment policy and enforcement
- Accident-prevention programs
- Safety training by a “Competent Person”

Your team is your crew and the goal is to complete each job safely, efficiently and with quality workmanship. Job-site safety must be a team (crew) effort, one job at a time. To increase the success of your safety program, employee participation is key. Employees must understand their role in preventing injuries and losses. Making employees an integral part of the safety program will lead to a more complete acceptance of the overall safety commitment.

Important safety elements of an arborist’s loss control program

Workers often adopt management’s attitudes, so it’s important that managers support and be involved in the safety program. This support will make the program a success. Your safety policy should send a loud and clear message that the company is serious about safety.

Statements in your policy should include:
- It’s our responsibility to protect employees, the public and the company

Please circle 37 on Reader Service Card
Every attempt will be made to reduce injuries, vehicle collisions and other incidents

The company is committed to complying with safety laws, ANSI Z133.1 standards and regulations of safe work practices and procedures

Your signature on the policy

Once you have a safety policy, let every employee know about it. You can use:
- Bulletin boards
- Pamphlets
- Letters
- Payroll stuffers
- Employee meetings
- Small group discussions between supervisors and crews

Below is a list of important features a safety program should contain. Think about which ones are perfect for your company. Feel free to contact me for a detailed explanation of each.

- Company safety policy
- Safety rules and regulations
- Safety violation policy
- Duties and employee safety responsibilities
- Employee selection
- Employee orientation and training
- Pre-planning jobs
- Accident reporting and investigation
- Safety committees
- NAA's Tailgate Safety meetings
- First aid and medical treatment
- Personal protective equipment and use enforcement
- OSHA record keeping
- Fleet vehicle and driver safety
- Tools and equipment - theft loss prevention

Safety & loss prevention are winners for all

Joining NAA, participating in its loss-control activities and utilizing its safety and training resources not only contributes to a company's insurability but also can reduce premiums. That has yet another business benefit: If you participate in safety programs, you have fewer claims, which means lower premiums, giving you a competitive edge because you can lower your business expenses and increase profits.

The responsibility for safety begins at the top. When managers believe in the company's safety policy, employees believe in it. The best way to achieve this kind of acceptance is by writing and publicizing safety policies that state the company’s Loss Control Program goals for a safe and healthy work environment.

George J. Klinger is the director of loss control with TreePro. He is a member of the NAA Safety Committee and has been a member of ANSI Z133.1 since 1981. TreePro is an Associate Member of the NAA, and has arborist safety guidelines and itemized checklists to assist clients in controlling losses and reducing claims and injuries.

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American Society of Consulting Arborists  
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### March 13, 2000
Pruning Landscape Ornamentals for Beneficial Effects  
Cook College, New Brunswick, NJ  
Contact: Karen Plumley (732) 932-9271

### March 15, 2000
Aerial Rescue  
Jeff Jackson, presenter  
MSU Tollgate Education Center  
Novi, MI  
Contact: Ann Ashby (517) 482-5530

### March 15, 2000
Ecological Landscaping Association  
Hands-on Analysis  
Tower Hill Botanic Garden  
Boylston, MA  
Contact: (978) 897-7490

### March 16, 2000
Hazardous Tree ID  
Cook College, New Brunswick, NJ  
Contact: Karen Plumley (732) 932-9271

### March 17, 2000
Large Tree Pruning & Rigging  
Cook College, New Brunswick, NJ  
Contact: Karen Plumley (732) 932-9271

### March 31, 2000
Perennial Plant Workshop: Hellebores  
The Scott Arboretum  
Swarthmore, PA  
Contact: (610) 328-8025.

### April 2000
Electrical Hazards for Arborists  
Don White, Bob Popielarz, co-presenter  
Contact: Ann Ashby (517) 482-5530

### April 6, 2000
Pruning Urban Trees for Safety, Health and Aesthetics  
University of California, Riverside  
Contact: (909) 787-4105

### April 14, 2000
Woody Plant Workshop: Flowering Cherries  
The Scott Arboretum  
Swarthmore, PA  
Contact: (610) 328-8025

### April 25, 2000
Roadside & Right-of-Way Vegetation Mgt.  
Cook College, New Brunswick, NJ  
Contact: Karen Plumley (732) 932-9271

### May 5, 2000
8th Annual Educational Seminar and Exam Preparation Course  
New Jersey Society of Certified Tree Experts  
Contact: Gary Lovallo (888)873-3034

### May 25, 2000
Young Tree Pruning/Training/Maintenance  
MSU Union, East Lansing, MI  
Contact: Ann Ashby (517) 482-5530

### June 2000
Tree Management to Prevent Storm Damage  
Four Locations: Marquette, Gaylord, Grand Rapids, Detroit, MI  
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Summer Tree ID  
MFPA educational workshop  
Dutro Zoological Gardens  
Contact: Ann Ashby (517) 482-5530

### July 27-28, 2000
Interstate Professional Applicators Assoc. Summer Board Meeting  
Double Tree Inn  
Pasco, WA  
Contact: PO Box 1377, Milton, WA 98354

### July 28, 2000
Conference on Woody Plants  
Swarthmore College, PA  
Contact: Longwood Gardens (610) 388-1000

### August 2000
Blueprint for Urban Forestry  
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Candid comments from our readers...

Not Right Along This Way

This is in response to "ROW Herbicides: Facts & Fallacies" by Dennis Ryan in the January issue of TCI magazine.

I find many honest people in the tree care industry who want to make decisions based on truth. I found this article somewhat interesting but then alarming, i.e., the conclusion. First, the word herbicide was coined by a railroad spray company in Jersey City, N.J. At the turn of the century they were using sodium arsenic to control weeds and plants along the railroad right of way. They did not want the people to know what they were using, so they called it an "herbicide."

The article puts a safe claim on herbicides "if applied properly." What does properly mean? If the author means by the label, than this is a serious misconception. The EPA and the manufacturers put no safe claims on "herbicides." To the best of my knowledge, it is illegal for the University of Massachusetts to step in and claim any product is "safe" for wildlife or people. This must be a process of research and case history. Generally speaking, "herbicides" are not permitted to have a safe claim on the labels because they have not been proven to be safe and often there is accumulating evidence of their hazard risk.

In Pennsylvania, many mixtures of different products from different manufacturers are applied in our once fertile forest. There are no MSDS for the mixtures! I own a business and I am told very often that I do too much for people who work for me. But, those people who apply "herbicides" must know the truth.

For resources to use for a second opinion, you may use our web site: www.chesco.com/-treeman/spring.html

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What Is a Consulting Arborist?

A consultant who knows trees or a tree expert who consults?

By Lew Bloch

John Duke, former executive director of the American Society of Consulting Arborists (ASCA), first brought the above question to my attention, and I believe the concept to be important. It speaks to the importance of the business management, as well as the tree care portion of a consulting firm. I have further expanded the question to ask whether it is better to hire good salespeople (who know trees) or tree experts (who can possibly sell), but this is a topic for another article. Many business failures are due to problems arising from a lack of sound business practices. It is not important that the president of General Motors be an automotive engineer, or the president of Dupont a chemist. Does the manager or salesperson of a tree care company need to be an arborist?

A short time ago, I posted the abovetitled question on the Knothole bulletin board, (tree-tech.com/board) and was disappointed, but not surprised, at the answers. With one exception, all respondents considered themselves arborists, over and above their roles as consultants or businessmen.

So, what is a consulting arborist? The third edition of Arboriculture by Richard Harris, James Clark and Nelda Matheny defines arboricultural consultants as those who “provide technical expertise including problem diagnosis, management problems, and tree appraisals rather than perform service work.” (Emphasis added.)

Before expanding on some of the different services that consulting arborists provide, I would like to discuss the above definition, as well as the differences between a consultant and a contractor. There is nothing wrong with a tree contractor performing a consultation, either for a fee, for free or as a deposit to be applied to future tree work. However, this person is not an independent consultant offering a non-biased opinion, as there may be some financial gain to be made from the consultation. In this instance, a free appraisal is a tool to sell tree services. In order to make an independent appraisal or report free from encumbrances, the contractor should not be able to bid on the tree work. Many times the consulting arborist is responsible for inspecting or supervising the tree work that he or she proposed. How can one honestly inspect his or her own work?

A consulting arborist must be professional, able to communicate effectively orally (such as in court) and on paper (such as in written reports or specifications). The Guide To Report Writing for Consulting Arborists by Dorothy Abeyta is a wonderful tool for becoming a proficient communicator. A consultant should be careful about being too “lawyerly” in reports. Comments should be addressed to the assignment at hand and should not quote or cite tree law ... that is the attorney’s job. Part of the consultant’s job is to help the lawyer with tree law and cases, but not to write it in the report. It is also important to look professional.

Sadly, too many potential clients have had experiences with arborists who are less than professional. I was once retained for an appraisal by a contractor who had considerable plant damage caused by a broken hydraulic line. I ar-
At the very beginning of the project, find out what the assignment is and what the party that hired you wants from you. This is important! If you are comfortable with the assignment, make sure that you address this in your investigation and report. Make certain that you list in your report all of the documents and photos you used and all the functions you performed, as well as the ones you did not do. For example; you did a hazard tree evaluation but you did not climb the tree or do a root-collar excavation.

A list of all of the types of assignments that a consulting arborist could face would take an entire page of this magazine. However, I would like to briefly discuss some of the more common projects with which my colleagues and I have been associated.

**Appraise the monetary value of trees, plants and landscaping.** This could be essential for insurance purposes if valuable trees are damaged or lost. The value may be needed as a casualty loss on the property owner’s income taxes, and quite often, criminal or civil cases arise where trees are wrongfully cut down or destroyed. If trespassing is involved, whether it is intentional or accidental, the victimized party may be entitled to double or treble damages, depending on state statutes.

There are several methods that a consulting arborist may use to arrive at a value of damages. The *Guide for Plant Appraisal*, written by the Council of Tree and Landscape Appraisers (CTLA), is an important document to take the appraiser through the steps to determine the proper method(s) to use, perform the investiga-

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tion, arrive at an appraisal and present the finished report. The CTLA is composed of a single delegate from each of the following trade associations: Association of Consulting Foresters, Associated Landscape Contractors of America, American Nursery and Landscape Association, American Society of Landscape Architects, American Society of Consulting Arborists, International Society of Arboriculture and the National Arborist Association. The guide and companion field report forms are available from any of the above organizations.

**Inspect for possible hazard trees.** A consulting arborist is trained to inspect trees to determine the amount of risk a tree may pose to life or property. It is important to realize there is no such thing as a safe tree. Some trees are safer than others, and some trees can be made safer. Many factors must be considered to determine the amount of risk tree owners should take, but they are the ultimate decision-makers as to the amount of risk they are willing to assume. Some of these factors are the tree species, site, prevailing winds, target, size of the potentially failing tree part and the actual condition of the tree or tree part. Many lawyers, and some arborists, still do not do enough to separate the tree’s health from a structural problem in a tree. A tree can be “healthy” but structurally unsound. There has been a lot written on tree hazard evaluation. *Evaluation of Hazard Trees in Urban Areas* by Nelda Matheny and James Clark is perhaps the most thorough and complete. It has a lot of photographs, as well as a tree hazard evaluation form.

**Perform tree inventories.** Whether the client is a large community, prestigious estate, municipality or a residential property owner, the consulting arborist can accurately identify each plant on the property, place a monetary value on it, site it on a plan and specify maintenance procedures and costs. This is a proactive approach that our industry should be promoting. Far too often, the consulting arborist is called in only after a tree fails or when a tree already has serious problems. Some municipalities and homeowners’ associations are doing this for budget reasons, as well as for tax incentives. Developers may ask for an inventory/appraisal to warn contractors how much a tree is worth in case they do damage it.

**Tree preservation.** Many builders and developers are conscious of the value of trees, but they just don’t know proper tree preservation procedures. A consulting arborist is competent to advise and supervise tree-preservation operations on new construction sites. Feasibility studies of the site should be done before the architects and engineers get too far along in siting the buildings. Trees or their root systems may be accidentally damaged during construction, even though the damage isn’t obvious for many years. Trees can add a great deal of value to a site, but not all trees are assets—some may be liabilities or just not worth saving.

**Provide expert witness advice or testimony.** A consulting arborist should be familiar with tree law but, as I noted above, he or she should not try to act as a lawyer. It is important, however, to be able to assist the lawyer with these aspects. There are numerous types of civil and criminal cases, usually dealing with negligence. Some of these involve personal injuries, fatalities, property-line or border-line trees, encroaching or pro-
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truding roots, limbs obscuring intersections or signs, chemical poisoning of trees and many others. Quite often these cases involve insurance companies. It takes a certain type of personality to deal with the depositions and trials that one must endure in the legal arena. If you are not comfortable with this type of stress, you should stay away from expert witness work.

**Diagnose plant problems.** “What is wrong with my tree? Can you save it? Will my dead tree come back?” Answering questions about tree health and care is one of the most common assignments. Of course, a consulting arborist must be familiar with insect and disease problems, but many problems are abiotic. Some of the common cultural problems are drainage, girdling roots, improper planting, guy wires left on after planting and too much mulch. I was a consultant at a site where there was 12 years worth of mulch (almost two feet) piled against numerous tree trunks and seven certified arborists before me had not diagnosed the problem. Some cited drought problems, and others wanted to spray. When doing plant diagnostics, it is more important to look down than up.

**Prepare, critique and supervise tree and landscape contractor plans and specifications.** A consulting arborist is often called on to perform some or all of these functions. It is important to know the local species of trees and shrubs as well as local ordinances. This is an area where the consulting arborist cannot be both contractor and supervisor without a conflict of interest.

As I mentioned earlier, these are only some of the assignments for consulting arborists. There are constantly new and unusual challenges that make the practice of consulting arboriculture fun and interesting.

If you are interested in this field, I suggest you contact ASCA for membership information at 15245 Shady Grove Rd., Rockville, MD. 20850. Their phone number is 301-947-0483. Always remember, we are professionals!

Lew Bloch is a registered consulting arborist and licensed landscape architect in the Maryland suburbs of Washington, D.C.
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In the windy darkness, streaks of rain shimmered past my pickup’s high beams. Ahead loomed the silhouette of a massive, 100-foot tall eucalyptus tree. The white trunk leaned drunkenly against a two-story building. Shards of broken, red terra cotta, tiles littered the sidewalk amid the wreckage of a dislodged balcony.

As the storm lessened toward dawn, our crews worked to remove the huge eucalyptus. Later, workmen labored for months to repair the extensive damage done to the structure. We were lucky this time, only property was hurt.

Each year, property is destroyed and people are injured or killed by falling trees. High winds can dislodge even sound trees from waterlogged soil. In this case, however, a brown rot fungus—the sulfur shelf mushroom—was consuming the tree’s lower trunk and roots.

As cities grow up around trees, this fungus gains entrance through construction-damaged roots and trunks. Older trees are especially susceptible (and dangerous) because of their greater size.

Often, roots rot so slowly that trees have plenty of time to grow new ones. The younger, smaller roots provide moisture and nutrients, but offer

**Effective decay detection, especially for older urban trees, requires that you get down and dirty. You need to test low on the trunk and on roots below the ground for accurate results.**
little support to the tree. Trunks may develop rotten or hollow cores, though affected trees often show no outward signs of decline. Internal decay is hidden. What we needed was a reliable method to detect these hidden-hazard trees!

In 1997, I initiated a study to test a promising decay-detection tool, the Resistograph. The California Department of Transportation (Caltrans) and the City of Burlingame funded the study. A field team assisted University of California researchers. The Resistograph lived up to its claims, and we now have an instrument that will do the job. Our next question was to determine how it could be used in a scientifically verified manner to accurately detect hidden heart and root rot on large, mature trees.

The study

Thirteen damaged manna and blue gum eucalyptus were slated for removal. Their trunks had grown so wide that they bulged out into the roadway and were being struck by passing trucks and busses!

The trees were part of a protected historical grove that lines a two-mile stretch of El Camino Real in the City of Burlingame, Calif. Planted in the 1800s, these eucalyptus grew to an immense size. Gleaming white trunks, four to six feet in diameter, support luscious green canopies that tower an impressive 150 feet above the state highway.

Several eucalyptus had uprooted during winter storms. Their roots eaten and ruined by the sulfur shelf mushroom. This mushroom is a brown rot fungus that destroys by consuming the flexible cellulose that holds a tree together.

The trees provided a valuable learning opportunity and were perfect specimens for research. One softwood, Bailey Acacia, was added to broaden the study. It had a white rot conk mushroom high up on the trunk. White rot fungi destroy the hard lignin that gives a tree its strength. The Resistograph showed the tree to be a hazard.

The study sought to provide valuable information on the ability of the Resistograph to detect trunk and root decay. We also hoped it would show the accuracy of interpreting Resistograph data.

Dr. Claus Mattheck developed the Resistograph in Germany. It measures the resistance encountered by a .12-inch (3-mm) diameter drilling needle as it mechanically advances into wood. A stylus on a wax paper graph records wood hardness as resistance. Hardness is equivalent to wood soundness. The measuring curves on the graph show annual rings, cracks, decay, cavities and other defects.
A new model of the Resistograph, the F series, was used. The F500, with a testing depth of 20 inches (50cm), was used for trunk tests. The F300, with a testing depth of 12 inches (30cm), was used for root tests.

The trees had a history of uprooting from root rot, so they were tested low on the trunk.

All of the trees were marked and tested in the four cardinal directions (N, S, E and W) at ground level.

Caltrans' tree removal contractor, Expert Tree Service, then removed the trees with a large crane. The stumps were carefully cut at the level of the four test sites. The 20-inch wax paper graphs were then laid out along the corresponding drill paths on each stump. The graph was photographed and carefully inspected for its agreement with wood condition at each centimeter along the drill path.

Evaluations were made at every centimeter and transposed onto charts scaled the same as Resistograph wax paper graphs. The evaluations were recorded as bark, sound wood, potential decay, decay and cavity. In the trunk portion of the test, we were looking for the percentage of agreement or disagreement with our assessment of the Resistograph F500 wax paper graphs.

A model 150/90 Airspade was then used to excavate the soil from around the tree roots. The Airspade accelerates a 150-cfm flow of air at 90 psi to Mach 2, or 1,800 feet per second, which is twice the speed of sound! The supersonic air stream quickly blasts soil from around roots but is amazingly gentle on the roots themselves! This is the tool for root inspections; when you’re through, just push the soil back over the roots.

Each root was numbered, and the prospective test site was marked. All of the roots of each stump were mapped, photographed and tested with the Resistograph F300. The tested section of root was then cut out using a chain saw with a carbide-tipped chain.

Back at the yard, the root samples were further sectioned along the Resistograph drill paths. The 12-inch wax paper graphs were laid along the drill paths on each root sample. Each graph was photographed and inspected carefully along every centimeter for agreement with the adjacent root condition.

In the root portion of the test, we also looked for our accuracy in detecting when a root is drilled through. Would it be interpreted as decayed, a cavity or possibly even as sound wood?

There were 56 trunk test sites and 66 root tests, for a total of 122 individual Resistograph tests. Altogether, 1,912 inches (4780cm) of wood were tested and compared for agreement with the Resistograph wax paper graphs.

**Test results**

Our overall accuracy in detection, the lack of error when all the test categories were averaged together, was over 97 percent.

Some recommendations: The Resistograph needs to be calibrated for the tree being tested (see “Developments in Decay Detection,” January 2000 TCI).
The accurate interpretation of early stage decay readings with the Resistograph has not proven reliable at this time. Therefore, only obviously low-resistance readings for the species being tested should be interpreted as decay.

Trunk testing in trees with suspected root and lower trunk decay should be done at ground level. Test between the swellings that proceed up the trunk, above the tree’s buttress roots. The buttress roots should be tested next in the perpendicular plane, prior to where they disappear into the soil.

If decay is suspected, it is wise to do further tests to confirm the first reading. In many species, core sampling and Fractometer testing can be helpful in interpreting decay. Keep in mind, however, that Fractometer readings must be compared to that of known, non-decayed samples taken from the same tree. Monterey cypress, blue gum eucalyptus, ponderosa pine, black cottonwood, Douglas fir and coast redwood are too brittle to use the Fractometer on. To this list of stubborn species, I now include the manna gum eucalyptus tree. Monterey pine also poses a problem for accurate Fractometer decay assessment.

If decay is found in the lower trunk or in the buttress roots, soil excavation and root testing may be necessary.

To determine if a decayed trunk is safe, use Dr. Claus Mattheck’s formula: \( t \) divided by \( r \) should be less than or equal to 0.3, where \( t \) equals the thickness of sound wood, and \( r \) equals the trunk radius at the height of the test. For example, a tree with a radius of 21 inches at test height and a sound wood thickness of 6 inches, or 6 inches divided by 21 inches equals 0.285, a safe tree.

To calculate root failure potential, I

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Each root was numbered and the prospective test site marked.

The tested section of root was cut out.
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use a derivative of Dr. Tom Smiley’s formula: (DBH x .15) is greater than or equal to (t x .66) equals safe diameter and number of roots, where DBH equals diameter at breast height (4.5 ft.), n equals safe diameter of a single root, and t equals the total number of roots. For example, for a tree with a diameter at breast height (DBH) of 24 inches and a total of 10 larger supporting roots, what is the safe diameter and number of roots? In other words, how much rot is tolerable per root, and how many safe roots do you need to support the tree?

To determine what a safe distance is, apply Dr. Claus Mattheck’s formula for calculating the width of a safe root-plate radius, where Rw equals the root-plate radius, and r equals the radius of the trunk at breast height. If (Rw) divided by (r) is greater than or equal to (3r), the tree is safe. For example, a safe root plate radius for a tree with a diameter at breast height of 48 inches would be 72 inches, or 72 inches as measured outward from the center of the trunk.

As a rule of thumb, consider this: Overall accuracy was over 97 percent.
if more than 70 percent of the trunk is rotted, the trunk is unsafe. If more than one-third of a single root is decayed, that root will no longer support the tree. When more than one-third of all the larger supporting roots are rotten, the tree is a hazard for root failure. Tree roots should be sound to a distance of three times the radius of the trunk at 4.5 feet above the ground.

Certain trees should be given high priority for testing:

- older trees with large or decayed trunk wounds and leaning trees
- trees that have grade changes and are perched above grade, especially by a retaining wall.
- trees adjacent to a driveway, curb, road or sidewalk
- trees that have had the soil raised around the trunk.
- In California, species such as oaks may suffer from too much summer irrigation. All these trees are candidates for root rot and should be tested accordingly.

The best method to preserve a borderline decayed tree is a canopy or crown reduction. The taller the trunk and the wider the canopy, the more force is transferred to the trunk base and tree roots. To save a decay-compromised tree, severe height and canopy reduction may be necessary. The alternative, of course, is to remove the tree.

For more information on using high-technology instruments to detect tree decay read the *Journal of Arboriculture* November 6, 1998. To learn more about the biomechanics of trees, decay and failure analysis see *Stupsi Explains the Tree and The Body Language of Trees* by Claus Mattheck.

When used in the manner outlined in my tree decay study, the Resistograph has proven to be a highly accurate instrument for the detection of moderate to advanced decay in the trunk and roots of mature trees. Effectiveness of decay detection in mature trees requires that you get down and dirty. Especially for older urban trees, you need to test down low on the trunk and on roots below the ground. It's a tough and dirty job. The reward is knowing that a veteran tree is safe to leave standing, and that your client won’t become the unwitting victim of a hidden hazard tree.

John Stepp is an arborist with the California Department of Transportation. The author thanks the Woodside Tree Crew, Expert Tree Service, California Department of Transportation and the City of Burlingame. For more information, a video documentary is available from the author by email at: gloari@earthlink.net.

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ACROSS
1. stomate
2. Lab dish
5. tree fluid
8. short climbing rope (with "line")
12. chemical suffix (pl.)
13. measured by counting tree rings
14. win's antonym
15. knots
16. grounds (tree crew member)
17. gov't safety grp. (abbr.)
18. Job responsibility
19. handsaw brand name
20. insect developmental stage
22. Malus fruits
27. apple (forest plant)
29. flower leaf
30. flower seed
34. "tie, dress and ______" (in knot tying)
35. bad pruning practice
36. Catholic prayer (abbr.)
40. "I ______" (marital pledge)
42. remove tree limbs
44. ______ tree (sycamore's cousin)
45. "I ______ good cigar!"
47. prepared
51. sibling (slang)
52. geologic time period
53. enzyme suffix

DOWN
1. tear-full vegetable
2. winds up a hose
4. tree ______ " ______" their buds (produce new ones)
5. elm seeds, e.g.
6. medium for lab cultures
7. ______ cola, FL
8. easy removal
9. ______ Angeles
10. suffix with self
11. pod occupant
12. end of a letter
13. protection (needed when chipping)
14. sneaky
21. morning
28. aye
30. heating/cooling measurement (abbr.)
31. vase
32. the (Fr., pl)
33. yellow fruits
35. bad pruning practice
36. professor's helper (abbr.)
37. "I ______" (marital pledge)
38. remove tree limbs
41. ______ wood (hard tree)
49. ________ wood (slang; used to spray trees)

(See April TCI for answers.)

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Please circle 48 on Reader Service Card
By Jack Mattingly

Computers have become an essential element in running a tree care business. Unfortunately, unless you have a technically savvy child, it is difficult finding someone who can navigate through the jargon to help you decide on computerization for your office.

I do not design software, so hopefully I can assist you in a common sense way in making some decisions about using computers in your business. Most tree care companies now have computers in their offices. The goal is not to own one, however, but use it effectively to track clients, expenses and personnel to become more profitable.

Client management

The first thing to consider with computers is client management. You want to keep track of information, usually
about people, but sometimes about things. What sort of information should be tracked? Keep a contacts file so that during the slow months you can send out your salespeople to target potential clients. Often, we get so busy dealing with current business we forget to call that client we would like to have. With the proper software, you can keep track of prospects and monitor contact dates and topics of conversation. You can even have your computer remind you when it is time to follow up.

Tracking current clients is another important element that most owners already do. But what sort of information is in your computer? If you only track the work done at a site, you are missing out on an important element of client development and retention. I love to build a client database. I want to know their birthdays, how many kids they have, what their hobbies are and whether they drink red or white wine. With the right software, you pull up the client’s name and all their information is right in front of you. Much of the software on the market today was designed for salespeople, but managers need it too. With some programs, you can key in the last name of the person calling and type notes while that person is on the phone. That information can then be e-mailed to the person down the hall who takes it from there. This also gives you a log of the conversations you have with your clients. Knowing more about a client than what trees are on the property can assist you in developing long-term, personal relationships.

**Scheduling**

Software available today can track the dates and times you want to do things—plus remind you when the time comes to do them. The calendar feature of the software functions in a way similar to a Daytimer.

Some programs have an alarm that will go off to alert you to a scheduled phone call or meeting. You can set the alarm to remind you of almost anything. You can put in all your clients’ birthdays for example. Imagine calling the property manager for your biggest client on his birthday. It is very easy to do, but you have to keep the information up-to-date if you want it to work.

In the green industry, we need to be able to hold salespeople accountable for their work. I have some ideas on how. The salesperson will convince you he has a big sale ready to sign. A week later he will do the same thing. He keeps dangling carrots. What’s his job? Getting bids out to potential clients! As the owner, you only need to do one thing—track proposals. Salespeople have to put a lot of proposals out in order to sell. You need to know how many proposals you want to put out, with a goal of how much you want your salespeople to sell.

All proposals won’t end in sales, so it helps to know each salesperson’s closing rate. If you do these things, sales will come. Salespeople want to track sales dollars of course. They don’t like to track proposals because that is work that doesn’t lead directly to commissions. Nevertheless, as the company owner, you don’t want a salesperson to go a few weeks without sending out a proposal.

Here is an example of a way to track salespeople. First, you want to ask them how many dollars they can sell this month. They will undoubtedly have an answer; they can sell $40,000. Now ask how many proposals they will put out this month. More than likely, they will not have an answer for that. Ask them to go back and look at the average number of proposals they have been putting out, what their average sales amount is and how many proposals they actually closed in a month.

This is what both of you need to do in order to know what it will take to sell $40,000 worth of work this month. If they put out 32 proposals, it doesn’t mean they will sell 32. Start tracking their closure rate.

If one salesperson can put out 32 proposals a month, that’s eight a week or two a day, taking Friday off. At the end of the month, he may have put out a total of 34. This type of tracking keeps the salespeople under pressure to get the pro-
proposals out. If they get the proposals out, the sales will come. Don’t focus on dollars; focus on the number of proposals left with potential clients.

Once you start tracking proposals, you can start tracking success rates among salespeople. Is one landing bids at a higher rate? If so, is one salesperson better at closing a deal or is another bidding too high—or too low. If you don’t track proposals as well as sales volume, you’ll never know for sure.

Electronic office

Other common uses of computers in tree care are for word processing, spreadsheets, bookkeeping, payroll, office organization and the Internet.

Word Processing. With word processing software alone you can produce a very professional proposal. I have seen some terrible proposals from tree care companies in the field. They might as well have written the proposal on a brown paper bag. When you hand a proposal to a prospective client, the most important thing is the price. Have a paragraph that thanks the client for the opportunity to present a proposal. Next, quote the price. You can certainly explain the details of the job further down, but don’t make the entire proposal three or four pages. The client wants to know the price and minimal details. Some tree care companies deliver great proposals that are only one page long. Everything is right there for the prospective client to see.

If you haven’t changed the format of your proposals recently, now might be a good time. With the advances in word processing software in recent years, you are only holding yourself back if you are still using old forms.

Spreadsheets. Some form of software that includes a spreadsheet will be a great tool to track everything you need to know to make sure you are making money. Here are some examples of ways to track information on the computer.

Time sheets should come into the office at the end of every day. If they are only filled out weekly, they will not be accurate. A manager needs to know how many hours everyone worked. A foreman needs to know how many hours his crew put in. A worker needs to know so his check is correct. Here’s how the system should work. At the end of the day, the time sheets come into the office and the number of hours each individual worked is entered into the computer. The next morning, the hours-worked report is posted where everybody can see it.

One advantage of this system is that if a big job comes in on Thursday—and nobody can work overtime—you can look at the hours-worked report to see who can and cannot work on the big job. This is a great tool for picking the people to work on Saturday. This system is good if you have problems with inaccurate paychecks or if you are paying a lot of overtime.

Overtime is a big issue in tree care. It is expensive but sometimes unavoidable. The challenge comes in pricing overtime into estimates. I think you will find that you become less competitive if you try to include an overtime premium in selective bids. If you can, then more power to you. Most businesses will factor in part of their overtime as overhead, just to cover the expected overtime they will have throughout the year.

I have recommended using time sheets and your computer to track employee hours. I am strongly against time clocks,
which only give you number of hours from the time employees punched in to the time they punched out. You don’t know what they did in between. You want to know where they went and what they did. Here is what generally happens. A worker come in at 6:45 and punches the clock. When the time card gets to the front office, they say, we don’t start until 7:00. You may also have one guy punching cards for three or four others. Large landscape contractors do not use time clocks, and they are managing more people than most tree care companies. If you trust, watch and manage your employees, you will not have to worry about the time clock.

It is hard to convince some people not to use the time clock, but your employees will be happier and there will be less paperwork. One piece of paper per crew per day is a lot easier to manage than individual time cards for every employee. On my time sheets, there is a place where employee initials the time.

It says, “I agree that this is what I worked.” The foreman will fill out one piece of paper, hand it to the manager who looks it over and initials it. You can put job costing and payroll on one time sheet. Eliminate the time clock and have just one piece of paper to worry about. If you combine time sheets with a spreadsheet software, you will have a great management tool. By combining the two you will know what your employees are doing.

Do you always have one or two guys that work more overtime than anyone else? You should know how many hours each employee worked each week. You should know the number of overtime hours worked and what percentage overtime is of the total hours.

For example: A crew worked a total of 1,087 hours. Of that, 226 were overtime hours. Therefore, 20 percent of their total hours were overtime. The rule of thumb is that you should try to limit overtime to around 10 percent or your costs are going to adversely affect your bids and profits. When crews are working 10 to 16 hours a week of overtime, I'll bet that cost is not in the job estimate. If it is, I'll bet that the company is not very competitive. Overtime can be your biggest profit killer in this industry.

We are in the labor business. Our biggest challenge is managing labor. That is why you need a computer that can track labor information. Your managers would love to have this information.

Bookkeeping. General ledger, receiv-
ables and payables are modules included in bookkeeping software. There are a lot of off-the-shelf bookkeeping programs in the market, as well as some programs that are designed for tree care companies. What you want is a package that will handle the level of detail you are comfortable with. When you think you have found software that will work for you, make sure to get the names of other companies like yours who are using it, so you can get references. Also, make sure the software has great support. We've all heard the nightmare stories.

The end point of bookkeeping software is to focus on what makes you money and what is your biggest expense. Your biggest expense is labor. Paying for new equipment isn't the biggest expense in tree care. You need to worry about labor, overtime, production rates and efficiency. Don't forget other costs, but focus on labor.

Ask yourself this. What would happen to your profit if your productivity increased by 10 percent. Instead of working 50 hours, crews work 45 hours and still got the same amount of work done. By saving just 10 percent on labor, you can increase your bottom-line profit by 20 percent. That's a lot of money. Focus on labor because that is where you are losing money if you are losing it and where you are making money if you are making it.

With the computer, you can track all labor. You can track how many hours crews worked every day. And perhaps more important, you can track indirect labor hours, which are the hours crews were on the clock that cannot be charged directly to a job. Indirect hours are shop time, yard time, holidays and vacations. Some owners separate travel time, though I think you should include travel time into the cost of job. The point is, don't ever give an hourly worker a job without telling him how many hours he has to complete it. The salesman needs to tell you what he budgeted for hours in a job and the foreman needs to know how many hours his crew has to complete the job. Now you have a target that the worker can be measured against. Indirect hours can be tracked on a daily basis. Be sure that you know not only how many hours the crew is working on a job, but also how many hours they are working indirectly, not related to the job.

Payroll. I don't recommend that you do payroll in the office. It is so easy and inexpensive to send out. Another thing that you may want to consider is employee leasing. CNA Unisource can give you a proposal. They take care of everything relative to your employee. You don't have to pay anything. You don't have to fill out any paperwork. It is a great program, and I think it is worth investigating. I recently switched to employee leasing and it is saving me an incredible amount of money, particularly in workers' compensation. You get a cheaper rate when the employee is not doing the more dangerous work; the rate can change almost daily.

Organization. Please develop a budget. If you don't know how to draw up a budget, get someone to help you. You need a budget every year because owners and managers need scorecards. You can also use your computer to organize and manage the rest of your office. You can put the equipment preventative maintenance schedule on the computer. How about an alarm to remind you to...
change the oil? There is no end to the types of information you can store and track on your computer that will help you manage your business more profitably.

Internet. Most of your clients are not going to the Web to find a contractor—but they might some day. Nevertheless, communicating online has increased the speed and efficiency with which we give and receive information. Time will tell what impact that has on productivity and the bottom line.

Using computers effectively and efficiently in your business will take a little time, but the benefits will outweigh the challenges.

Jack Mattingly is a consultant who has been involved in the green industry for 23 years as an owner and a manager. This article was excerpted and adapted from a lecture at TCI EXPO ‘99 in Indianapolis, Indiana. For more information, contact Mattingly Associates at 517 Cypress Pointe, Woodstock, GA 30189. Phone: 770-517-9476. E-mail: jkmattingly@mindspring.com

### Track Employee Satisfaction

As a tree care company grows, the responsibility of managing employees grows with it. We have to find ways to attract and retain good people. One of the ways we do this is with computers. Beyond wages and past bonuses are a whole host of issues that contribute to employee satisfaction. Keeping information on employees in your computer, beyond hours worked, can help you manage and retain the people who keep your business running profitably. The following is the result of a Gallop poll conducted recently. The issues have nothing to do with money, but they identify the core elements that attract and keep talented people. Your employees are asking themselves these questions.

1. Do I know what is expected of me at work?
2. Do I have the materials and equipment to do my job correctly?
3. Do I have the opportunity to do what I do best every day?
4. In the last seven days, have I received recognition or praise for doing good work?
5. Does my supervisor or someone at work seem to care about me as a person, or am I just a number? Do they not even know my name?

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1. Do I know what is expected of me at work?
   - An Employee Handbook on your computer will help clear up confusion.
2. Do I have the materials and the equipment to do my job correctly?
   - Scheduling and maintenance are two elements that should be tracked on your computer.
3. Do I have the opportunity to do what I do best every day?
   - This is the challenge for managers. Put the individual where he should be.
4. In the last seven days, have I received recognition or praise for doing good work?
   - You have to start doing this. Once a week, devise some sort of employee recognition program.
5. Does my supervisor or someone at work seem to care about me as a person, or am I just a number? Do they not even know my name?
   - By tracking more than just the hours an employee works, such as birthdays, anniversaries, etc., you can promote a more personal office relationship.

6. Is there someone who encourages my development?
   - (You need a good foreman or supervisor to encourage workers to learn more, do more and do what they do best. This will therefore make them happy and keep them on the job.)
7. At work do my opinions seem to count?
   - Listen to them and let them know they do count. Record their opinions and complaints—and follow up later. An alarm on your computer will help remind you.
8. Does the mission and purpose of my company make me feel my job is important?
   - If the mission of the company is to make profit, am I, a climber, important to making that profit? Does everyone understand how his job is important in helping the company’s mission?
9. Are my co-workers committed to doing quality work?
   - Workers like everyone to have the same committed attitude.
10. Do I have a best friend at work?
    - It is important to have friends at work. We need to develop that environment in our business.
11. In the last six months, has someone talked to me about my progress?
    - Are you doing employee evaluations regularly? Track when employees are up for review. Don’t ever give a review at the same time that you give a raise. The employee will be nodding her head while you talk, but she is really waiting to see what her raise is going to be.
12. In the last year, have I had an opportunity to learn and to grow?
    - Do employees feel as though they have grown? Are they getting better at what they do? Do they feel good about it? Are you tracking safety training and continuing education for employees?
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Aerial Lifts:

By Rick Howland

Like the elusive 5-cent cigar, America has been searching for a good, small alternative to the full-sized aerial lift.

Why downsize? We’ve gotten along for so long without one, what are the reasons for a mini now? Perhaps a small or start-up operation needs a smaller, less expensive unit. For larger operations, it answers the need for speedy access, versatility and utility for smaller jobs in backyards that they just can’t get to with ‘old reliable.’ For others, the mini lift’s mission might be to offset the dwindling supply of high-priced climbers, or perhaps it’s just an economical answer to a budget conundrum. At under $50,000, does the mini lift represent an alternative solution compared to a $75,000 bucket truck? Many of the mini lift makers are targeting rental yards, which cater to a variety of industries, and that availability helps reduce the arborist’s capital outlay.

But, for any arborist—large or small—the mini lift evolution might just mean efficient accessibility to confined spaces—some are small enough to fit through a 36-inch backyard gate. Another hidden bonus is the relatively light weight and low-torque drive, which makes the mini aerial lift easy on lawns.

Describing the new lift class

The mini, often referred to as the “backyard lift,” is a relatively new equipment category in the United States—just two years old—and only a handful of manufacturers and distributors are making them available. The mini lift features all or some of the following attributes:

Some are tow-behind or “trailer-able” to the job and most are self-propelled at a slow, two to three miles per hour. They run on tires or rubber tracks and are capable of managing up to a 30 percent topographical grade.

The engineering design objective was simply to get us into tight spots economically, while retaining many of the...
big bucket truck features. Target width is often under 36 inches—the width of a standard garden gate—but some are slightly larger. Safety features abound and, like their big brothers, mini lifts will likely offer such amenities as compressed air, water, electrical power (typically 110-volt), a hydraulic tool circuit and gasoline or diesel power plant options. Versions featuring 24-volt golf-cart-type propulsion will soon find their way to market.

Lift mechanisms can be articulated (elbow or knuckle-type), telescoping or scissors-type boom. Working height extends to about 40 feet, and side reach swing of close to 22 feet is possible. In turret types, rotation is not quite a full 360 degrees. Some models are available in insulated and non-insulated versions. The mini lifts are not specific to the arborist industry. Most were designed for utility and construction work first. Evaluate the features according to your job needs.

“This truly is a niche market that was being under served,” notes Lance Gillis, national sales manager for AmeriQuip’s new Eagle Trax-40 mini lift line. His Ontario, Calif.-based company and a handful of others have jumped to fill the breach, either manufacturing or importing a small but growing selection of smaller lifts.

The Trax-40 is just 35.5 inches wide and can be driven through the dreaded 36-inch wide backyard gate. Trailered to the work site, the Trax-40 is “designed to be propelled via a pair of tracks that are independently operated—forward and reverse—with the use of proportional hydraulic controls,” Gillis explains. Its working height reaches 40 feet, while the side reach is just over 21 feet. Hydraulically controlled outriggers reaching out eight feet, four inches are also deployed from the basket-mounted controls.

Gillis stresses that the self-propelled, two mile per hour track drive is operated from the basket and only operates when the boom is in the transport position. He is high on the fact that the rubber-track drive means low ground pressure, making for less lawn damage from this 3,300-pound (3,500 pounds for the insulated version) unit. The standard power plant is a 20-hp Honda, and a diesel option is available. A 24-volt electric-powered system is expected to debut within the next few months. Prices range from just under $38,000 to just under $43,000. The AmeriQuip strategy is to target these units to utility and rental companies and to maintain a team of national service personnel to make on-site versus depot repairs.
Polecat Industries out of Miami introduced the PC266 in 1999. This is a self-propelled, lightweight unit, tipping the scales at 2,480 pounds, but it is tow-able to the work site, even at 60-mph highway speeds. The operator performs all drive and elevation functions from a single joystick, including drive and steer, raising and lowering of the articulated arm. Polecat touts the “ergonomically designed platform control station” featuring ignition, hydraulic tool circuit, tilt alarm, emergency stop and other amenities, as well as a ground control station for quick response in emergencies. Working height is 26 1/2 feet. It is a little wider than other mini lifts at 8 feet 10 inches and heavier at 9,700 pounds. Outriggers are not required and there is no setup time. Power comes from an 18-hp Kohler motor and according to company officials, “The PC266 runs all day on seven gallons of gas.”

Seven decades old, Mertz, Inc. is headquartered in Ponca City, Okla. In January, Mertz was appointed North American master distributor for the Hinowa TrackLift 1050, one of the smallest and least expensive all-terrain, self-propelled personnel aerial lifts in the world.

It’s safe to say that this is a unique design. With a retractable track system and a removable platform, the TrackLift 1050 is capable of compressing itself to a total width of just 30.7 inches, making it usable in spaces even tighter than standard passageways. It weighs just less than 3,200 pounds and runs on a 9-hp electric-start Honda engine. Optional electrical power plant is available. The working height via the articulated arm is...
34.4 feet, and the turret is capable of 320 degrees of rotation. At lower levels, the boom has a horizontal reach of up to 16.4 feet.

Condor Corporation, formerly part of VERSALIFT, TIME Manufacturing Co., makes a host of smaller lifts and telescopic or articulated boom configurations, most in the over 10,000-pound weight class. However, it does cover the mini lift category at the large end with a pair of 5,560-pound and 7,150-pound, all electric drive, solid rubber-tired units—the A28 and A32J, respectively. Initially designed for level terrain or slab-type uses and engineered for a low five-inch ground clearance, optional flotation-type balloon tires improve over-the-ground movement for off-road applications. They are what Condor calls “self loading” into most trailers.

Each model features 130-degree manual platform rotation. Both are two-wheel, fully proportional direct electric drive with power supplied by an electric motor on each drive wheel. Drive wheels are equipped with an electrically released spring-applied brake, which is automatically applied whenever the drive controller is re-
turned to the neutral position. Top speed for these units is 3.2 mph and they can negotiate a topographical grade up to 30 percent.

Condor boom design features a steel lower boom connected to the upper boom via the use of a mid-pivot joint—kind of like an elbow. Platform height reaches to 28 and 32 feet, respectively, hence the A28 and A32J monikers and the lift and other operating functions are microprocessor controlled.

S.D.P. Manufacturing of Albany, Ind., has a different lift solution—a pin-on manlift bucket designed for use with its EZ Hauler 2500. “It goes places you wouldn’t think of taking a truck,” reports John Razmic, sales director. With its outer wheels removed, the EZ Hauler fits through a 36-inch wide opening. For nasty terrain and situations like mud or snow, it can be fitted with over-the-tire crawler tracks.

Designated initially for the utility industry, it has a lift capacity of 2,500 pounds—enough to hoist a utility pole or other large object, like a tree, into place. The bucket assembly has a lifting capacity of 300 pounds, with a 31-foot working height.

In addition to a wired walk-along operator control box, S.D.P. now offers a radio-controlled remote that essentially isolates the operator from the unit, not only for safety considerations but also for flexibility in very tight confines. The EZ Hauler arrives at the work site aboard a custom-built trailer that contains all its accessories. Outriggers stabilize this “Moon-rover” lookalike when it is in place. In addition to a bucket, the unit can be equipped with any number of hydraulic-powered tools, including an auger.

The mini lift industry is just out of its infancy and nowhere near maturity. In the future, with demand coming from other industries and rental outlets, the configurations and options will continue to change and grow.

Richard C. Howland Jr. is a freelance writer in Bedford, Mass.
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Let’s put to rest the fallacy that success in any profession is due to luck, chance and/or hard work. There is nothing further from the truth. You and I both know people who work incredibly hard, putting in long hours, they may even have two jobs, but they asked people what they wanted to achieve in the upcoming year. Many people had a vague idea of what they wanted (or what they thought they could achieve); and even more knew what they didn’t want; but the high performers knew in measurable terms, what they wanted to accomplish in every area of their life. Without a doubt, this type of clarity and focus is power!

2. Entrepreneurial thinkers visualize themselves already in possession of their desired results

I have interviewed thousands of the world’s most successful people and without fail they see themselves winning every single day. Whether in business or athletics: Jack Nicholas in golf, Michael Jordan in basketball, the million-dollar producer I spoke with last week, they all have this in common. Visualizing is the key to realizing!

3. The entrepreneurial minded have an unbending belief in themselves and their abilities

Winners believe they will win in advance, and it becomes a self-fulfilling prophecy. A common mistake among would-be achievers is the notion that “if I become more skilled in my profession, I will succeed.” Yet how many highly skilled people do you know that are not profiting every single day? Often two people go through the same training course and acquire the same skills—yet one becomes a huge success and one accomplishes nothing. The answer lies in the individual’s belief system and the unshakable conviction that he or she will win.

The Seven Secrets of Top Performers

By James Ray

1. The entrepreneurial minded know exactly what they want

I was recently working with top sales professionals on a seven-city tour of Canada. In these seminars, I invariably
4. Entrepreneurs take action "as if" they were already in possession of their goals

High achievers think, work, talk, play and take action like the person they want to become. This means turning away from current results and focusing, believing and acting "as if" you were already there. Understand that your current results are the direct outcomes of the past. The past does not equal the future.

5. The entrepreneurial mindset takes full responsibility for its own destiny

Winners get results! Results are not equal to no-results-and-a-good-story. Many are better at making excuses than they are at making money. "It's the economy, it's the location, my prices are too high." You can always come up with a good story, but winners hold themselves accountable. Only when you take accountability for everything in your life can you be responsible to change anything.

6. Entrepreneurial thinkers build high-leveraged partnerships

No one in today’s world can make it alone. There is just too much to learn and things are changing too rapidly. High achievers surround themselves with other high achievers. Like attracts like. They go to the same events, attend the same management conferences, eat at the same restaurants and join the same churches and clubs. Your business and social environment is more important than your heredity, so choose your relationships and partnerships wisely.

7. The entrepreneurial mindset is one of giving great value

Achievers ask: “How can I provide more value? How can I give to others, to my teammates, employees and clients.

What can I do to make it better?” Winners always give ten times more value than they ask for in return.

The Entrepreneurial mindset is one of ownership. These achievers see themselves as the president/CEO of their own personal services corporation—the buck stops (and starts) here! Develop this winning mindset and you will win. It works for everyone ... every time.

James Ray is the author of The Science of Success. He may be reached at 7514 Girard Avenue, Suite 1-PMB544, La Jolla, CA 92037. Phone: (858) 459-6909; Fax: (858) 459-9186; E-mail: James@JamesRay.com; Web site: www.jamesray.com
New NAA Pocket Guides Address Major Safety Concerns

The NAA Pocket Guide series was created to address an obvious need for information, in a format to make it accessible to the greatest number of people who need it.

The story really starts in Washington D.C. At a time when the industry was becoming aware through the grapevine that its workers were suffering unacceptable levels of injuries from a relatively few causes, first the NAA leadership then some of its individual members entered into dialogue with OSHA about how to make the arborist workplace safer.

What OSHA brought to the table was a statistical basis for addressing worker safety. What NAA and its members were able to provide was the knowledge of how the type of accidents OSHA was seeing could be prevented.

According to the Bureau of Labor Statistics, 126 arborists lost their lives in tree care-related accidents between 1993 and 1998. What was really alarming was that almost 90 percent of those fatalities were divided almost equally among three causes: struck-by’s, electrocutions, and falls from height.

Intuitively, we knew this was the tip of the iceberg. If this many arborists had died, there were innumerable more who had suffered injuries related to these causes.

The idea to address these problems with training was decided literally before we left the room on the first day we met with OSHA. But what would this training look like? How would we get it to the people who needed it?

The NAA published a Pocket Guide called, “A Climber’s Guide to Hazard Trees” several years ago. Its wide popularity convinced us that using an inexpensive, easy-to-understand format would be the best way to assure that the information reached as many as possible.

With the assistance of members of its Safety Committee, the NAA wrote four new guides, addressing fall prevention, tree felling safety, preventing struck-by’s and electrical hazards awareness. Their covers are color-coded for easy recognition, they are fully illustrated, and they are priced inexpensively so that everyone should be able to afford them.

For ordering information, see page 17.

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During a typical pool-side exchange of problems and solutions at a National Arborist Association (NAA) Winter Management Conference in Orlando, Fla., the subject of discussion was communications. I mentioned a technique that my ground man, Ed, and I had developed through working together in a noisy and potentially hazardous environment around trees. We called it “signal and sign” (S & S) communication.

In response to interest expressed by other NAA members, I explained how the technique evolved. Ed and I had observed that poor communication on a job site led to hollering and confusion. We wanted a more professional, efficient and profitable operation, so we developed the S & S technique.

Communication was through the use of hand signals, a tug on a line or a shake of the letdown rope to which I, the climber, would respond with a wave of my arm or a nod of my head to convey, “message received and understood.” We so refined this technique that we could take down a large tree in pieces on ropes without a word being spoken. Spectators who frequented our job sites were always amazed at our productivity. It was from this pool-side conversation that a tree “takedown” experience occurred that I will not forget.

Bob Felix, executive vice president of the NAA at the time, called from his office to see if I would be available to show him our tree operation. He wanted to film a Kincaid Tree Surgery (K.T.S.) tree removal for one of his first Tailgate Safety training programs. He wanted us to demonstrate the S & S technique on a job site.

I recognized this as an opportunity to show “them easterners” how we do it here in the West. I met Bob at the airport and exposed him to a K.T.S. “show and tell” typical of our work in Colorado and Wyoming. Carol served her famous western beef stew for dinner. After a good night’s sleep and breakfast, I took Bob to the job site I had pre-selected because it involved many of the hazards that are inherent in a tree removal.

The tree was a dying, 30-inch D.B.H. silver poplar that stood precariously over utility wires and the client’s residence, garage, storage buildings and decorative fence. Within the fence were landscape plants, flowers, shrubs and turf. In this setting, we would demonstrate the effectiveness of our S & S technique.

Ed and I, along with two other crewmen, arrived at the job site early so I could discuss each man’s involvement in the operation. The equipment was parked in the alley and Bob positioned his camera in an appropriate location. I ceremoniously entered the work area with my saddle rope and climbing spurs. I displayed my agility by quickly climbing 60 feet to the highest central location in the treetop. I tied my saddle (a double bowline on a bite) and threaded a 7/16-inch letdown-rope through a crotch in the gin pole selected to facilitate the lowering of logs and branches safely through the only available opening (created by pulling the utility wires aside). This is where the S & S communication kicked in.

With Ed serving my needs, and Dave and Stan backing him up by removing branches and logs from the yard as they reached ground level, we communicated wordlessly over the roar of the brush chipper and the whine of two chain saws. We had reduced the tree to a 20-foot trunk in two hours using only S & S communication.

I was basking in pride and self-achievement as I started the back cut to fell the 20-foot tree trunk into the 30-foot open space in front of the storage building when the impulse hit me. “Why not construct a cradle with the existing logs to cushion the impact, prevent lawn damage and display our commitment to preventing property damage?”

With the cradle in place, I completed the back cut. The tree hit squarely on target, but catapulted forward off the cradle, through the closed overhead door, and came to rest inside the storage building. Bob had it all on film. He humbled me by his timely remark, “I’m impressed.”

Doyle Kincaid is a Privileged Member of National Arborist Association.

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**Do you have a story From the Field?**

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