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It's How You Look At It

We've all done it. Taken the really difficult phone call. Felt really unappreciated. “Don’t they have any idea how hard we work at doing things right for them?” “Can’t they just let this one go?” “Why on earth do we try so hard?”

And yet, that phone call or tough letter that speaks the truth about where we missed the mark can be the least expensive advice you’re ever going to get about how to improve your business. Might the problem have cost you a customer or some money to fix it? Maybe. But the price will be much higher if you choose not to take a look at the feedback you’ve received.

Of course, perception is involved. And yes, there are people whom we meet in working with the public who are never going to be satisfied. It’s all about judgement calls on the input we’re receiving. The day we start putting all our feedback into the “they just don’t know what they’re talking about” pile is the day that we start losing our edge. We just made it a little easier for our competition.

Could some people use a different tone of voice when they deliver their feedback? Of course. Would we be more receptive if their style of communication or choice of words were different? Quite possibly. But choosing to discount all feedback because of others’ lack of grace in the way they deliver it can be quite costly to us.

Most people receive praise far more easily than they receive criticism – whether it’s personal or about the businesses they’re running. Do those who are making the complaints always have all of the information? No. However, they do have a perception that points out something that needs to be changed one way or another. Either they don’t have all of the information (and we can work on improving our communication so our customers’ perceptions are changed), or they have shared an insight that might give you the key to an improvement that is worth paying attention to.

Do you have an evaluation form for your customers to complete after you’ve performed a job for them? You can get all kinds of insights from them about whether or not they think your work was up to par, how professional your employees are, whether or not you were timely, etc. Remember, it’s not about what you think about what you did, but what they think. And this is also some of the least expensive marketing information out there. On the one hand, you get free help on how to improve your business. On the other, if you’re getting stellar ratings from your evaluations, you can start using some of this information to promote your services. “99 percent of our customers rate our crews as professional, courteous, and timely.” “98 percent of our customers said they would use our services again.”

John Chambers, president of Cisco Systems, says, “I listen to critics because often they’re a good source of information for what you have to do differently.”

In other words, it’s all about how you look at it.

Cynthia Mills, CAE
Publisher
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TCI's mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the non-profit 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.

Cover Photo

New tools use sonic waves to evaluate the internal structure of a tree.
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Street Tree Inventories

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Woodsman
As an industry, we do not emphasize diagnostic services enough. At the Bartlett Tree Research Laboratories, we have been involved in research and technical support responsibilities for landscapes, plant disease management and general arboriculture, with an emphasis on pruning, tree risk management and tree management plans. Recently, we have been conducting research on soil and soil management programs.

**Diagnostics**

We have been stressing diagnostic services at the lab for the past few years. For most arborists, pruning is the first priority, which makes a lot of sense since pruning is probably the most common service that we offer to our clients. Industry polls indicate that tree risk management is the next most important item that industry professionals feel we need to develop expertise on.

Unfortunately, diagnostics is way down on the list. For a tree care company to land a customer as an account and start treating the rest of the customer’s trees, an arborist has to properly diagnose and treat the pine tree in the front yard that prompted the initial call. Diagnostics plays a big role in satisfying customers, and all too often, we simply walk up to a tree and tell the person that it has a nutrient deficiency, and then add fertilizer. If that does not work, we may pull a soil sample and look at the pH. The problem might turn out to be iron-induced chlorosis, or maybe we keep on looking for turpentine beetles or blue stain. If all of that does not work, then we start looking for pine wood nematodes. All too often, we go out there and start treating that tree, starting with the most obvious. When it does not respond, we keep on treating it while looking for other factors, rather than selling a diagnostic visit to begin with and trying to figure out everything that is going on with the tree so that we can nail the problem the first time.

A lot of what we should be doing is focusing on diagnostic...
services. When you think about what the arborist has to offer today, there are a lot of diagnostic services. I will share a couple of new ones with you, as well as some very traditional techniques we should be offering.

Plant analysis above ground

As part of a visual analysis, look at all the symptoms, not just the foliar symptoms. What about the root collar? Is it visible or is it buried? Looking at the entire plant is an important aspect of the whole picture.

Starch analysis is an old tool, but one that we use quite a bit. This can be done both above ground and to roots, using iodine stain. You need to understand whether or not a tree has adequate starch, so you will know if it can respond to treatment. That is often a first step when dealing with a declining plant.

When starch is present, the test sample turns a blue/black color in the presence of iodine. Plants that have high starch levels are capable of responding to treatments, whereas branches with low starch levels are less likely to respond. Starch analysis can tell us if starch is depleted, if the tree is already in a severe decline stage and cannot respond.

A new, simple tool that is gaining attention is a spectrometer that measures chlorophyll content. We are using one in research, but it is also available as a diagnostic tool in the field. Sensitive and very accurate in detecting small changes in chlorophyll content, it gives you an idea of how the chlorophyll in a healthy tree compares to the chlorophyll content of a declining tree. For diagnostic purposes, measure the chlorophyll level on a very green plant and compare it to the lower reading on a declining plant. The meter gives you a level of nitrogen status as well, since that is a key component in plant health.

The infrared laser thermometer is another tool with which we have been working. We have not really been able to get this one to cooperate with us. It rapidly measures the temperature of leaves. Plants in distress will have a higher leaf temperature than ones that are healthy. With a little bit more work, we may get this tool to be a diagnostic measure in the field.

Sampling for root disease

We sample declining plants quite a bit, since there can be many factors that cause decline. Look for things like phytophthora, nutrient content of the soil, pH, and many more factors that can cause decline. We should emphasize sampling a little bit more in looking for disease organisms. When we sample, we are looking for root disease. There are some new tests available that can help diagnose root disease.

Tools for pest detection

There are a lot of tools, new and old, for pest detection. One of the older tools is a pheromone trap. A newer tool is the temperature recorder/data collector linked to a computer program that can be used in the field to collect growth degree dates.

In the past, we collected growth degree dates at the shop, but the shop may be distant from your client's property. For example, if your business is located inland, and your customer's property is on the shore, the shore property would be considerably cooler. Insects emerge sooner inland than on coastal property. With the recorder, you can put the data collector on your client's property, and as your IPM technician monitors
Proper application technique to the lower crown. Note applicator is positioned close to the lower crown and is using reduced volume and pressure to treat lower foliage.

the site, he can collect growth degree dates right then and there.

If there is not a great degree of variation in your area, getting an on-site reading is not as critical. If you work near the coast or in places with major elevation changes, these data recorders can be installed on your customer’s property and you can monitor exactly what is happening.

Distance diagnostics

Another area we are looking at is distance diagnostics. A stereoscope/microscope is connected to a digital camera. Those digital images are captured and then sent, perhaps with a sample, to a distance diagnostic lab for analysis. A person distant from the lab can record a photograph (through the scope) of mites, insects or diseases. Instead of samples coming in to the lab, we can look at samples via e-mailed digital images. We are still testing the accuracy of distance diagnostics.

Tree structure evaluation

Other areas of diagnostics that we have been focusing on include tree structure evaluation and risk assessment. There are many new tools to help us in this area that allow us to use sonic waves to evaluate the internal structure of a tree. We have also been evaluating some traditional techniques involving drills and drill bits, which are relatively effective in analyzing decay within the tree.

Liability concerns make tree risk assessment is a major component of our
<table>
<thead>
<tr>
<th>Year</th>
<th>Make</th>
<th>Model</th>
<th>Details</th>
<th>Price</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>Ford</td>
<td>F800</td>
<td>Gas, V8 on propane, 6 spd, air brakes</td>
<td>$62,900</td>
<td>15' Terex Crane, 11' hook height.</td>
</tr>
<tr>
<td>1997</td>
<td>Ford</td>
<td>F800</td>
<td>Cummins 5.9L, 210 hp, 8 spd, air brakes, 33GVW, with 17 ton MANITEX Crane, 78' hook height.</td>
<td>$59,500</td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>Western Star</td>
<td>315</td>
<td>Cummins, 10 spd, with 1985 17 ton Pioneer model 2000 crane, 123' hook height.</td>
<td>$59,500</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>Ford</td>
<td>LNT8000</td>
<td>Cummins 9 spd with 1997 Manitex 1768 crane, 101' hook height.</td>
<td>$69,500</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>Int 4900</td>
<td>DT466, 210 hp, 6 spd, 32,700 GVW, air brakes, with 6' Hiab 140, 26' side reach, 74,000 miles.</td>
<td>$34,500</td>
<td>Price with no body: $34,500</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>Int 4900</td>
<td>DT466, 210 hp, 6 spd, 32,700 GVW, air brakes, with 6' Hiab 140, 26' side reach, 74,000 miles.</td>
<td>$39,900</td>
<td>Price with flat dump: $39,900</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>Int 4900</td>
<td>DT466, 210 hp, 6 spd, 32,700 GVW, air brakes, with 6' Hiab 140, 26' side reach, 74,000 miles.</td>
<td>$44,500</td>
<td>We can get you any forestry body you want, or get a one-of-a-kind you-design body, custom built with reasonable prices.</td>
<td>CALL FOR INFO &amp; PRICES.</td>
</tr>
<tr>
<td>1992</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1998</td>
<td>GMC</td>
<td>7000</td>
<td>8.2L diesel, 5 speed, 33 GVW, with 5 ton IMT crane and dump body.</td>
<td>$14,900</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>Ford</td>
<td>LN9000</td>
<td>Cummins LTA10, Fuller Roadranger 8 spd + LO, tandem axle, with 9 ton Copma knuckleboom, 46'9'' max side reach.</td>
<td>$44,900</td>
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</tr>
<tr>
<td>1999</td>
<td>Ford</td>
<td>LN9000</td>
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<td>$34,500</td>
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<td>Ford</td>
<td>LN9000</td>
<td>Cummins LTA10, Fuller Roadranger 8 spd + LO, tandem axle, with 9 ton Copma knuckleboom, 46'9'' max side reach.</td>
<td>$37,500</td>
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<tr>
<td>1999</td>
<td>Ford</td>
<td>LN9000</td>
<td>Cummins LTA10, Fuller Roadranger 8 spd + LO, tandem axle, with 9 ton Copma knuckleboom, 46'9'' max side reach.</td>
<td>$39,900</td>
<td></td>
</tr>
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diagnostics. There is a lot of research and information on decay evaluation, both with roots and with stems and branches. There is a lot of research as far as how much decay is too much. Various formulas have been developed.

The formula developed by Claus Mattheck corresponds very well with our formula, which essentially says that when decay exceeds 30 percent of the stem diameter (or diameter x .15 when the residual thickness of sound wood is less than 15 percent of the stem diameter), that tree is at high risk of failure. We have developed charts and guidelines for evaluating decay and understanding how much decay is too much. We use one for trees with cavity openings and one without. If the tree has a large decay column but no cavity opening, we generally are looking at a minimum thickness of sound wood as the diameter of the stem multiplied by .15. If the tree is a critical risk, it would be diameter multiplied by 10 percent, or .10. We define a critical risk as a tree that can fail at any time – one in which our climbers would not climb. A severe risk is defined as a tree that would fail during storms and probably should be removed.

Those are some parameters that we are using based on our research as well as research abroad. With the evaluation of hazard trees, or tree risk assessment, we are not looking at just the size of the defect – that is one of the considerations – but we are also looking at the location of the defect, the number of defects, and how severe the defects are. We also want to look at tree characteristics, such as architecture, branching and rooting habit, as well as species characteristics. What are the wood characteristics? How prone is it to decay? How good is this species at compartmentalization? Also, we look at site factors, target consider-
Pest management

Pest management is a major area of research for us and is a major part of our diagnostic programs. Diagnostics — making sure that we understand the problem — is the first part. The next step is managing that problem.

Managing drift spray is an important topic that involves equipment selection, calibration and application technique. Calibration and understanding width drift are key points in drift spray management. Drift increases with pressure, so if you increase pressure to achieve a greater height, you must also increase volume. If you increase only pressure in order to get height, you will fracture the spray column, and that will increase drift. To increase height, you have to also increase volume by using a bigger disc size in the gun. If you have more volume output, you have to make sure you increase pressure accordingly to handle the increased volume.

Conventional wisdom recommended applicators set pump pressure at 400 psi at the gun. It is important, however, that you calibrate each rig. We have found a tremendous variation, rig to rig, because of changes, wear, and model and unit differences between rigs. On some units we set the pump pressure at 640 psi to get 400 psi at the gun. Using a 12-tip nozzle, we got a reach of 55 feet. We also found that when we lowered the pressure at the gun to 250 psi, we still got 55 feet. So calibrate each rig individually.

With a 14-tip nozzle, we set the pump at 800 psi, maintained 388 psi at the gun, and got about 60 feet. When we went 250 psi at the gun, we got the same reach. It wasn’t until we used a 16-tip that we found we had to put out considerably more volume as a trade off with lower pump pressure. In order to get 80 feet on the 16-tip, we had to maintain that 400 psi. When we cut it back down to 250, we only got about 60 feet.

This told us is that each unit has to be calibrated individually. Unless we were spraying very tall trees with large volume output, we could operate at 250 psi at the gun. By doing this, we had a less fractured column, less drift and the same amount of height. The guideline that the manufacturer gives you with that unit should only be a guideline. You really have to get out there with each individual unit, look at your pressure losses, and find out what kind of height you will get with each rig.

We did a lot of our spray drift studies at

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Dick Miller knows that having the right tools for the right job can make all the difference.
night. We lit up the trees, tried different pump and pressure configurations, and looked at the drift. One thing we found was that drift retardant products work quite well.

After these tests, we also changed our application techniques. In the past, we began with the outer canopy, spraying the top of the tree and working down, thinning it out as we got lower. Now we begin at the lower portion of the tree. We walk into that tree to begin with, getting very close to it and spray the lower portion. We then step back and do the upper portion. This way, we can get the gun right next to the target, which is the most critical aspect of managing drift. By beginning spraying underneath the tree and fanning it out, you can get very close to the target and eliminate drift. Otherwise, we would have to stand back to treat that lower portion. This simple procedure alone reduced drift considerably.

Another item we considered is having a ball valve on all of our guns to control pressure and volume rapidly. With the valve, we can treat a tall tree or an azalea without changing pump pressure or nozzle discs. The key points to reduce drift are getting the gun right next to the target and using the lowest volume and pressure settings possible.

Lastly, we learned that you never walk and spray at the same time—something you really must stress to applicators! When spraying a tree or a shrub, stand still. If you have to reposition to spray a plant, turn off the gun, move, and then resume spraying. This is very critical in managing drift. You cannot walk, spray, manage drift and manage your field of view at the same time.

Low-toxicity materials

Another aspect of our pesticide application and pest management programs looks at using the least toxic materials. Today, there are so many options available. We have stopped using materials such as chlorinated hydrocarbons, carbamate pesticides and organophosphates. They are completely out of our inventory. We can provide very effective pest management without those particular products. Not that those products are extremely dangerous—many of them are very low toxicity—but it is a matter of public perception. We can move over to naturally derived products that have low toxicity, good public perception and extremely good pest management as well. Some of those products on the market are the synthetic pyrethroids, and naturally derived products, such as Avid, and Conserve, as well as natural pyrethromite. We also have some older traditional products, such as soaps, oils, and pyrethrins that provide very good results with very low toxicity.

As an industry, we need to move beyond pruning to provide diagnosis and treatments. Our clients expect it, and the tools, technologies, and equipment are out there waiting for us.

Dr. Bruce Fraedrich is president of research at the Bartlett Tree Research Laboratories in Charlotte, N.C. The article was excerpted and adapted from a lecture at TCI EXPO 2000 in Charlotte, N.C.
Standard One Ton Forestry Body: Model S-11
(84" cab to axle chassis required)

General
1. All G-60 galvannealed material
   (Zinc coated, Resists Rust)
2. One piece design in body sides
3. All wiring in conduit
4. Sealed lexan lens lights meet FMVSS 108 specs
5. Anti-sail mud flaps
6. Class C Hoist
7. Safety body prop
8. Trailer light connector 6 pole
9. Pintle, or pintle/ball combination trailer hitch w/tow hooks
10. Bodies: mounted, undercoated, chemically degreased, cold tar epoxy coating inside chip box, primed and painted (paint warranted)
11. Tool Boxes w/theft resistant rods
12. Tool Boxes “weatherproofed”
13. Tool Box Hinges: include grease zerks
14. Chipper air exhaust vents

Overall Body Dimensions:
1. Length: 138"
2. Height: 60"
3. Width: 92"

Chip Box Material: (galvannealed)
1. Floor: 10 ga. plate
2. Sides & Front: (1) pc. design - 12 ga. plate
3. Top: 14 ga. plate
4. Tailgate: (270 swing) 12 ga. plate w/tubing frame
5. Runners: 6" structural channel
6. Cross members: 3" structural channel
7. Rear vertical support: formed ¼" plate
8. Rear horizontal support: 3" x 2" x ¼" rectangular tubing

Tool Boxes (14 ga. galvannealed material):
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
2. Underbody tool boxes: (two) 55” long x 20” high x 17” deep
3. Ladder box (inside chip box) 107” long x 12” wide
4. Pruner Box: (inside chip box) 132” long x 12” wide
5. Locks: Keyed alike

Optional:
1. Top ladder & pruner rack.
2. NOTE: Chassis cabs available to complete the package.

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NAA Joins Ergonomics Battle

In early March, Congress voted to rescind the Ergonomics Standard using the authority of the Congressional Review Act. President Bush recently signed the measure, making the standard's removal official.

On March 22, Sen. John Breaux (D-La.) offered a stand-alone bill, S. 598, that would force the Labor Department to adopt within two years a wholly new ergonomics standard to succeed regulations overturned by Congress and the White House. The bill specifies that the new rule would have to “set forth in clear terms” the circumstances under which an employer would be required to address ergonomic hazards, spell out the measures required of an employer to comply with the requirements and avoid any conflict with state workers' compensation programs.

The Department of Labor, Department of Occupational Safety and Health has invited written commentary relative to the possible adoption of these measures to protect workers in the United States from so-called “ergonomics injuries.” The NAA offered its input in a letter to Congress which asked the following questions:

**Question 1: What is an ergonomics injury?**

Webster’s Collegiate Dictionary defines ergonomics as, “An applied science concerned with designing and arranging things people use so that the people and things interact most efficiently and safely.”

We accept the dictionary definition of ergonomics. We feel that in our industry, where the typical “work station” is a mature shade tree, the term “ergonomics injury” can only be applied fairly narrowly, because our work environment is highly variable and not conducive to “designing or arranging.”

There have been great improvements in the design of tools and equipment used in our industry, to the extent that some musculoskeletal disorders prevalent only 10 to 15 years ago are virtually unheard of today. Our Safety Committee is pursuing an “ergonomic solutions” initiative, which helps foster and promote the use of labor-saving equipment as well as better equipment and overall tool design.

Still, most of our industry’s accidents fall outside the scope of this definition of ergonomics injury. Stated another way, it is our belief that we as an industry must focus on a much broader spectrum of accident causation if we are to effect the greatest benefit for our employees. Ergonomics injuries are simply one class of injuries that we must strive to prevent, but which require no special emphasis or standards-making.

**Question 2: How can OSHA, employers and employees determine whether an ergonomics injury was caused by work-related activities or non-work-related activities; and, if the ergonomics injury was caused by a combination of the two, what is the appropriate response?**

The very fact that such a fundamental question is still largely unanswered after so many years of intense effort is indicative of its complexity. Particularly in light of the medical expertise required to make such a determination as well as the seeming lack of scientific evidence to support the link between injury and causation, we respectfully submit that this question isn’t relevant to the action OSHA should take.

This “proof of causation” falls outside of the purpose and scope of the OSH Act, which is to ensure that “every employer covered under the Act furnish to his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.”

The question of causation has existed since at least the late 1970s, when the agency began to issue general duty clause citations to employers in various industries where work-related musculoskeletal disorders were occurring. How would the small-business employer be able to determine a condition, much less its cause, when our federal government—after all these years and with all the resources it has brought to bear on this issue—cannot do it itself?

The typical arborist or tree worker performs forceful lifting/lowering, pushing/pulling, or carrying. The typical arborist performs tasks that involve repetitive motion. We know these are factors that can contribute to musculoskeletal disorders. However, the typical arborist, like most U.S. workers, has a life outside work. Outside activities such as softball, bowling, tennis, dancing, household chores—even poor posture at the dinner table—can contribute to injury. Sometimes the injury may be exacerbated by work, or the symptoms may not manifest themselves until the employee is on the job.

The workers’ compensation insurance system in the United States, as well as the claims specialists and the medical professionals affiliated with it, are better equipped and better suited than OSHA to determine whether work contributed to an injury on a case-by-case basis. Furthermore, the workers’ compensation system is, in our opinion, sufficiently liberal at this point to compensate employees for these types of condition.

**Question 3: What are the most useful and cost-effective types of government involvement to address workplace ergonomics injuries?**

First, any approach to reducing the frequency of ergonomic injuries undertaken by OSHA should be centered on cooperation between OSHA and employers.

Employers understand that adopting the best safety practices available are good for business and are in the best interests of their workers. Strategies that OSHA could use to promote best practices could be industry-specific publications and conferences, technical assistance and consultation, and partnerships with individual employers or associations representing many employ-
ers; or combinations of such approaches.

Using “best practice” guidelines, many firms in the meatpacking industry voluntarily implemented programs in an attempt to decrease ergonomic injuries and lower their annual workers’ compensation premiums. Over the past 10 years, the case rate of recordable injuries cases dropped 39 percent, from 20.2 cases per 100 full-time workers in 1989 to 12.3 cases per 100 full-time workers in 1999. The case rate for injuries involving days away from work also dropped substantially over this period, from 6.5 cases per 100 full-time workers to 2.0 cases per 100 full-time workers—a decrease of 70 percent.

OSHA representatives in the field should look to industry professionals and industry standards to better understand the profession they are regulating and to provide more relevant education for that industry. In the tree care industry, accident prevention training for as many people as possible—and not more regulation—is key to preventing injuries and fatalities.

**In summary:**

- In order to have the greatest positive impact on workers in the tree care industry, OSHA’s actions on the Ergonomics Standard should focus on prevention through training, voluntary employer guidelines and activities that will elicit employee/employer buy-in.

- If OSHA adopts a new ergonomics standard, it should be voluntary. It should not contain any provision to compensate injured employees—not because it isn’t necessary, but because we already have workers’ compensation insurance to do that.

- OSHA should not mandate specific administrative controls (i.e., alteration of work practices) as a means of minimizing hazards. OSHA prescribed several administrative controls options in the previous Ergonomics Standard. Some of the options, such as rotating employees at tasks, job task enlargement or finding alternative tasks, and analysis and redesign of work methods, are already practiced in the landscaping, nursery, and arborist businesses.

However, these small businesses are frequently frustrated by extremely small labor forces, a lack of diverse types of tasks in the overall work and high turnover that hampers efforts to cross-train. If mandated, other administrative control options—such as adjustment of work pace (i.e., slowing down), programmed rest breaks (beyond what is already provided) and larger crew sizes—would be financially crippling to many employers, regardless of their size. These are not real-world solutions.

**Conclusion**

We applaud the efforts that the Department of Labor has made. Directing more resources into training materials, campaigns to raise awareness, and personnel to assist with training which will affect behavior effectively achieves the mission of the agency—a mission that we can endorse: keeping people safe.

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

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Capital Decisions/Capital Intensity

By Mary McVicker

As the economy shows more signs of tightening, competition intensifies. With many people having less money to spend, the "market pie" becomes smaller and tends to get cut up into smaller pieces.

The competition factor

Increased competition can have some interesting and unexpected fallout. One of the most common is that tree care businesses can find themselves under pressure to increase their capital investment in tools, equipment, or physical capacity. There's a sense of not wanting to be left behind - the "everybody else is doing it" syndrome. The result, of course, is that a business can be tempted to make a greater capital expenditure than it can afford. And, at the same time, that fear has a certain realism to it.

When equipment, tools or technology become old, a tree care business can lose its competitive edge, not to mention it's best employees who tire of working with beat-up equipment. Purchasing new equipment or finding a new office might be more competitive. Take care that attention doesn't become focused on what's new while the possible long-range effects on the business are overlooked.

An increase in capacity doesn't always result in higher productivity, even when there's a good market for the products. A higher capacity to produce may require more workers and increased marketing. Productivity and profitability may decrease with the increased capacity. Capital decisions are difficult - there's definitely an element of risk in them, particularly when they're made in a tightening economy. For some businesses, less is more. For others, additional capital investment is a good opportunity to become more competitive. One consideration when making a decision to increase investment is the business' capital intensity.

The capital intensity factor

Businesses generally fall into one of three patterns with investment. Some, such as retail businesses, have heavy investments in inventory. Others, such as consulting businesses, invest heavily in highly qualified personnel with considerable expertise. And still others, such as tree care firms, have much of their investment in equipment. Obviously these classifications aren't hard and fast - every business needs quality personnel and expertise, for example. But the concentration of capital or expenditures does vary.

Tree care businesses with a heavy investment in equipment are considered to be "capital intensive." Capital intensity can result in too much capacity to produce. If the market or the economy weakens, not all of this capacity will be used. Typically these businesses find it more difficult to downsize - or reduce operations. Heavy investments tend to make businesses less flexible and less able to respond to changes.

Typically, a business with a higher market share is in a better position to support more capital intensity than one with only a small share of the market. The greater market share gives the business some of the flexibility that capital intensity takes away. Those situations are fairly self-evident. But there's a catch: A business doesn't have to have a lot of money invested in capital goods to be overly capital intensive. What's key is not the amount of capital investment: rather, the essential point for any business is the balance between capital intensity and liquid assets.

Particularly in a tighter economy, liquidity needs watchfulness. There are no magic ratios here. Comparisons are troublesome and often misleading. More useful is to consider the amount of liquidity that you need to maintain for your tree care business. (Hint: More liquidity is better, especially in slow economies.) Picture this as - literally - a balance. As the amount of capital investment increases and weighs down the scale on one side, there needs to be an increase in liquidity to provide the balance.

Pitfalls in making capital decisions

These pitfalls can be readily avoided. They may appear obvious, but they do occur. A major pitfall, as discussed above, is that a business doesn't have the liquidity to support the capital decision. Beyond that, though, are several things to watch out for:

1. The capital expenditure doesn't fit with other goals or strategies of the business. Buying a new piece of equipment won't make sense if what the business really needs to do is to invest in a new furnace and air conditioning system. Similarly, an investment in upgrading the computer system can bring wonderful returns, but it might not be well applied if there isn't a corresponding investment in training people to use.
the system effectively and productively. In the worst-case scenario, a capital expenditure can be a major expense that’s actually counter-productive.

2. The decision considers only short-term time horizons. Many of us tend to have a bias toward short term. (It’s easier to conceptualize for one thing.) And, with so much emphasis on the bottom line, this isn’t really surprising. Certainly short-term results are important; a business can go broke waiting for the long term to arrive. However, a capital expenditure is a long-term matter, and a substantial aspect of the decision should be the potential long-term results. You need to consider carefully the expected life of whatever product you’re investing in—equipment, training, technology, etc. Consider:

- How long can you expect the product to physically last?
- How long can you expect the product to be efficient?
- When will the product begin to be obsolete? (Obsolescence can occur well before the product physically wears out.)
- And, of course, there’s that other difficult balance: Do you invest more for the long term, or not as much for equipment you don’t expect—or want—to last as long?

3. Estimates of cash flow are unrealistic. We tend to expect a lot from new investments, particularly when a business is having some difficulty. “If I buy that new high-capacity chipper, the money will just pour in.” Consequently, cash flow estimates can be overly optimistic, since we expect the investment to solve or correct whatever is going wrong. Do your best to make sure that the problem really is with inefficient equipment and not poor scheduling or a badly trained crew.

4. The end point of the investment is ignored. Investments, whether they are purchases or projects, have ending points. In many cases these ending points require some planning. Will there be residual values? If so, will they be positive or negative? Real estate investments tend to have positive residual values. A purchase of equipment may have a positive residual if the equipment can be readily sold.

The happy ending

After discussing so many possibilities of things going wrong with capital decisions, the other side needs some time as well, however unequal. The “right” capital decision can make an enormous difference in a business. Obviously it can open up new opportunities, new capacity, new services and new markets. But beyond that, it can energize a business and invigorate the people working with it. Capital decisions carry risk—but so did opening your door for business for the first time.

Mary McVicker was a tax attorney before leaving to teach and write. She has been a small-business consultant and freelance writer in Brookfield, Ill., for more than 16 years.
Cummins Inc. recently unveiled its new QuickCheckII system for Palm or HandEra handheld devices designed to support the Cummins 24-Valve turbo diesel engine on the Dodge Ram. QuickCheckII - an upgrade from the original version released in 2000 - serves the diagnostic needs of owners of Dodge Rams powered by Cummins electronic diesel engines. QuickCheck reads and captures SAE J1587 engine data using a datalink adapter that plugs into the appropriate equipment harness. The engine data can then be displayed on a Palm handheld device in real time and downloaded onto a personal computer. Using the parameter screen on the Palm handheld device, a range of engine functions can be checked in real time, including data from sensors and switches, engine diagnostic information, engine load and speed, coolant and intake manifold temperatures, output torque, and fuel rate. An updated interface is designed to be more user-friendly and comes with a custom datalink adapter, all necessary interface cables and connectors, and the diagnostic software application. The adapter snaps onto the Palm handheld device and datalink connector. For more information, contact your local Cummins dealer or distributor; visit www.powerstore.cummins.com; or call 1-800-646-5609.

V & B Manufacturing Company announces an addition to its line of landscaping tools - an edging and trenching tool called the EdgeAll. Originally designed for installation of edging, it is also adaptable for many other earth-moving jobs. These include: installing low-voltage wiring; underground fencing wire; shallow drip watering systems; plumbing lines; laying walks and stepping stones; drainage systems; deck preparation; edging drives and sidewalks; invisible fences for dogs and general foundation laying. The 5-foot tool uses the momentum of its 13 pounds to cleave through soil, providing narrow channels for installing edging and for subsurface burial of wiring and piping as well as squared-off trench bottoms for foundations, timbers and stones. The working end of this tool is an 8-inch blade of corrosion-resistant ductile iron welded to the 53-inch tubular steel handle. The ductile blade meets the specs set by the American Society for Testing and Materials (ASTM) for shock and fatigue. For more information, contact V & B Manufacturing Company, PO Box 268, Walnut Ridge, AR 72476, cell 1-800-443-1987 or visit www.vbmfg.com.

Rainbow Mulch Colorant Pump Stand from Fecon, Inc. enables any company producing mulch to add color to its processing capabilities. The stand can color 50 to 200 yards of mulch per hour, using any model of mixer or grinder, while metering both colorant and water usage. The pump stand requires a water supply and a hose, nozzle or spray bar apparatus for spraying into the grinder or mixer. The stand features a 110v electric motor, a push-button electronic pump speed control, adjustable ball valve to regulate water flow, and a water port to add a hose for cleanup. For more information, contact Fecon Inc., 10350 Evendale Drive, Cincinnati, OH 45241, call 1-800-528-3113, fax (513) 956-5701, visit www.fecon.com or e-mail fecon@fuse.net.

MTI's Mobile Field Service division has recently launched its new Web site: www.mti-service.com. Designed so users can locate any one of Mobile Field Services' 50-member staff of field technicians nationwide, this site also features the company's service capabilities and profiles of its employees. MTI performs repairs, maintenance and safety inspections for telecommunications and power companies. MTI services its own Telsta, MTI Insulated Products, Puregas air drying equipment and AmeriQuip removable and towable lifts, MIT reps, as well as Altec, Versalift and Terex Telelect lifts and virtually any brand of air dehydrators. For more information, visit the new Mobile Field Service Web site at www.mti-service.com or call 1-800-521-5351.
Buckingham Mfg. Co. Inc. has introduced its new Long Reach Tool Saver for storing long-reach sticksaws or pruners between cuts or when handling brush. The unit can accommodate up to two tools. A specially designed swivel plate can be mounted on either the top or side of the aerial basket and swivels 360 degrees for use in any position. The Velcro straps hold tools in place while ascending or descending. An adjustable bracket provides a positive lock on the aerial basket. It fits baskets with up to a 3½" (9 cm) lip. Contact Buckingham Mfg. Co., PO Box 1690, Binghamton, New York 13902, call (607) 773-2400, fax (607) 773-2425 or visit www.buckinghammfg.com.

Perkins Engines has launched its 1100 Series family, a new range of diesel engines conforming to EU and North American Stage 2 /Tier 2 off-highway emissions requirements. The 1100 Series starts at 3.3 liters and introduces a 3-cylinder model with natural or turbocharged aspiration and mechanical fuel injection. A new 4.4 liter, 4-cylinder design follows, with natural aspiration, turbocharging or turbo air/air charge cooling technology. Electronics provide full authority control to fuel injection and are an option to mechanical fuel injection. Topping the range is an all-electronic, 6.0 liter, 6-cylinder model with turbo air/air charge cooling. The 1100 Series models will also come with higher torque and torque backup as well as precise curve shaping and a wide range of power ratings. At 3.3 liters, it provides 37 to 41.5 kW (50 to 55.5 bhp) with natural aspiration, or 48-55 kW (64.5 to 74 hp) when turbocharged. At 4.4 liters and 50 to 64 kW (67 to 86 hp), it is available with natural aspiration, 60 to 74 kW (80 to 99 hp) when turbocharged and 75 to 97 kW (100 to 130 hp) air/air charge cooled. The 6 liter turbo air/air charge cooled model provides ratings between 75 and 130 kW (100 and 175 hp). The 1100 Series gives 500-hour service intervals, ecologically friendly filters and up to 3 dB(A) noise reduction. For more information, visit perkins.com.

Typar TreeCircle is designed to control weed growth around trees. The fibers in the 35-inch diameter polypropylene landscape fabric circle have been bonded tightly enough to keep most roots from growing through, but not so close that air, water and nutrients are inhibited. Using Typar TreeCircle and covering it with mulch can eliminate the need for chemicals or hand weeding. The die-cut fabric has a round hole in the center and a slit, making it easy to place around a tree or shrub. Unlike black plastic, Typar TreeCircle is porous to water, air and nutrients: this porosity means that water will not pool on top of the fabric to cause mildew but will instead go through to the soil. For more information, call 1-800-321-6271 or (615) 847-7000, visit www.reemay.com, fax (615) 847-7068 or e-mail landscape@reemay.com.
Husqvarna extends uniform program

Husqvarna has expanded its partnership with the CINTAS uniform company to offer discount uniform service to professional crews through Husqvarna retailers.

Under the plan, commercial contractors will be allowed to rent or purchase uniforms with Husqvarna and NASCAR logos and custom embroidery while taking advantage of the lower rates available with Husqvarna's CINTAS program. Contractors choosing to rent will be given the convenience of weekly cleaning, repairs and replacement garments, with several trim options to choose from.

Professional contractors can learn more about the program from their Husqvarna dealer or by calling CINTAS at 1-800-543-4450. For more information, contact Husqvarna at 7349 Statesville Road, Charlotte, NC 28269, call 1-800 GET SAWS or visit www.husqvarna.com.

Cowan Appointed to Fed Reserve Bank Council

Douglas Cowan of The Davey Tree Expert Company has been appointed to the Business Advisory Council of the Federal Reserve Bank of Cleveland. Cowan, chairman and chief executive officer of the Kent-based company, will serve a three-year term on the council.

The Business Advisory Council meets three times per year with Federal Reserve Bank of Cleveland President Jerry Jordan and other bank officials. The council was established in 1985 to provide a forum for discussion of economic conditions and their effects on business in the Fourth Federal Reserve District.

DynaMotive Subsidiary Applies for Power Station

DynaMotive Energy Systems Corporation recently announced that its subsidiary Border Biofuels Limited has submitted planning applications to develop a forest-residue-fired power station on Arran, an Island off the Scottish coast. The project intends to use wood from sustainable production in existing forestry operations on the island to generate "green" electricity. The power station should generate up to one-third of the island's electricity needs.

The plan has the benefit of an electricity supply contract awarded under the Scottish Renewables Obligation, a government project designed to foster the development of energy from renewable sources in recognition of its environmental advantages. The venture also has the support of the Forestry Commission, which will provide the wood fuel for the plant. Project revenues have been estimated to exceed $30 million over the project primary period of 15 years.

The project will act as a model for small-scale electricity generation from renewable resources for other remote communities around the world.

International Knife & Saw featured on MSNBC

International Knife & Saw, Inc. was selected to be featured nationally on Pat Summerall's "Champions of Industry" series, which airs weekdays on Fox Cable News and MSNBC.

The "Champions of Industry" series showcases the best and brightest companies in today's global marketplace.

Since 1814, International Knife & Saw has broadened its line of products and services. International Knife & Saw supplies more than 60,000 types of knives and saws to a variety of industries with diversified products for every application.

International Knife and Saw currently has 10 offices in the United States and employs over 1,500 people worldwide.

Callbacks

The July issue of TCI magazine contained an error in the Buyer's Guide listing for Arbogold Software. The corrected listing is below:

| Arbogold Synchronizable Laptop or Handheld PC becomes a mobile office |

ARBORGOLD SOFTWARE

Manage customers from the initial phone call to proposals, scheduling, invoicing and receiving payments. Features include an appointment scheduler, directions map, built-in landscape CAD designer, and most importantly a 100% SYNCHRONIZABLE database. Each salesman and/or crew can become a mobile office! Synchronize with a laptop or the new tablet PCs - size of a legal pad, which includes a CD-ROM & digital video camera, built-in handwriting and voice recognition! New QuickBooks posting option. 30-day money back guarantee! For more information call Tree Management Systems, Inc. at (800) 933-1955 or go to www.turftree.com and download a free demo presentation.
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Consider this scenario: Your tree care business schedules an event you believe is noteworthy. Figuring the local newspaper would like to cover it, you write a press release and drop it in the mail. The result: Nothing. No reporter calls. No story appears. And your event comes and goes without getting the media attention that might have sparked more business. What happened? Your press release lacked certain vital characteristics required by editors.

You are not alone: Public relations pros say editors toss most press releases after a brief look. "Editors are swamped with hundreds of press releases every day," says Mark Wachs, head of the New York public relations firm of Mark Wachs and Associates. "They are looking for excuses to narrow the selection as quickly as they can." Just what are the magic qualities that get editors hot and bothered about writing news on your business?

Six public relations consultants from around the country answer that question. With an eye toward ensuring your own success, let's see what they have to say.
1. Raise the curtain with a dramatic message.

"You have 10 seconds to grab the attention of an editor who opens your press release," says Wachs. "You need to offer a story of real news value right away." The operative word here is news. And this is where most press releases fail: The story is not newsworthy enough.

Consultants warn: The media are not free forums for the same message you are using for your advertising. "Many news releases are sent out by people who think, ‘We have to get something in the press,’" says Jason Reynolds, president of Creative Factory in Portland, Ore. "That’s a mistake. You need to take the time to think out your message carefully."

Here’s an example: Suppose your regular advertising revolves around the idea that your employees offer customer service above and beyond the call of duty. That’s a great unifying theme for an advertising campaign, but it will get you nowhere but the editor’s trash can if you write a press release about it. So just how do you carefully think out your topic?

"Start by reading the newspapers and watching your local television broadcasts for a week," suggests Terri Horvath, president of Publishing Resources, a public relations firm in Indianapolis. "As you review each news story, keep asking the following question: What is it about this story that caused the editor to run it? Then make sure your own news item accomplishes the same thing."

You will likely find that each story satisfies the following:

♦ It has a news angle.
♦ It breaks ground different from other recent news stories.
♦ It affects many people in the community.

Some examples of genuinely newsworthy topics:

♦ You launch a new series of customer seminars.
♦ You publish a customer guide on caring for trees.
♦ Your employees participate in a community service program.
♦ You start a new service that is highly unusual.
♦ You go into partnership with another business to expand your offerings.
♦ An employee wins an award.
♦ "Think about who is the target audience," says Preston Kirk, a public relations consultant in Richardson, Texas. "What does the audience like to read or listen to?"

You can also create publicity by producing your own survey of customers, or...
How to Make Points with the Media

DO call the editor during the slow part of his or her day. First, find out the name of the editor by looking on the newspaper masthead. Then call the newspaper. When the switchboard operator answers, ask for the editorial department. When someone answers at that department, say something like, “I would like to call Mr. Jones about a story proposal, but I don’t want to bother him on deadline. What is the best time of the day to reach him?” Then call back at that time of day. For daily newspapers and evening TV news programs, the best time of day is often the morning or early afternoon. For weekly newspapers, Mondays and Tuesdays are often the slowest. When dealing with newspapers, you will typically deal with a managing editor, news editor or city desk editor. At radio and television stations, you will commonly deal with a news director or news assignment editor.

DO state your story proposal and your background briefly. Explain how you believe the story will interest or benefit the public (not your business!)

DO NOT mention that your business advertises in the newspaper. Editors don’t run stories on companies just because they are advertisers. Indeed, this may turn off the editor completely.

DO NOT send gifts to the editors or writers. This will not promote a mention of your business in the paper. They will resent the attempt at bribery. You may get your gifts back. Once again, it will work against you.

DO NOT ask to see the story before it is published. (Unless the op-ed piece or article is running with your byline.) This is not done. Such a request will work against you.
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Avoid tricky wording in the headline. It can confuse the editor, providing an excellent excuse for tossing your press release. And avoid telling an opening anecdote in the release itself. That slows things down. Instead, go for the straightforward statement that brings your story home: “Employee Group Wins Award For Most Hours Donated To Charity,” “ABC Tree Launches Series Of Seminars,” “New Pamphlet Offers Tree Care Tips,” “Celebrity Appears At ABC Tree.”

If possible, be topical. “Timely stories have a much better chance of making the news,” says Reynolds. “Tie your news item to larger events making the news.”

Examples: Your consumer brochure is a response to a recent big news story about a tree that failed and crushed a garage. Your discount program is tied to the temperature during a particularly hot summer or cold winter.

**Bonus tip:** Include only one message. “A common mistake is to try to say too much in a press release,” says Yudkin. “You should have just one point that you are trying to get across. Everything else should be related.”

### 3. Bring on the talent by letting people make the news.

Maybe your story is dramatic enough, on its own merits, to survive on the media stage. But hedge your bets: Spark the editors’ interest by plugging the human interest angle.

“See how you can personalize the news for the audience,” recommends Kirk. “If someone on your staff did something interesting, angle your story in that direction.”

Include a photograph of the person or people in action, either giving a seminar, receiving an award, or engaging in community service. The photo should be taken by a professional.

“A photo will work if it is surprising or funny or cute,” says Reynolds. “It helps a lot if the photo has some emotion attached to it, or if it moves the viewer.”

**Bonus tip:** Avoid a plain photo of the person’s face, called a “head shot.” These go into the trash fast.

### 4. Write your release so the audience stays enthralled.

So now you have your audience’s attention. How do you keep them glued to their seats? Write the news release in the style editors want. That means avoid anything that smacks of selling.

“Many business people make the mistake of writing press releases as if they were sales pieces,” notes Yudkin. “Indeed, the No. 1 complaint by editors is it sounds like advertising.”

Avoid this problem by writing the release in the third person, in a journalistic style. Structure your release with what editors call the “inverted pyramid” style. This means put the most important information at the top. “Editors often look at press releases as filler material,” says Horvath. “To fill a space that is empty in a newspaper column, they cut the re-

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**TREE CARE INDUSTRY - SEPTEMBER 2001**
lease from the bottom up.”

The opening paragraphs should answer the five W’s of journalism: Who, What, Where, When, and Why. “That’s always what the editor needs to work with and to communicate to the public,” says Marla Cates, a public relations consultant in Talent, Ore. “If the editor is intrigued and wants to follow up and do a longer story, all of the required information will be there.”

**Bonus tip:** Personalize your message by attaching a cover letter to the press release. Make it short and sweet. If you know the editor well, attach a handwritten note such as “thought this might interest your readers.”

5. **Keep your press release brief and punchy.**

Write economically. This means:

- Short words. “Use simple terminology,” says Cates.
- Short sentences. “Keep your sentences to 25 words or less, if you can,” says Horvath.
- Short paragraphs. “Short paragraphs are easier to read,” says Kirk.

And the press release itself should be slimmed down to a manageable size.

“Few successful press releases are longer than 1½ to two pages,” explains Cates. “Don’t write long or overly informative news releases, thinking it’s your job to write what goes in the newspaper. The editor needs to know the highlights, in a form that can be grasped quickly.”

**Bonus tip:** Include contact information that the editor will need to follow up. Always indicate the name and number of the person the editor should call.

6. **Mail or fax your release at the right time.**

Timing is vital. If your press release is about a forthcoming event, you may want to mail an initial release three weeks in advance, then follow up with a telephone call or fax.

“If you have a very unusual event or announcement, you may want to call the editor prior to mailing your release,” says Kirk. “This will let you find out what the interest of the paper is. Say you are preparing an announcement and you wonder if there is any forthcoming supplement where the story would fit.”

Find out when the deadline is for that special supplement. “You don’t want to mail your material too far ahead of deadline, but it is always good to be early,” says Kirk. “If an editor is pushed up against a deadline, there may be no room for your story.”

If you think your news release would be useful to the editor of a Sunday supplement on a certain theme, make sure the editor has your release five to seven days in advance.

Find out the name of the editor of that supplement and make sure your release is directed to the right desk. If your press release does not announce an event or involve a dramatic story, or if you are not aiming your release at a certain supplement, there is usually no need to call at all. Indeed, an unnecessary call may irritate the editor and cause the welcome mat to be withdrawn for your future efforts.
If you do call, pick your time wisely. “Avoid calling the editor on deadline,” says Kirk. Most newspapers today come out in the morning, which means the deadline time is typically at 5:00 or so in the afternoon. “It’s better to catch the editor early in the morning.”

Same goes for columns. Suppose you are aiming your idea at a column that appears on Tuesday and Thursday mornings. The best time to call is Tuesday and Thursday mornings, when the columnist is looking for new ideas for the next edition. Avoid irritating the editor by calling to find out if a story ran.

“Editors feel that it is your job to locate the published piece,” warns Kirk. “Don’t call and ask them to send you a copy.”

**Bonus tip:** Get editorial calendars from publications that are most important in your town, then decide what stories about your business would fit into the special issues.

Going the extra mile to prepare a top-quality release pays dividends that go beyond the initial burst of publicity. “You can take a published story and, with the publication’s permission, reproduce it and direct it right at the people you want to see it,” suggests Kirk. “They will be impressed with the third-party endorsement.”

Editors will look at your press releases first if they know you always send useful material. In contrast, if you get the reputation of sending releases that are not newsworthy, editors will start tossing out your releases unread. And what if all of your efforts fail? Consultants advise taking it in stride. Hope for better luck next time. “You can’t get angry,” says Kirk. “You need to maintain a good relationship with the media. Don’t argue with people who buy their ink by the barrel.”

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Contact: Bonnie Appleton, (757) 363-3906

September 13, 2001
California State University, San Bernardino
Southwest Palm Seminar
Richard M. Nixon Library
Yorba Linda, Calif.
Contact: Karen Yates, (909) 880-5977 or fax: (909) 880-7065

September 13, 2001
Wisconsin Arborist Association Summer Workshop & Tree Climbing Championship
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Open house
Beltsville Agricultural Research Center
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Contact/Pre-registration: (301) 504-6570

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Contact: (519) 376-1882

September 23-26, 2001
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September 27, 2001
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Presenter: Dr. Claus Mattheck
Contact: ISA-RMC, Diane Page
(303) 756-1815

October 2-3, 2001
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Contact: (800) 833-2186,
e-mail: fieldday@walp.org
or visit www.walp.org/tradeshow.html

October 2, 2001
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University of Massachusetts
Amherst, Mass.
Contact: Call (413) 545-2222, e-mail stocky@finr.umass.edu or visit www.umass.edu/stockbridge

October 5-19, 2001
The Committee for the Advancement of Arboriculture
Advanced Tree Climbing Course
Middletown, N.J.
Contact: Steve Chisholm (732) 928-5747

October 6, 2001
The Committee for the Advancement of Arboriculture
Lightning Protection Course
Monroe Township, N.J.
Contact: Steve Chisholm (732) 928-5747

October 9, 2001
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Contact: Steve Chisholm (732) 928-5747

October 11-12, 2001
Tennessee's Urban Forestry Council 10th Annual Conference
"Sustaining Our Urban Forests"
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Michigan State University
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October 14-16, 2001
Tree Structure and Mechanics Conference DeSoto Hilton Savannah, Ga.
Contact: (336) 789-4747

October 16-17, 2001
Multi-State Plant Materials Conference Stillwater, OK
Contact: Mike Schnelle, (405) 744-7361 or e-mail: mas@okstate.edu

October 18-21, 2001
Student Society of Arboriculture 6th Annual SSA Conference and Job Fair Clemson University
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Who Has a Plan?

By Dick Proudfoot

Who needs a business plan? Anyone that has a business. Planning is the key to making things happen. Mo Segal, founder of Celestial Seasonings Herbal Teas once said, "If you don’t want many vacations, don’t need a lot of money, if you like to work late at night and on weekends, then just wing it. You’ll be winging it constantly. You’ll be fighting fires all the time, and someday in the future you will be in for some rude surprises.”

In management school they told us, “If you don’t have your own plan, you will be part of somebody else’s plan.” Without a plan you will be the person going to work each day attempting to put out the fires that the people with a plan started.

Most of us in business have a plan. We may not think of it as a plan, and most certainly not as a business plan. We may think of it as our dream, or future goal. How would we like our business to look at some point in the future. In almost every case our plan (dream) is in our head. That’s good, because you have to know where you want to be in the future in order to get there. However, after you have a clear mental picture of your plan (dream) you need to get it on paper and begin to see it as a business plan, a road map that will help direct you to your dream.

Just about every time I read about business plans or hear someone talk about them, I lose interest, because what they talk about doesn’t seem to have anything to do with a business like mine. They are very detailed, they have a lot of financial information and projections, budgets, all sorts of things that I may not have and might not understand. And, they are page-after-page-after-page long. Well, I have good news for you. A business plan does not have to be long and very detailed. Mark Hartley from The Tree Doctor in Sydney wrote his first business plan in longhand on both sides of a yellow legal tablet page.

What is a business plan? It is a written document that allows you to get your dreams and goals on paper and provides a road map toward their achievement. It needs to be written by you. You wouldn’t hire someone to write a diary of your dreams, so don’t do the same with your business plan, because that, in essence, is what it is.

A simple, basic business plan need only include three parts.
1. Where am I today?
2. Where do I want to be in the future?
3. How do I get there?

Now if you think about it, that’s not rocket scientist stuff. That’s stuff that we can all do.

I like to get people started with their business plan by having them attend a “Vision Session.” This is where we all get together and begin to dream a little. We describe what a perfect business day would look like. We break it down into all segments and decide what it would be like if it were perfect. We then determine where each one of us is with our own business. At that point, all we have to do is develop strategies to get us to our goal. At the completion of the session each person should have a written document that is specific to their business that identifies where they are today, where they want to be in the future, and how they are going to get there.

As we begin to look into the future and clearly define our dream (plan) there are some points to consider.

**What business are we in?**
Are we in the tree care business, or are we in the business of caring for the people that own trees? Are we trades people, or are we professionals, practicing the profession of Arboriculture?

**What services do we offer?**
Do we accept all work that comes in the door because we need the money, or is there any area of specialty that we are really good in and really like to do? Is there a service that we can’t seem to make money doing? Is their a service that we always make money doing?

**What would you like your business to be famous for?**
The lowest price? The best at difficult removals? Answering all calls within 24 hours? Being a successful, By Referral Only business? All your equipment painted a bright orange?

**Why will people buy from you?**

What is your company’s unique selling proposition (USP)? Why should people buy from you and nobody else?

**Who are (and will be) your customers?**
Are they homeowners, councils, commercial property owners, governmental? How do they make buying decisions? What is the demographic profile of each?

**How many of them do you need?**
What is the average sale for each group and how often do they buy? What do you need in turnover each month to pay the bills?

**How many are there?**
Is there a sufficient population base to support your business and any growth you have planned?

**How will they know about you?**
Will you advertise? If so, how? How will you determine if your advertising is cost effective? Will yours be a By Referral Only business? If so, how?

**Will you do any marketing?**
First, answer what marketing is. How do you create an image? Is it important? How do you cause more people to buy from you than from anyone else? Will marketing cost a lot?

**What does your peer (competitor’s) group look like?**
Peers are an excellent source of information. How do you compare with them? Where does that place you in the market?

**Pricing?**
How will you determine your charge-out rate? Do you want people to choose you as a result of low price? Which of the following do you want your business to look like?

- High Price ..... Low Volume
- Low Price ..... High Volume
- Low Price ..... Low Volume
- High Price ..... High Volume

How much of a consideration is price to the consumer? What is the value of the service we provide? What is the difference between an estimate and a bid proposal?

**What benefits do you (can you) provide people?**

Customers, employees and others have the power to send more business to your company. What’s in it for them?
Sales?
What is it that people buy any time they buy anything from anybody? What should our selling purpose be? Do we satisfy the "wonderful paradox" on every sales contact? Are salespeople born, or are they trained? Do you like selling? Would you benefit from a sales system? How important is sales/selling to your company?

Customer Care?
What's this all about? Is it important? If so, how important? How does it connect with the long-term health of your company? What is your company's customer service goal? What is the most powerful business secret in the world, and requires no money to accomplish?

Referral Program?
Do you have one? Do you need one? If so, what would it look like?

Operations?
How is your business conducted each day? What are your general operating procedures, such as who answers the telephone and how it is answered. What happens next? How is work scheduled? How are customers contacted? How are bids scheduled? How is follow up done? Who does it? How is billing done? When is billing done? How do we handle equipment maintenance? Safety training? Crew training? Do you need systems to ensure that everything in your plan works?

Money?
Do any parts of your plan have a financial impact? If so, how much money can the business afford for implementation? Where will the money come from? How do you put money aside to fund projects and equipment purchases? Where does the money come from?

Labor Force?

Where do we go from here?
Do you see what this long list of questions is doing? It's forcing you to take an objective look at your business, and forcing you to ask and answer hard questions. It's conditioning you to become a successful entrepreneur. It's getting your creative juices flowing. It's forcing you to be actively involved in thinking how you can make more money with less effort.

A business plan becomes your operating tool that will help you manage your business, keep you focused on your goals (dreams), and direct you toward success. It's also the way in which you can communicate your goals (dreams) to others—employees, family, lenders and so on.

At its most basic level, a business plan helps you organize your thoughts (dreams), and put them into an organized, concrete form. It helps you identify what you want to do, and when. It gives your business structure. Your business plan will open your eyes to yourself and your business, and it's going to keep you on the road to success!

Remember, "If you fail to plan ... you are planning to fail." Good luck to all of you!

Dick Proudfoot is the owner of Pruett Incorporated in Lake Oswego, Ore.

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"We don’t mean to make stupid regulations, but when we stay inside the DC beltway and don’t know exactly how you use these products in the field, we make stupid regulations!"

The words above were spoken to me by an employee of the Office of Pesticide Programs, United States Environmental Protection Agency, during a field tour of a Delmarva Power electric transmission right-of-way on the Eastern Shore of Maryland in 1993. This field tour and subsequent meetings with EPA personnel and other utility arborists in the eastern United States laid the foundation for utility participation in a cooperative program to “lower the level of risk to humans and the environment”; the Pesticide Environmental Stewardship Program (PESP). Continued networking and a grant from EPA resulted in the production of a study guide and video by the Edison Electric Institute Vegetation Management Task Force titled Environmental Stewardship Strategy for Electric Utility Rights-of-Way.

The 1993 field meeting and future cooperative discussions with the EPA started innocently enough in 1992 with a phone call from a fellow utility arborist in Pennsylvania. Pete Spangler. Pete had seen my presentations at regional industry meetings where I described how Delmarva Power used selective herbicide applications to assist The Nature Conservancy in the management of rare pitcher plants at Nassawango Creek Preserve in Maryland. He had seen an article in an EPA Endangered Species Update publication where the EPA was advising that utility and other agency “restrict herbicide usage in surrounding areas” of pitcher plant populations.

Pete said, "They must not have heard what you are doing on the Delmarva Peninsula."

I called the EPA to explain our program and was invited to give a presentation to employees of several different departments at their Crystal City, Va., office. This presentation resulted in field tours with EPA personnel and helped instill confidence in their staff that judicious herbicide use and rare plant protection were compatible. We were also successful in subsequent meetings to have EPA understand that when performing vegetation management, any activity carries some inherent risk.

In fact, the use of mechanical mowers and chain saws to cut brush poses a risk to the operators due to sharp cutters and flying debris and risk to the environment through contamination by oil products and soil disturbance. But, through selective application and timely use of herbicides, risk to both the operators and the environment is reduced as more compatible vegetation inhabits the site and provides natural competition to the "weed" trees.

This concept of choosing the right tool at the appropriate time through professional assessment and careful application is the cornerstone of a popular management strategy; integrated pest management, or IPM. The problem with IPM, though, is that it doesn’t carry a universal definition. Depending on the agenda of the individual praising its benefits, IPM may or may not include all of the tools in the toolbox, most notably absent are pesticides.

My experience with the pitcher plant and EPA solidly emphasized two important truths to successful management and reasonable regulations.

1. Networking with peers at association meetings is vital to your ongoing education and helpful communications.

2. Direct involvement in the regulatory and legislative process is vital to the education of those that draft our regulations and laws, and to the survival of important products and techniques.

As an officer in several professional associations, I have often heard members lament about an onerous law or regulation in their state with the direct or implied question: "Why didn’t
anyone do anything about this? What am I paying dues for if they (the association) don’t act?”

I learned early in my career as an employee of a private electric utility that when talking to a customer, I am the utility! They may not have the opportunity to discuss their problems with anyone else in my organization, so like it or not, I’m likely to get an earful. As the local person professionally employed as an arborist, you are your association! If bad laws or regulations are being passed in your jurisdiction, look no further than the mirror for blame!

So when I received a call from Matt Simons, Conectiv’s Senior Forester in the Atlantic region (Atlantic City Electric), that the New Jersey Department of Environmental Protection was looking for utility participation in drafting “Minimum Criteria for IPM,” I immediately volunteered to participate. Here was a regulatory agency soliciting the input of the end users of pesticide products in developing expectations for what constitutes professional application of those products under an IPM definition.

But, what was their IPM definition?

“IPM is a sustainable approach to managing pests by using all appropriate technology and management practices in a way that minimizes health, environmental, and economic risks. IPM includes, but is not limited to, monitoring pest populations, cultivation practices, sanitation, solid waste management, structural maintenance, physical, mechanical and biological controls and consumer education. Pesticides may be used, if needed, with a preference toward products and application methods that present the least potential hazard.”

This definition immediately sets up the prospect that all other alternatives should be exhausted before pesticides can be used. If they are used, preference is given to those products or application methods that present the least potential hazard (to whom or what is not clear), with no mention of the need for efficacy.

There was also this erroneous statement under Education and Training:

“They must be educated on the various pest management techniques that can eliminate reliance on pesticides. A reduction in pesticide use means a lowered risk and exposure potential for humans, pets and other organisms.”

I consulted with Matt Simons and the other New Jersey utility arborists, Stu Leonard (GUP Energy) and Rich Wolowicz (PSE&G), and went to a meeting called in December 2000 for all of the stakeholders, which included agriculture, lawn care, golf courses, railroads, representatives from highway departments and utilities, academia, environmentalists and state regulators. It became immediately clear that unless we could agree on the definition for IPM, a consensus for minimum criteria to practice IPM seemed doomed to failure. I finally offered the definition that was used by Congress and adopted by the EEI Task Force in their cooperative strategy with EPA. The version agreed to read as follows:

“IPM is a sustainable approach to
managing pests by using all appropriate technology and management practices in a way that minimizes health, environmental, and economic risks. IPM includes, but is not limited to, monitoring pest populations, consumer education, and when needed, cultivation practices, sanitation, solid waste management, structural maintenance, physical, mechanical, biological and chemical controls."

We were successful in maintaining the premise that a true IPM program does not preclude any of the tools used by the professional, but instead relies on the expertise of the professional to use sound judgment when choosing a pest management practice. Chemicals are vital tools that may be the first choice when dealing with an acute problem or when safety and efficacy are compared against available alternatives.

Reducing the amount of herbicides used on a given acre over a long period of time is a goal of a sound integrated vegetation management (IVM) program, as it then takes advantage of natural plant competition and animal consumption of tree seeds. We amended the Education and Training section of the criteria to reflect this use of science and true measures of risk:

"Field personnel advising or performing vegetation management on utility rights-of-way should receive training on proper vegetation techniques and procedures, and understand the philosophy of IPM. They should be educated on the various pest management techniques that can minimize reliance on pesticides. An overall reduction in chemical controls, along with the appropriate choice of pesticides and application methods through the use of IPM, results in a lower risk and exposure potential for humans, pets and other non-target organisms. Risks and efficacy of both chemical and non-chemical control methods of pest suppression must be considered as part of an overall pest management strategy."

We also stopped the introduction of unproven vegetation management methods into the approved pest management criteria. The environmental representative had successfully inserted the use of "Alternative methods of weed control using such as hot water, steam, or burning where permissible and economically feasible to be considered for environmentally sensitive areas."

While fire is a proven management tool where applicable, we argued that steam and hot water are inherently hazardous to the applicators, have unproven efficacy, and should not be considered under IPM since they do not select for only the target pest. Steam and hot water can kill fauna as well as flora, and a vegetation manager should not be indiscriminately harming plants and animals (small mammals, insects, bacteria, and other microorganisms) that are not part of the management plan.

The final document lists the following as approved methods for vegetation management:
- Manual and mechanical cutting, where wood debris can be used as windrows, or chipped and left on site to enrich the soil.
- Cultural methods, where desirable vegetation is given the ability to thrive and out-compete unwanted tree species for sunlight, nutrients and water.
- Sanitation, by removal of trash and garbage along the right-of-way to manage insect and rodent populations should be considered, if and when appropriate.
- Biological methods, where desirable low growing plants and animals suppress the growth of unwanted trees through their respective use of competition, allelopathy and seed consumption.
- Alternative methods of weed destruction such as the use of controlled burning where safety, permission and economics are adequately addressed.
- Chemical herbicide for the treatment of incompatible tall-growing trees and vines to stop their growth and remove them from the right-of-way.

This final product outlines the criteria needed for a professional approach to a successful integrated vegetation management program while recognizing and protecting the applicator, the public and the environment.

Regulations and laws can serve to raise the standard on a work practice in a fashion very similar to certification by a professional organization. The difference between positive and onerous regulations and laws is directly proportional to the involvement and efforts of the stakeholders. The lesson learned is that in a democratic society, either become knowledgeable and involved in the process, or suffer the consequences.

Richard A. Johnstone is the System Forester for Covertip Power Delivery. He is a past president of the Utility Arborist Association and Delmarva Agricultural Chemical Association.
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A Common Sense Approach to Street Tree Inventories

By Steve Sandfort

Whether you are managing a pharmacy, cattle ranch, department store, tree farm, railroad or urban forest, developing and using a cost-effective inventory of your resources is critical. Twenty years ago carrying inventories of street trees on file cards began shifting to carrying them on computers. As computers and software became more advanced, yet less expensive, many city foresters became virtually addicted to their computers. Each year they could store more data per tree and manipulate it in more ways than could have dreamed of the year before.

Government agencies, non-profits and consultants routinely brought forth more complex computer street tree inventory systems every year. Soon it seemed that many forestry programs were managing data more than they were managing trees. And, still, I read reports and heard cries that city forestry programs never had enough money to get tree work done.

In preparation for conducting their simple street tree inventory, volunteers from Westwood plan their three-day trip covering each of their 80 miles of roads.

I believe it is far better for the city forester to have local volunteers help conduct a simple computer inventory every 10 years, then manage street trees by the unit system in much the same way that tree farmers, timber industries and governments manage their rural forests. Such a system has been legally defensible and working well in Cincinnati since 1980.

The solution to solving real-world, common sense problems and running a successful forestry program is simple. Manage your forest by areas with the constant help of local, talented citizens and with minimal use of your computers. Design and conduct street tree inventories mainly to develop a large group of educated, concerned and emotional citizens who will make certain the city council adequately funds your program. It is nice to get a little data in the process. But remember, data will never convince elected officials as effectively as emotional appeals will. The crying, young mother demanding the installation of a new traffic signal gets more immediate attention than the well-qualified and experienced traffic engineer with stacks of data who proves it is not needed. Practice forestry, not tree-by-street address arboriculture. Forestry is not brain surgery; it need not be very complicated. The city forester’s goal should be to manage people first and foremost, trees second, and data a distant third. How?

In simple steps to managing a city’s trees

Each city or town is divided into specific areas – neighborhoods, planning units, political wards, voter districts, census tracts, historic areas, or new areas.

Manage trees in the units already working well in your town. We use our 50 communities, the largest of which has 80 miles of streets and the smallest only 3 miles.

In 1980, we fought the temptation to conduct a tree-by-street-address computer inventory. Instead, we asked our talented, dedicated citizens for help. Working with trees is wonderful because most people love trees and will spend their time and money helping the city forestry program. Take advantage of this fact. You meet the greatest people volunteering for forestry, the cream of the crop. Even city council members have volunteered. The same folks would probably not help their city engineer paint traffic signals. People normally do not love traffic signals.

To create Cincinnati’s first forestry program, Tim Jacob, assistant city forester, and I each took 25 communities, obtained the commitment of four or five volunteers from each, and over the
course of eight months conducted a 100 percent inventory of our street trees. Just the two of us accomplished this at no additional cost to our program, while carrying out all other normal work. When we could not borrow a convertible from a volunteer, we used a city vehicle to perform simple, drive-by, windshield surveys. Tim or I, both with bachelor of science degrees in forestry, called out the species, size, and one of four condition classes for each street tree. The volunteers did the tallywhacking. During a good day, we each could inventory trees along both sides of around 35 miles of streets. When questions arose, everyone piled out of the vehicle and studied the tree very closely. The citizens learned quite a bit about street trees, such as what makes a “perfectly good tree full of leaves” a living hazard in need of removal and why pruning other trees extends their service lives while also making the community more safe and attractive. Equally important, Tim and I learned about what the citizens expected of their forestry program, so we could better address those concerns in each community’s management plan. We treated each community as a separate management unit, wrote a specific forest management plan for it and gave the plan to the volunteers. Most important were:

- total number of trees by species, size and condition
- number of dangerous trees per street mile
- potential number of unplanted spots.

Approximate costs to remove dangerous trees, prune good ones, grind stumps and plant new trees were totaled. These reports outlined the problems and potentials to work on and the costs to improve the community. Unlike the consultant’s college students who go back to school, the community volunteers – reports in hand – became Forestry’s emotional, political support.

Then, on our computer the simple reports for all of the 50 communities were totaled to provide a citywide summary to create our 20-year forest management plan. Scattered across the city were 4,000 dangerous trees in need of removal and 38,000 in need of pruning. But most importantly, we learned that one community had 15 dangerous trees per street mile and at the safest end of the ranking another had only 0.5. Motorists and pedestrians had a greater potential for injury and damage in the one, so that is where Forestry planned to begin preventive maintenance work in
### Popular Knives

<table>
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<tr>
<th>Code</th>
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### Overstock Knives

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<td>KCH10005</td>
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</tr>
<tr>
<td>KCH40002</td>
<td>7 1/4&quot; x 3&quot; x 3/8&quot; Morbark, Olathe</td>
<td>$19.74</td>
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<tr>
<td>KCH10001</td>
<td>7 1/4&quot; x 4&quot; x 3/8&quot; Asplundh, Altec, Bandit, Morbark, Wood/Chuck</td>
<td>$21.93</td>
</tr>
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<td>KCH20002</td>
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<td>16&quot; x 3&quot; x 3/8&quot; Asplundh, Altec, Bandit, Chipmore, Vermeer</td>
<td>$21.24</td>
</tr>
</tbody>
</table>

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**Prices Good for Products Shipped by 10-31-2001**
To the volunteers helping Forestry mark dangerous street trees for removal, this silver maple looked very safe and healthy — "It was full of leaves!"

However, when forester Tim Jacob passed his arm completely under the bast that had started rotting following sidewalk repair, the volunteers learned how a "perfectly good tree full of leaves" can be very unsafe and must be removed.

The same volunteers watched Townsend Tree Service remove the maple and became more convinced that the removal was justified. Such learning helps volunteers understand their forestry program and defend it to emotional residents and elected officials.

Working with volunteers

Since volunteers and elected officials constantly change, one year prior to the start of street tree preventive maintenance in a community, its volunteers — some new and some experienced — are taken by Forestry to similar ongoing work in another community to learn what pruning and removal is all about. They also learn from that community’s volunteers what to expect next winter. During the summer volunteers accompany Forestry staff to inspect each street tree and help mark with paint those too dangerous to keep by the road. While the forester measures each dangerous tree and estimates its firewood or sawlog content and records the data, volunteers post the abutting house with notice of the work. All trees to be pruned and stumps to be ground are tallied. This data is entered into contract specifications.
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and the lowest-bidding qualified tree service is awarded the job. Work begins on Nov. 1 and finishes before March to take advantage of the seasonal nature of tree work. All firewood and chip mulch is taken to a nearby temporary wood yard which, in many cases, volunteers help arrange. It is then sold to save landfill costs and to generate tree-planting money. After the revenue is realized, volunteers help determine how many and in which locations new trees would be planted. Often volunteers double the number of their trees by planting them themselves, thus saving contracted planting costs. Now that many local tree services are recycling their own wood, most bid less if they can keep city wood. (This, coupled with the cooling down of our firewood market, means that over the past five years, Forestry has sold little wood. We remain proud of the fact that none of our wood has ever been dumped into a landfill, not even the tremendous amounts resulting from a massive ice storm in 1989.)

When the preventive maintenance and wood-sale-funded planting in a community are completed, we update our computer file to show the number of trees re-

moved, pruned and planted by size and species, and the number of stumps ground. We do NOT include locations of the trees. The database is updated once per year with the work done on an emergency basis or allowed by permit. This allows our simple, management-unit inventories to be inexpensively kept current year after year until more political support is needed. At that time, each community is again windshield-inventoried using a new group of volunteers. The old updated inventory compared with the current totals provides Forestry with a good picture of the trends and unknown changes that happened in that management unit of our forest. By comparing all 50 units, we can obtain a good picture of our total forest.

Maintenance vs. planting

Street tree preventive maintenance always takes precedence over tree planting simply because cities are legally mandated to keep their streets safe but are not mandated to keep streets beautiful. However, we also handle planting by management unit with community volunteers fully involved. When a community needs trees to be planted and its volunteers are interested in working with Forestry, staff and citizens conduct a 100 percent planting survey showing how many of which species are needed on each plantable street segment. Volunteers take the survey results, maps, tree descriptions, etc., and create a five-year planting plan assuming an equal number of trees will be planted each year. They provide Forestry with a priority list of streets to plant each year from which contract specifications are developed. To keep volunteers educated, interested, organized and working hard, Forestry has each participating community annually plant 50 street trees themselves, purchased by Forestry and delivered to them. We supply wood chip mulch and help mark planting locations. However, volunteers must make the Ohio Utilities Protection Service “one call” to assure that all underground utilities are marked, notify abutting owners of the planting, settle disputes, plant the trees, and maintain them for one year.

In 1987, Forestry spent $12,000 planting 20,000 seedlings on 20 acres of formerly mowed I-71 right-of-way in order to save almost $120,000 by never having to mow those areas over 20 years.

Ten years later, Lib Stone explains to a new Forestry staff member how she and volunteers from her garden club convinced the DOT and city to allow the plantings, then raised $12,000 to accomplish it. This reforestation has earned two national awards.
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Only when they successfully accomplish this does Forestry authorize a landscape contractor to plant the remaining several hundred trees. Annually, volunteers plant around 500, 1½-inch to 2-inch caliper, balled and burlapped street trees for Forestry. This is followed by a contracted planting of around 4,000 trees. To keep our unit inventories as current as possible, at year’s end we enter the planting accomplishments into our computers by community, street segments and species, but not addresses.

Three years, and again at six years, after a street segment is planted with trees, Forestry contracts with a landscaper to prune, fertilize and mulch each tree under 6 inches caliper. Volunteers continue to help by pruning those trees that need it before the three- and six-year target dates. Volunteers also help minimize vandalism by speaking to school assemblies where problems have occurred. At year’s end we total this work by community on the computer.

Tree planting has been quite popular. During the first cycle, eight communities responded to our request to help us plant their street trees. Eight of 50 communities is a 16 percent response. When volunteers in other communities saw the new trees, Forestry had to turn down requests to add new communities until we were finished in the first eight. At last, when the call went out again, 12 of the remaining 42 communities jumped onto the tree-planting wagon. That’s 28.6 percent interest!

The only trees we find it necessary to follow by street address on our computer are those few that Forestry receives a phoned or written service request on and we do not remove. Such notification might come as a result of a storm or someone simply noticing an unsafe limb they feel should be pruned off. We track these by the date we received the service request, street address, when Forestry inspected, tree species and size, what was wrong, what work was done, and when and who did it (volunteers, Forestry staff, Forestry contractor, electric utility, or permitted work). When a tree is removed, it is also deleted from the database. Annually we add around 300 trees to the file (a major storm can easily double that) and remove about as many.

When the city’s legal department receives a claim for damages, it is important to know the history of work done on a specific tree so the attorneys can either honor or reject the claim. For example, let’s say a limb breaks off a street tree and damages a car. The owner feels the city was negligent for not pruning off the limb before it fell, and thus wants payment for his damages. Forestry can report when preventive maintenance was performed in that community during which time all dangerous trees were just those few trees someone has put the city on notice about. We agree.

My advice is to try managing your city forest by the area system, maximizing use of citizen volunteers and minimal use of your computer. Design and conduct inventories for the most important reason: keeping respected voters educated and emotional about their trees so they get money for you! Try it, you’ll like it. Give it a few years, and then, if you want more, develop the most sophisticated system you feel the need.

Is our system working? You bet! Cincinnati has been a Tree City USA every year since 1980. We are on target with our 10 then 6-year preventive maintenance cycles and with our 20-year planting cycle. We have consistently planted more trees than we have removed, 8-for-1 in some years. And, our emergency/service request resolution is excellent. Storm emergencies are handled immediately and from the time a citizen requests service on a street tree, we inspect the situation, send a work order to our contractor, notify the citizen of what we plan to do, then complete the work within an average of 20 days.

The attorneys note that claims for damages done by street trees have gone down each year to an all-time low since the program began. We have resolved 1,400 unanswered tree requests transferred from the highway department. A few years ago a group of local businessmen studied all aspects of city government and services to find where improvements could be made. They reported that Forestry was getting more tree work done for the tax dollar than any of the 22 similar cities they studied. As a result, Forestry’s annual budget has never been cut; it has steadily risen from $500,000 in 1982 to $1,700,000 today.

We feel that much of this success has to do with using volunteers constantly to generate emotional, political support, managing our trees in 50 large groups, sensibly using our computers, and being the most privatized of all city services. Forestry contracts 100 percent of its street tree work, even emergency response. But, that’s another story!

Steve Sandfort is supervisor of Urban Forestry for Cincinnati, Ohio.
The Art & Science of Liming
Acidic Soils

By Norm Helie

The maintenance of satisfactory soil and plant health through proper nourishment can depend upon the judicious and prudent use of lime. In the past, we applied nitrogen, phosphorous, acidifying fertilizers and potassium fertilizers without even testing the soil to see if these elements were deficient. Today, it is common practice to conduct soil tests and treat acidity problems by adding lime. In fact, ANSI A300 Part 2 Fertilization standards recommend that soil and/or foliar nutrient analysis should be used to determine the need for fertilizer. A300 Part 2 also requires you to consider soil pH when selecting a fertilizer.

There are immediate rewards for discontinuing haphazard fertilization practices and instead turning toward site-specific fertilization. The rewards for scientific nutrient management are a sustainable urban forest and healthy people who will be able to enjoy the environment. Although these days it is easy enough to just follow the fertilizing instructions you receive with a laboratory’s soil analysis report, understanding the science behind it helps us all become better arborists.

Basics of Liming

When it comes to liming, first and foremost, never apply lime without an established need determined by a check of the soil pH. When it is determined liming is needed, apply only the amount necessary to raise the soil pH of a given volume of soil by the buffer pH. The buffer pH is sometimes confused with the buffering capacity of the soil. Buffering capacity refers to the soil’s ability to resist change. Buffer pH is a measure of the potential acidity of a soil. It is used to determine the amount of acidic hydrogen ions that you would neutralize by liming, and is the best method of determining the amount of lime needed. PH is measured on a scale of 0 to 14; 0 is the most acidic, 7 is neutral, and 14 is the most alkaline.

Secondly, keep in mind that all liming and potassium fertilization is dependent on the science of the cation exchange capacity. Cation exchange capacity – also known as CEC – is a measure of a soil’s ability to hold positively charged alkaline-forming ions, called cations. Think of the CEC as a bucket. The bucket is made out of organic matter, such as soil humus, and fine soil particles, such as clay and silt. These particles are called cation exchange sites because cation particles attach themselves to “bucket” particles, thus “filling up the bucket.” Depending upon the makeup of the soil, the bucket (the ability of the soil to hold cations) can be large or small.

The cations involved in plant growth include, but are not limited to, potassium, calcium and magnesium. These metallic minerals occur abundantly in natural soil ecosystems. Problems can arise when these cations are removed and replaced by acidic cations through weathering and growing plants. CEC is measured in milliequivalents per hundred grams, and generally ranges from 7 to 30 meq/100g. Soils with high CEC (20 meq/100g or greater) are rich in either clay or organic matter. Soils with lower CEC’s are lacking organic matter and are usually sandy. When considering CEC, note that, in general, soils with low CEC (0 to 9.9 meq/100g) should not be limed the same way as soils with moderate CEC (10 to 20 meq/100g).

A soil’s base saturation, another important factor to consider, is the ratio or percent of CEC – cation exchange capacity – that is taken up by base cation nutrients (such as calcium, potassium, magnesium and sodium). When considering CEC as the “bucket,” think of base saturation is the amount of cation nutrients in the bucket.

The science of liming hinges upon the relationship between pH and the percent-
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Table 1 – Three of the most commonly encountered soil test results and their corresponding products for treatments.

<table>
<thead>
<tr>
<th>Soil pH</th>
<th>Soil Nutritional Status</th>
<th>Recommended Products for Treatment</th>
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</thead>
<tbody>
<tr>
<td>Low pH</td>
<td>Both calcium and magnesium are in &quot;deficient&quot; to &quot;low&quot; range</td>
<td>Use dolomite limestone, which contains calcium and magnesium carbonates</td>
</tr>
<tr>
<td>Low pH</td>
<td>Calcium is &quot;low&quot; but magnesium is within the &quot;sufficient&quot; range</td>
<td>Use calcitic limestone, which contains only calcium carbonates</td>
</tr>
<tr>
<td>Neutral pH</td>
<td>Calcium is &quot;low&quot; but magnesium is within the &quot;sufficient&quot; range</td>
<td>Use gypsum, which contains calcium sulfate **</td>
</tr>
</tbody>
</table>

* Liming materials that contain magnesium carbonates are slightly less effective at neutralizing acids. Monitoring soil pH after treatments is necessary to make sure the pH is in the desired range. More liming material may be necessary to achieve the target pH.

** Gypsum will enhance calcium levels without increasing the pH and remove sodium that may be causing the pH to be slightly alkaline.

age base saturation of the CEC. For every 0.10 change in pH, there generally should be a 5 percent change in base saturation. For example, if the percentage base saturation is pH 5.5 at 50 percent saturation, then at pH 5.0 and 6.0, saturation should be 25 percent and 75 percent, respectively. Remember this relationship, because it is important when interpreting soil tests before you start liming.

Consider pH – and everything else!

The first thing you need to consider when thinking about liming is pH. Although the desired pH for most plants is generally between 6.3 and 6.8, there are many exceptions. For example, plants growing in sandy soils low in organic matter (less than 3 percent) and with a low CEC (less than 9.9 meq/100g) generally have a desired pH range of 5.8 to 6.3 (Jones, 1985). Why? Think of the bucket. A low CEC means the bucket is small, so you can only have limited amounts of cations in the soil; thus, the pH will remain low. In order to raise the pH, you would need to add only a limited amount of lime (calcium, magnesium cations). Overliming this type of soil and increasing the pH too much will limit the uptake of micronutrients that are already at limited levels due to the low content of organic matter. This is the typical profile of a coastal soil. Hence, although pH is important here, it is relevant only in relation to the amount of organic matter in the soil. Ultimately, plants growing in such soils determine the actual target pH (TPH).

Soil scientists use ranges as guidelines for deficiencies and toxicities. For example, calcium can be deficient, but it is not toxic to either the plant or the soil. In soil, excessive calcium is not toxic but can interfere with iron and manganese uptake (chlorosis). Potassium (and other nutrient) uptake can also be aggravated by excessive calcium. This is why it is important to evaluate the percent base saturation before you start liming. The sufficiency range varies, but generally, potassium should be 2 percent to 5 percent, calcium 65 percent to 80 percent, and magnesium 10 percent to 15 percent. These ranges determine the specific lime products and the need for po-

Table 2 – Three of the most commonly encountered soil types and their recommended target pH values.

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Target pH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy soil with low CEC (0 to 9.9 meq/100g) and low in organic matter (less than 3 percent)</td>
<td>Target pH is 5.8 for ericaceous plants or 6.3 for calcium-loving plants</td>
</tr>
<tr>
<td>Sandy and silt loam with moderate CEC (10 to 20 meq/100g) and moderate organic matter (4 to 6 percent)</td>
<td>Target pH is 5.8 for ericaceous plants or 6.8 for calcium-loving plants</td>
</tr>
<tr>
<td>Organic soil with high CEC (20 meq/100g or greater) and high organic matter (greater than 6 percent)</td>
<td>Target pH is 5.5 for ericaceous plants or 5.8 for calcium-loving plants</td>
</tr>
</tbody>
</table>

Highlights from this soil analysis report show the various factors to take into consideration before applying lime to acidic soils.
For low pH of lime are extremely important for content enough organic matter, however, organic matter should not be of and accuracy. Such soils are obviously evaluated. Failing to remedy signs of potassium deficiency in plants and soil will result in weak-wooded, disease-prone, and moisture-stressed trees.

**Organic soils**

Organic soils can host numerous plant species because of the ability of organic matter to buffer the ill effects of aluminum on plant life. Root growth is usually inhibited by aluminum in the soil. When soils contain enough organic matter, however, the organic matter binds the aluminum, rendering it non-toxic to plants. One of the major justifications for liming mineral soils that have 3 percent to 5 percent organic matter is to counter the negative effects of aluminum. It’s OK to maintain a target pH of 6.5 for a clay mineral soil with an organic matter content of 3 percent to 5 percent, but a soil having more than 6 percent organic matter should not be maintained above pH 5.8 for environmental reasons.

**Grades of lime**

The rates and specifications for grades of lime are extremely important for sustainability and ease in management. For low CEC soils, low rates of very fine lime make it easier to maintain a stable pH. If you use a lime that does not completely react with soil because of the lime’s grade, it may be difficult to make successive applications with precision and accuracy. Such soils are obviously more labor intensive because of the annual or biannual treatments.

Because higher rates of application can expedite soil pH reactions lower in the soil profile due to diffusion and mass flow (Barber, 1984 and Brown et. al., 1956), it is strongly advised to make either single or split applications of the total lime required for any given volume of soil. Lower input frequency has sustainable and managerial merit. Using a proper ratio of fine-, medium- and coarse-sized limestone can enable arborists to make long- and short-term goals for their clients. If the application rates of limestone are accurate for a given volume of soil, these treatments can last for 20 years. However, it is necessary to monitor pH routinely, because we do not know how much calcium, magnesium and potassium is consumed by tree growth. This dilution factor needs more research, and record keeping will be useful in the future.

**Conclusion**

All trees and all soils are not all alike. Landscapes need to be carefully examined physically, chemically, and biologically before any fertilization or liming. Liming acidic soils is one of the most important fertilization practice for today’s arborists. Do not apply lime without complete knowledge of the chemistry of the soil profile.

Norm Helie is an arborist and researcher with Tree Specialists, Inc. in Holliston, Mass. Special thanks to Rolf Briggs and the employees of Tree Specialists.

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**Table 3 - Note:** Rates and specifications for potassium are extrapolated from the following equation:
Desired soil test level = 220 + (5 x CEC) (Foth and Ellis, 1997).

<table>
<thead>
<tr>
<th>Chemical and Physical Analysis</th>
<th>Rates and specifications for Lime</th>
<th>Rates &amp; specifications for Potassium</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low CEC (1 to 9.9 meq/100g)</td>
<td>¼ to ½ ton per acre furrow slice</td>
<td>43.5 lb. of actual potassium per acre</td>
</tr>
<tr>
<td>Organic matter less than 3 percent Sand and/or silt soil</td>
<td>Find-ground limestone 100 percent passing 100 mesh</td>
<td>furrow slice* **</td>
</tr>
<tr>
<td>Moderate CEC (10 to 20 meq/100g)</td>
<td>2 to 4 tons per acre furrow slice*</td>
<td>87 lb. of actual potassium per acre</td>
</tr>
<tr>
<td>Organic matter 3 to 5.9 percent Sand silt and clay loams</td>
<td>Medium- and fine-ground limestone at least 50 percent but no more than 60 percent passing 100 mesh</td>
<td>furrow slice* **</td>
</tr>
<tr>
<td>High CEC (21 meq/100g or greater)</td>
<td>4 to 8 tons per acre furrow slice in a single application of a coarse-, medium- and fine-ground limestone with 25 percent passing 100 mesh</td>
<td>174 lb. of actual potassium per acre furrow slice* **</td>
</tr>
<tr>
<td>Organic matter 6 percent or greater</td>
<td>Rich (dark) loam soil</td>
<td></td>
</tr>
<tr>
<td>Moderate CEC (1 to 9.9 meq/100g)</td>
<td>Sand</td>
<td></td>
</tr>
<tr>
<td>High CEC (21 meq/100g or greater)</td>
<td>Sand and clay loams</td>
<td></td>
</tr>
<tr>
<td>Organic matter less than 3 percent</td>
<td>High CEC (21 meq/100g or greater)</td>
<td></td>
</tr>
<tr>
<td>Organic matter 6 percent or greater</td>
<td>Rich (dark) loam soil</td>
<td></td>
</tr>
</tbody>
</table>

* Denotes split application for treatment. ** Avoid chlorides and manufactured sulfates of potash

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California Oak Disease Spreads

By Don Dale

The good news is that scientists finally have a name to give the organism that has been killing oak trees on the northern California coast. The bad news is that it has been found not only in new areas, but also in new tree and ornamental plant species. This deepens fears that the disease may spread to other regions of the country.

A fungus, *Phytophthora ramorum*, has been identified as the culprit causing the disease called “sudden oak death.” Oddly enough, it was not identified by American scientists but by Dutch and German plant pathologists, who found it on rhododendrons in greenhouses.

“They actually found it in rhododendrons in Europe seven years ago,” says Dave Rizzo, a plant pathologist at the University of California, Davis. “But it wasn’t that important.”

Well, now it is important, because a disease organism that adaptable and widespread poses serious threats internationally. Rizzo is working with other California plant scientists to find methods of curbing the disease, and is working with the European scientists to help understand the population dynamics of the organism.

“It’s probably always been in these other species,” and may have spread from one of the plant species newly identified as carriers to oaks – instead of the other way around. Rizzo says the implications are enormous. “The concern is that it will get out of California and spread.”

In addition to the coastal live oak, the black oak and the tan oak, in which the disease was originally found about six or seven years ago, the Shreve’s oak has also been infected by *Phytophthora ramorum*. Plus, the fungus has been found in unrelated species such as California buckeye, Pacific madrone, coast rhododendron, California bay laurel and California huckleberry. This widening range of host species is alarming in part because of the close kinship that some of these species have with trees in other parts of the country.

Rizzo is currently looking at several aspects of the disease, but one of his most intriguing tests is on red oaks, natives to the eastern United States. He is inoculating red oaks with the fungus to see if they are susceptible. He adds that the U.S. Department of Agriculture is gearing up to study the disease’s effects on several commercial plants such as blueberries and cranberries.

Nicole Palkovsky, the UC Berkeley coordinator of the Marin Oak Mortality Task Force, says that the other troubling aspect of a lot of frenzied scientific work on the disease is that it has
now been discovered in eight California counties: Mendocino, Sonoma, Napa, Marin, Monterey, San Mateo, Santa Cruz and Santa Clara. The disease may be spreading, or not.

"It may be that we're just catching up to it," Palkovsky says, noting that the close relationship of infected California species to Midwestern tree species is scary.

"Definitely, the growing host species list is cause for concern," she says, pointing out that wild areas of the above counties are actually being affected more than trees in landscaped settings. The urban areas that are the hardest hit are those with large numbers of oaks.

The number of concerned people working on various aspects of the disease has grown considerably. The task force has seven committees and a six-member board, and the Monitoring Committee alone has dozens of people around the state surveying or keeping an eye out for the disease.

Symptoms vary by species but normally entail wilting leaves that brown over a period of time. Ultimately the trees develop cankers that are sunken and water-soaked under bark that is often cracked. The trees begin oozing an amber or brown sap.

Trees may die over a period of weeks, months or years. The variation is thought to depend on the health of the tree and ambient climate conditions, says arborist Ken Bovero, owner of Marin County Arborists in San Raphael.

"I have not seen as many trees infected with sudden oak disease." Bovero says of his work in the area this summer. He says a hot spring and summer may have slowed the spread of the disease, which isn't thought to be tolerant of temperatures over 90 degrees.

"My understanding is that if you keep the tree fertilized with phosphorus compounds, that's proven to be effective," Bovero says. His communications with chemical representatives in the area led him to believe that phosphorus fertilizers not only strengthen the trees and make them more resistant to sudden oak disease, but also can assist in restoring vigor.

Aaron "The Tree Man" Corbiere, who operates an arborist business from Marin and Sonoma into San Francisco, agrees. He has seen diseased oaks maintain good con-

ition for a year if properly fertilized and irrigated "to keep their health up." He doesn't know if he is saving the trees or merely slowing their death.

"It's kind of like Dutch elm disease. There's only so much you can do," Corbiere admits. He is seeing a lot more structural damage to infected trees, and they tend to become brittle and fall over. They also are a dusty mess to cut and chip.

Corbiere calls the disease a "slow hurricane," because the effects are on the order of devastation of a hurricane - they simply occur in slow motion over a period of years. It is much more prevalent in the wild than in landscapes, because landscape trees often get extra nutrition and water.

"This year compared to last year, it's much worse," he says of the range and intensity of the disease.

Ralph Zingaro goes one step further. The owner of Bio-Scape, Inc. maintains that the fungus has been present all along and is simply a manifestation of the deteriorating soil and air environment for trees.

"It's getting worse," Zingaro says of the disease. "And the trees seem to be dying faster."

He says Phytophthora ramorum is kill-

ing trees already weakened by environmental pollution and soils low in nutrients such as calcium. "When you put this fungus into a healthy potted tree, it doesn't kill it," he says, speaking of experiments he has helped run for Matteo Garboletto, a UC Berkeley plant pathologist.

Zingaro closely monitors a 500-acre private site where there are thousands of oaks. In two years he has noticed a lot of sudden oak death.

"Now that we're noticing a flush of new growth, the new growth is dying," he says. He feels it is the long-term effects of pollution and low nutrition, with the onset of Phytophthora and other pests such as beetles doing the final damage. "I've taken many soil and leaf samples," he says, and those reveal elevated aluminum and low phosphorus in the tree, and low calcium in the soil.

Accordingly, Zingaro's most effective treatment for the disease is a combination of a phosphite fertilizer called Bio-Serum (patented by the University of California and licensed to a private manufacturer) and treatment of the organism with the fungicide Phyton 27. "We've been successful in at least stabilizing them," he says of dis-
eased trees. He has treated more than 4,000 oaks in this way, and the addition of a calcium supplement to the soil and the use of micro-injection systems for the phosphites boost the trees' chances of staying healthy.

Zingaro, who has a degree in plant pathology from Cornell University and has worked in the industry for 20 years, says he has seen the fungus affecting madrones, bay trees, and, to a lesser extent, buckeyes. But these are native plants not commonly used in urban landscaping, so they are not as important to arborists as oaks.

Rizzo is looking at how the Phytophthora may be spreading. So far he has found it in soil, in dead trees and in water. Thus, it may be transported with firewood removed from an area, in mud on tires or shoes, or in water. One of the likely methods of spread from plant to plant may be in rainwater splashes.

"We don't know if it's infectious," Rizzo notes, though he cautions people from removing any of the above elements from areas where the disease is prevalent.

He points out that he and the European scientists find a lot of the fungus' spores in water on the leaves of rhododendrons, and it is very likely that they could spread from there to tree species.

"That's the most likely scenario," Rizzo concludes, pointing out that damage to rhododendrons is usually in the form of leaf and twig blight. "It doesn't necessarily kill all those hosts."

Rizzo, who is working with several organizations in surveying the extent of the infestation, echoes Palkovsky's sentiments that the disease may or may not be spreading. It may be that scientists only now are locating populations that already existed. One of the anomalies of the surveys is that the disease still hasn't been found in the East Bay around San Francisco, which is in the heart of the eight counties.

"We're still trying to figure out why," he notes.

"In fact, there's going to be a quarantine," Rizzo says. The state of California is in the process of setting up a quarantine that prohibits removal of plant materials from the eight infected counties. Oregon and Canada already prohibit introduction of California wood and ornamentals because of the disease.

News reports in the area have become alarmist about fire danger, because not only is there a lot more dead fuel out in the forests, but the summer has been dry and hot. A bill passed by the California Assembly, if signed into law, will provide $4.7 million to reduce the safety risks of sudden oak death. Federal legislation introduced into Congress by California Sen. Barbara Boxer asks for $71 million to combat the disease and reduce public safety risks.

Don Dale is a freelance writer in Hollywood, Ca.
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Pruning Magnolias

By Cass Turnbull

Every year I regret, more and more, every cut I've ever made on a magnolia tree. That's because no matter how few or how small the cuts, they always seem to turn into a mess of watersprouts, ugly as sin and impossible to get rid of. And that's a real shame, given that the branch patterns of the deciduous magnolias are some of the best Mother Nature has to offer. I have to stop myself from bringing pruned branches home from work. (My house would be full up in a week with the interesting flora I come across.) Not only do the magnolia’s branches divide often, but the tips are fattened like fruit tree spurs, and they end in eminently touchable fuzzy buds. The fuzzy buds are an identifying characteristic of the species.

The three most common magnolias are the saucer magnolia, the evergreen (or southern) magnolia, and the star magnolia.

Saucer magnolia

The saucer magnolia (*Magnolia soulangiana*) is a fine tree. It gets listed as a small tree in garden books because it tops out at about 20 to 30 feet. That's small in the world of trees. It's like saying an orca is small. That's small for a whale, but still really big for an animal. Thirty feet is a lot bigger than most people think when they plant something called a “small tree.” And, furthermore, people don't really pay much attention to the part of the tree description that says the tree will get to be as wide or wider than it is tall. This low, broad spreading habit of the saucer magnolia makes it desirable too, but it also means
that it will eat up half the average front yard.

When people begin to realize this, about 10 years after planting the tree, they usually respond by raising the limbs of the tree. This is unfortunate because it defeats the nice spreading shape that the tree is meant to have. It also results in watersprout regrowth and frequently the next highest limbs will dip back down to the ground. (With most other trees, especially large-growing ones, raising limbs works well.) With a saucer magnolia, I just recommend that people keep removing grass so they don’t have to mow under the low-hanging limbs. And I advise planting a nice ground cover and spring bulbs in the bed. By the way, it is important to note that magnolias are difficult to transplant successfully – another reason to consider their site carefully.

Although it takes up a lot of room, I nonetheless consider the saucer magnolia a garden-worthy tree. Not only does it have an exquisite winter branch structure, it blooms with enormous pale purple flowers of heady fragrance. They are impressive without being gaudy. Even before they bloom, the elongating buds, like white candles standing on the branches, add to the intense excitement of oncoming spring. I love to watch them. And, to my knowledge, the saucer and star magnolias are not plagued by any serious diseases, unlike many other “flowering trees.”

Later in summer, the magnolias set up some very interesting seed pods. The husk splits open to reveal a spiral of shiny orange, pearl-like seeds. I wonder if the formation has something to do with the fact that magnolias are one of the most ancient orders of plants. You might miss the pods if you are not looking. But the discovery and admiration of odd pods is an example of the rewards awaiting working arborists. One gets these little treats, if one is paying attention.

The saucer magnolia has large leaves that add some contrast to the summer landscape. Better yet, those big leaves decompose through the winter, leaving a finely netted leaf skeleton, lovely as lace.

**Evergreen, or southern, magnolia**

Some people like the evergreen mag-
nolia (Magnolia grandiflora), preferring evergreen plants to deciduous ones in general. The enormous green leaves of the evergreen magnolia often have a contrasting felt-like brown backing that looks good in floral arrangements and wreaths. Broadleaf evergreen trees are relatively rare in my area. (This accounts for the fact that an early explorer mis-named Magnolia Bluff in Seattle. The trees he saw lining the bluffs weren’t magnolias, they were madronas (Arbutus menziesii), our very own native broadleaf evergreen tree.)

The flowers of the evergreen magnolia are also large and fragrant, but they tend to bloom off and on, rather than putting on one big show. These trees get much taller than the saucer magnolia, (80-feet-by-40-feet in the warmer climes) and therefore the limbs can be raised more successfully. The flowers on these magnolias are overhead, meaning an evergreen magnolia should be planted down a hill or below a second-story balcony (off to one side).

I must confess I bear a grudge against evergreen magnolias. It’s their leaves. The fallen leaves don’t decompose. And they’re slick as ice. I worry about little old ladies slipping on them — and not-so-little or so-old maintenance gardener ladies, too! This feature makes them a bad choice for sidewalk plantings and patios. Raking them up is like raking up shingles. In addition, the limbs are weak, breaking out in high winds. I have also seen a few trees get a virus disease that causes the leaves to die. It’s not a big problem, but it is another strike against them.

On the other hand, I know many other gardeners who especially like the evergreen magnolias. It really is just a matter of personal preference. As one advances in the world of horticulture, one becomes disenchanted with the most common species and more enamored of the rarer and often less showy varieties. My personal feeling is that the reason many, if not all, of the most popular plants are most popular is that they really are the best. I think if you lined up a score of those smarmy horticulturists, who (for some inexplicable reason) had never seen a magnolia tree...
before, they would pick out these three—the saucer, evergreen and star magnolias—as the best.

Other magnolias

Still, you might care to know that horticulturists will be more impressed by finding a cucumber magnolia with yellow flowers (*Magnolia acuminata var. cordata*), or a big-leaf magnolia tree with fabulous 1- to 2½-foot leaves (*Magnolia macrophylla*), or Campbell’s Magnolia (*Magnolia campbellii*), whose flowers look like waterlilies blooming on bare branches in March. There are many others, but rest assured, magnolias, no matter what variety, are never considered banal.

Star magnolia

Now the star magnolia (*Magnolia stellata*) is truly a small tree (when it grows up). The mature ones are about 10 to 15 feet tall. For the first decade or two, the star magnolia will serve as a nice shrub. Its flowers are composed of stars with "straplike" white petals. It has the characteristic fuzzy buds, articulate branch structure and the magnolia’s penchant for throwing watersprouts when pruned (except, perhaps "St. Mary" and "Victoria"). Like all the magnolias, it should be planted where it can reach maturity in height and width without restriction.

You can get into trouble raising the limbs because then you’ll have to remove the watersprouts two or three times a year for eternity. (Boy, does that get old fast!) I have seen star magnolias sold on “standards” as trees. A standard is a long straight trunk upon which the crown is grafted. There are a few “standard” star magnolias planted near Zestos burger joint across from Ballard High School in Seattle. I guess I have to get used to this. They seem to be surviving, but some have already been mal-pruned into globes. These trees, as well as the shrub form of star magnolias, are available with either pink or white blooms.

Pruning

My best advice about pruning magnolias is—don’t. Having said that, I confess that sometimes I do. If the lowest limb spans into the driveway or it runs through an unmovable shrub, I may prune it off to the trunk or to a likely upper lateral. If an upper scaffold dips down too far, crowding another major limb, I may lighten it with many small thinning cuts or I may remove a large lateral or two. Then it springs up and out of the lower network of limbs. (I have been known to thin an old crowded branch.) This is good fun, and the result is a crisper, cleaner looking branch pattern.

Earlier this year I noticed an unflattering straight watersprout on a star magnolia that I had reduced the previous year, ever-so-lightly and selectively to get it out of the concrete pathway. Now when I prune, I do so with even greater guilt and apprehension. I suggest you do too. And avoid it altogether if you can.

Rehabilitative pruning

The good news is that magnolias are good compartmentalizers. This means that if some misinformed, well-meaning neophyte tops the heck out of a magnolia tree, it won’t kill it. The tree will instead fall off the incoming rotting organisms, explode in to a bazillion watersprouts, and grow back to its original size in a year or two. Of course, it

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looks horrid, as does any magnolia that has been malpruned – topped, tipped or overthinned. Overthinning is, by definition, pruning to the extent that watersprouts are formed in response to the cuts. In the case of magnolias, whether or not any particular thinning cut responds with watersprouts will depend on several factors: the size of the cut, how well it is made, the total amount of foliage being removed, and whether or not it is exposed to sun. You may get away with a few small internal well-made collar cuts. Otherwise, expect to see watersprouts next growing season.

If you leave the watersprouts growing long enough (and they do get long!) they will turn back into branches. It’s true! With a little judicious reduction in the numbers of sprouts (cutting out a very few of the smallest, or wrong-way, or crowded in each cluster), you can eventually, over the span of four or five years, restore the crown of the tree. I have personally trained a group of watersprouts from a skinned-up saucer magnolia back into a blooming branch system. Not as lovely as the original, but passable, and I no longer have to remove watersprouts that make the tree look such a fright for half of the year.

When restoring a previously mal-pruned tree, I am more tempted with magnolias than with other plants to head back some of the skyrocketing watersprouts in hopes of building a crown with some lower internal branching. I’m not thoroughly convinced this works, but a knowledgeable arborist of my acquaintance assures me that it does.

Take care

Take care not to ask too much of a magnolia tree, or she will punish you for a lifetime. But given just the right spot and the freedom to grow unaltered, a magnolia will reward you or your customer with much of the best that trees have to offer: bloom and scent and a lovely winter silhouette.

Cass Turnbull is the founder of Plant Amnesty in Seattle, Wa.

TCI
Just a day in the life of a climbing rope

By: Jeffrey Lee, Branch Management, Riverside, CA (909) 276-8060
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In the early morning, Big Al Fontaine's number one man Max Bunyan swaggered into the dark garage and with an echoed "click" turned on the lights. The air in the room was filled with the smell of coffee as Max (sporting his yellow hard hat) reached down and picked up a climbing line sitting on the floor amongst other tree climbing equipment. He slung the rope over his shoulder and headed for his pickup truck. The rope was tossed onto a pile of equipment, pieces of wood and other assorted stuff such as hardware, tool boxes etc. After a brief ride in the beaming sunlight the rope found itself being unloaded and tossed onto the oil and grease coated asphalt. Max donned his climbing belt, picked up the faded rope, and "set" it in the Widow Carter's Pine tree.

A couple of knots later, the rope was married to the steel on Max's climbing belt. He hoisted himself skyward by pulling, and body thrusting on the ½ inch diameter lifeline, stretching and straining each and every fiber. For the next several hours the rope was dynamically loaded by Max's unmerciful swings through the canopy of the tree. The sap that oozed from cuts was sponged clean by Max's rope as it slid over the bark. The tightened rope being pulled over the limb of the tie in point created a creaking sound that squeaked and groaned with every movement from the nimble climber. In the meantime, the tail end of the rope, strewn all over the wet grass, is being dragged, stepped on and run over by unwary ground men. Huge pieces of wood from high above pile drive the rope into the ground that somehow escaped the wrath of the ground personnel. Upon completion of pruning, Max screamed to the ground while the friction knot in his hand heated nearly to a melting point when he released the knot slowed his descent, and came to a feathery landing on the ground.

The job and clean-up efforts completed, the rope is once again coiled up and tossed into the back of the pick up truck. The rope returns to the yard amongst the gas and oil covered (and hot) power equipment. Once in the yard, an exhausted Max Bunyan tosses the rope onto the floor, where it sits in dark silence, (as Max shuts the off the lights) ready to be called into action the next day.

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ISA certification preferred. Top wages & benefits in Fort Collins, Colorado. Year-round work. Jordan's Tree Moving & Maintenance, Inc. 970-482-6331 djordans@aol.com

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... continued on page 66

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... continued on page 68
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Roanoke, Virginia: Climbers/Crew Leader
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We are looking for reliable, career-seeking climbers with 2 years minimum climbing experience. Must have valid driver's license and be willing to obtain CDL. $18-$24 per hour plus benefits, vacation, profit-sharing, retirement plan and business take-over option in the future. I will help with relocation expense. Call Pleasant View Tree Service - Aric Marohn Stillwater, MN. (651) 430-0316.
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...continued on page 70

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6 - MITTS Merrill 16" Drum Chipper
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Contact: Franklin Tractor Sales 915 Harmon Avenue Columbus, OH 43223 800-282-1438 ext. 224

**1999 Big John Spade Model 90AA -$45,000; 1992 Big John Tree Spade Model 90AA mounted on a 1985 Mack $80,000; one 90" free-standing pod - $3,000. Uvalde, TX (830) 591-1824 or e-mail kristy@hilconet.com**

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Get the message?

The tree removals that a North Carolina billboard company owner did to make it easier for passing motorists to see his signs could turn out to be a very costly tree job.

State officials are finalizing the details on what they say will be one of the largest settlements ever in the Carolinas for illegally removing trees.

According to The Associated Press, Horizon Outdoor Advertising of Charlotte has already agreed to deposit nearly $150,000 into a trust account while a final settlement price is negotiated. That sum is what Charlotte City Arborist Don McSween estimates the lost trees — there were 268 cut in all — were worth.

“This case sends a message to the billboard industry and to anyone else who might consider such an act,” McSween said.

Plant ... or pay

The folks in Fairfax, Va., take their trees seriously. Authorities in that city jailed the owner of a local driving range for nearly three years after he refused to follow a judge’s order to plant more trees.

According to The Associated Press, John Thoburn was released in late May after a judge devised a compromise that will clear the way for Fairfax County workers to go onto the driving range, replant more than 100 trees, and plant an additional 270 trees themselves.

But the judge who freed Thoburn did not let him off easily. Thoburn was also fined $500 for each day he was in jail and was ordered to pay for the county's work. Thoburn is said to be considering an appeal, saying he does not have the estimated $40,000 it would take to do the work.

A county attorney said the driving range owner simply chose to stick to his guns despite the high price of jail time and fines. “He’s an extraordinarily stubborn man,” the attorney said.

Not as easy as it looks

Tree-sitting has become a favorite tactic of anti-logging and anti-development forces around the country. But some activists in California found out the hard way that climbing trees is a risky business.

According to a story in the San Jose Mercury News, a 20-year-old protester who uses the name “Sparrow” fell 30 feet and hit her head on a redwood stump while climbing to the tree-top “village” that Earth First protesters have maintained in the Santa Cruz Mountain Range for nearly a year.

Though originally in critical condition, “Sparrow” was expected to recover from her injuries. Two of her climbing companions, who called for help, were promptly arrested on trespassing charges. Ironically, a judge has refused to order the tree-sitters off the private property because, he said, it would be too dangerous for law enforcement officials to physically remove those who refused to go.

No saving landmark tree

A 150-year-old elm tree in Oregon City, Ore., had earned plenty of respect for itself over the years, so much so that construction of a new bridge across the Willamette River was moved to avoid damaging the tree. But despite best efforts, including $10,000 worth of extensive cabling and bracing, the tree had to be cut down in mid-June, according to a story in the Portland Oregonian.

The elm was said to have been planted by George Abernathy, Oregon's first provisional governor, around 1850. Cuttings taken from the tree will be planted elsewhere to continue the historic tree’s presence.

A shady resting spot for Zorba

It took a special last-minute decision by the Bristol, R.I., Zoning Board of Appeals, but one of the final wishes of actor Anthony Quinn will be fulfilled. Quinn, who died at age 86, had made it known before his death that he wanted to be buried beneath a sugar maple tree on his family’s 19-acre waterfront estate, according to the Providence Journal-Bulletin.

But burial anywhere other than a cemetery requires special permission. The board granted it after hearing that Quinn had long favored the tree’s shade as a resting spot, even revealing to a New York Times reporter his desire to spend eternity there.

Unique event in Czech Republic

A major milestone in the evolution of the European Arboricultural Council was passed at the end of June with the holding of the Council’s first international conference in the Czech Republic. More than 130 delegates from 15 countries attended the two-day event. Papers and workshops covered subjects ranging from education, disease control, safe working and practical tree care.

The importance of bringing together arborists from so many countries was very much in keeping with the purpose and philosophy of the EAC, which was intended to co-ordinate the profession throughout Europe. As the Director of Pruhonice Park said in his welcome, “A tree is a fragile living organism which needs all the dedication that modern science and practical experience can provide.”

Arborists learning from one another can go a long way in achieving this goal. Visit the EAC Web site at http://www.eac-arboriculture.com.
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A Brush with Death

By Randy C. Boden

I had been working in our 20-year-old family tree business since I was 16 when a death trap came upon me June 3, 1994.

It was a clear, warm sunny day; we were to take down several tall (60 to 80 foot) trees at a resort on Lake Huron.

There were four of us on the job. All was going very well. My oldest brother climbed our last tree to bolt check a V-crotch with a Y 40 feet up in the tree. We were to take the top out of the 80-foot tall tree.

My brother tied the tree (double ropes) - one rope to tie it off (a butt check) and one to keep the tree from falling on the ground. The other rope was tied to pull it from that tree to another tree, 60 feet away, and then into the hands of the pullers.

I was bent over coiling a rope about 50 feet away from that tree when the tree piece ricocheted off two trees before hitting me in the head, knocking me to the ground.

The tree piece - a 200 pound, 6-foot piece of oak - had grazed the side of my head. My brother came rushing over (in the midst of descending from the tree, which he had tied the ropes to) to attend to me. I was not breathing. He immediately gave me mouth-to-mouth resuscitation and got me breathing.

After he got me breathing, I tried vigorously to get up. He kept me down. I did not remember any of this. One of the many people watching had a cell phone, and immediately called for an ambulance. They got me to the hospital about 15 miles away. My family was called and was told to come immediately as they did not think I would make it. I was stabilized with a 50-50 chance of surviving. At the hospital I was also put through several CAT scans where they saw the brain bleeding and clotting.

I was flown in a helicopter from Tawas Hospital to St. Mary's in Saginaw, Mich. They prepared to operate. I was X-rayed again and the bleeding and clot appeared to be dissolving. A chain of prayers had gone out immediately when the accident was heard about, reaching some of my friends (two large groups of people).

I was kept in the hospital for a week. I did not remember any of this until the day before I came home.

My little girl graduated from kindergarten the day after my accident. I could not be there for that special occasion, but am thankfully alive - which amazed all the people that saw the trauma I sustained, especially my neurosurgeon. I have never had any effects from the accident since leaving the hospital - a total miracle!

Randy C. Boden works at Alcona Tree Service in Oscoda, Mich.

Do you have a story From the Field?
TCI will pay $100 for published articles. Submissions become the property of TCI and are subject to editing for grammar, style and length. Entries must include the name of a company and a contact person.
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Columbus
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Registration Procedure

Please photocopy and complete a separate registration for each conference attendee. Registration is REQUIRED to obtain your admission badge.

Register before the Early Bird deadline of Oct. 5 to receive discounts on trade show admission and educational seminars.

All TCI EXPO admission badges will be mailed to attendees who register prior to Oct. 5, 2001. Individuals registering after Oct. 5 must stop by the pre-registration desk located outside of Hall E to pick up their admission badge.

Please Note:
We encourage you to bring your employees to TCI EXPO 2001. TCI EXPO is a valuable educational experience.

Register online and win . . .
See registration for details
ACRT, Inc.
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Agape Designs
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ArborBucks

WIN ArborBucks!

There will be two drawings each day on the trade show floor for at least $250 in ARBORBucks. Drawings will be held on Thursday and Friday at 12:00 noon and 2:00 pm and Saturday at 11:00 am and 1:00 pm.

ARBORBucks can be used the same as cash to make purchases at the show from participating vendors. There is no cost to enter the drawing. Just complete the survey found in the center of your pocket program.

Winners must be present to win and receive ARBORBucks cash!

ArborBucks Participants

American Arborist Supplies Inc.
Bandit Industries, Inc.
Blue Ridge Arborist Supply
Concept Engineering Group
Creative Automation Solutions
DICA Marketing Co.
Future Forestry Products, Inc.
Horticultural Alliance, Inc.
Karl Kuemmerling Inc.
Leonardi Teeth
Minnesota Wanner Company
Morbark, Inc.
National Arborist Association, Inc.
Northeastern Arborist Supplies
Peavey Mfg. Co.
Pigeon Mountain Manufacturing Industries

and more ... see final list at registration

Tree Demonstration Area

Visit the Tree Demonstration Area on the trade show floor for scheduled demonstrations of various arborist skills. Upon completion of a scheduled demonstration, ISA Certified Arborists will become eligible to receive ISA re-certification credits by filling out a demonstration attendance form.
Please use the TCI EXPO registration form to indicate attendance at either of these full-day programs.

Register online and WIN! (see registration)

TCI attendees are invited to participate in one of two full-day workshops on Wednesday, Oct. 31, 2001.

Limited enrollment. Early registration is encouraged.

**Professional Practitioner Workshop**

**Morning Session** 9:00 am – 12:00 pm

**Working with the 9th Guide to Plant Appraisal** – Russ Carlson
Room E 172
Greater Columbus Convention Center

This workshop is intended to provide you with the information you need to properly determine the size, species, condition, and location factors that influence the value of plants. You can use this information to provide plant valuation for plant casualties, insurance purposes, real estate transactions, plant condemnation actions, and tree inventories.

**Afternoon Session** 1:00 pm – 4:00 pm

**Implementing PHC** – Dr. John Ball
Room E 172
Greater Columbus Convention Center

The theory of Integrated Pest Management or Plant Health Care (PHC) is proven, but when confronted by the realities of a competitive market and demanding consumers, it can be difficult to put PHC into practice. This renowned expert in both theory and practice of PHC can show you how to make your service profitable.

**Business Managers’ Workshop**

**Morning Session** 9:00 am – 12:00 pm

**Hiring and Retaining Talented Employees in the New Millennium** – Jean Seawright Pileggi, CMC
Room E 170
Greater Columbus Convention Center

The tight labor market has empowered employees to demand and expect more from the work environment. How can you win this war for talent? An expert in this area, Jean Seawright Pileggi will unlock the mysteries of effective hiring and retention. Learn tips, ideas, and “absolutes” that will help your business compete in the 21st century labor market.

**Afternoon Session** 1:00 pm – 4:00 pm

**Strategic Planning** – Ed Wandtke
Room E 170
Greater Columbus Convention Center

Where is your company going? How do you plan on getting there? When is the right time to start planning? In this seminar Ed Wandtke will cover these important questions and show you how to develop a strategic plan for your company.

After participating in this session you, will be able to:
- Determine your end goal
- Understand how market factors and opportunities impact your plan
- Identify the right people to be involved in the plan
- Know which key components to include in the plan
- Develop the plan – when and how
Schedule of Events

Thursday, November 1, 2001

7:30 am REGISTRATION OPENS

8:30 - 9:45 am KEYNOTE ADDRESS: 15 WAYS TO MOTIVATE YOUR EMPLOYEES, INCREASE PRODUCTIVITY, AND IMPROVE MORALE – Jean Seawright Pileggi, CMC
She operates one of the most respected management consulting firms in the nation and is the author of the renowned Employment Genie®, the employment system of choice for small businesses. Known for her unique and visionary approach to everyday business challenges, Jean will share with you her acclaimed 15 secrets to motivating employees, increasing productivity, and improving morale! Using the insights, inspirations, and proven principles that she has applied to her successful consulting ventures, Jean will offer clear, passionate guidelines on reaching for and achieving new heights in your business through people. Don’t miss it!

9:57 am TRADE SHOW OPENS
Don’t miss a single booth! Wear your walking shoes, because with over 150 exhibitors, there will be a lot of ground to cover. TCI EXPO is the largest tree care trade show in the nation. If it will make your business more efficient, competitive, productive or profitable, you’ll find it here. Plus, we’ve arranged for live demonstrations and plenty of hands-on opportunities with some of the leading names in the arborist industry. Check your show program for times and locations. To keep up with the industry, you won’t want to miss a single demo.

10:00 - 11:00 am STATE OF THE ASSOCIATION & ANNUAL BUSINESS MEETING
Opening Remarks and State of the Association by Mark Tobin, NAA Chairman and Cynthia Mills, CAE, NAA President. The business of the association will be conducted at this time, including the Board of Directors election and presentation of the new Code of Ethics.

12:00 noon ARBORBUCKS DRAWING - Tree Demonstration Area
Be sure to fill out your entry form and you could be the winner of ARBORBUCKS currency. ARBORBUCKS can be used as cash at any of the participating vendor booths. Here’s your chance to win the goods and services you need!

2:00 pm ARBORBUCKS DRAWING - Tree Demonstration Area
It’s not too late to enter the drawing. You could be the winner!

4:00 pm TRADE SHOW CLOSES

3:00 - 5:00 pm BALANCING ESTIMATING, JOB COSTING AND ACCOUNTING – Charles Vander Kooi
What is the relationship between estimating, job costing and accounting? How do they work together in relation to an effective business? In this program, Charles will explain the relationship between these three areas of business and how they balance each other.

4:00 - 5:00 pm PUTTING THE REVISED A300 PRUNING STANDARD TO WORK FOR YOU – Sharon Lilly & Geoff Kemper
The A300 Pruning Standard was extensively revised this year. Learn how you can use this powerful tool to improve the quality of your work and the professionalism of your organization.

6:00 pm WELCOME RECEPTION & EXCELLENCE IN ARBORICULTURE AWARDS PRESENTATION - for all Attendees and Exhibitors
Regency Ballroom, Hyatt Regency Columbus
Complimentary hors d’oeuvres.

Friday, November 2, 2001

7:30 am REGISTRATION OPENS

8:00 - 9:00 am TREE PLANTING GUIDELINES
Many tree problems can be traced to a tree to a lifetime of adversity, relating to planting and/or site. Educate your crews and your clients’ health of your clients’ trees and

8:00 - 9:00 am SAFETY PHILOSOPHIES & EXE
John Hendrickson & Steve Chi
You don’t have to lose sleep over yet a preventable accident, if you know OSHA requirements and know the foremost experts as they share their secrets.

9:00 am TRADE SHOW OPENS
Pian on an information-packed day of equipment, technologies and services you need!
There’s no show like TCI EXPO.

9:30 - 10:30 am CAREERS IN ARBORICULTURE
Could your organization handle that kind of expertise? Could your organization handle that kind of expertise? Carpets and drapes will be the hottest thing at this show, and you’ll see the newest equipment and technologies in action.

12:00 noon ARBORBUCKS DRAWING - Tree Demonstration Area
Be sure to fill out your entry form and you could be the winner of ARBORBUCKS currency. ARBORBUCKS can be used as cash at any of the participating vendor booths.

2:00 pm ARBORBUCKS DRAWING - Tree Demonstration Area
It’s not too late to enter the drawing. You could be the winner!

4:00 pm TRADE SHOW CLOSES

4:00 - 5:00 pm YOUNG TREE TRAINING – Larry Kellum
As a practicing arborist pruning is a much more difficult task than it looks. Let’s take a look at the safety issues involved in pruning. We will learn to start with structural pruning, then we will move on to pruning for health.

4:00 - 5:00 pm CUSTOMER SERVICE: HOW TO GET IT, KEEP IT, LOST IT
Getting the customer is easy; it’s keeping them that’s hard. As we are aware, there is nothing new under the sun. But you must learn to start with structural pruning. Then we will move on to pruning for health.

4:00 - 5:00 pm WELCOME RECEPTION & EXCELLENCE IN ARBORICULTURE AWARDS PRESENTATION - for all Attendees and Exhibitors
Regency Ballroom, Hyatt Regency Columbus
Complimentary hors d’oeuvres.

The pursuit of excellence is the lifeblood of this profession. When attained, excellence should be acknowledged, rewarded and respected. This celebrated evening recognizes and honors commercial tree care professionals and their valuable clients. Join us and enjoy an evening of fun with fellow tree care professionals.

In Partnership with The Hartford and Morbark Inc.
& MANAGING SOILS – Dr. Bonnie Lee Appleton
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earn how to recognize the symptoms of problems
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ur firm takes the necessary steps to comply with
its regulatory rights. Come hear the industry’s
lessons their companies have learned.
lay of demonstrations, browsing the newest
ices, and exchanging ideas with your peers.
AT FOR THE CLIMBER – Joe Bones
 company wrote some of the original guidelines for
. Now they’ll be sharing the next generation of
aboratory research and field experiences.

– Tom Green, Tim Jackson & Terrill Collier
more work or become more profitable if only it
The labor shortage in the tree care industry is easily
straining issues facing the industry right now. The
of fresh ideas on how your company can recruit
ce in a tightening labor market.
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rees, you’ll achieve better results and greater
ear and tear on your crews and equipment if you
ing when trees are still young. Dr. Costello will
ess to train young trees with proven, positive
KEEP CLIENTS FOR LIFE – Hal Becker
keeping the customer that’s the hard part. As all of
in selling and customer service. Hal’s fun,
the basics which many of us have forgotten or
you the fastest way to improve your customer’s
image. You will learn how to understand the
ong-term relationships, and why “creative
uring exceptional customer service.

Saturday, November 3, 2001

7:30 am REGISTRATION OPENS
8:00 - 9:00 am • PRUNING TO MANAGE SHADE – Scott Robinson
Say your golf course client needs more sun on a certain part of the fairway, or
a residential client wants sunlight in his breakfast nook from 8 to 10, but
neither is willing to part with any trees. Robinson has developed an innova-
tive system to model the quality and quantity of sunlight needed and come up
with pruning prescriptions to save trees and satisfy clients.
8:00 - 9:00 am • WEB POWER: BRANCHING OUT YOUR BUSINESS ON THE INTERNET
– Brian Urbanski
This exciting fast-paced Internet session will show newcomers and experi-
enced users alike the Internet strategies to propel your business into the 21st
century, including how to get started, site design tips and tricks, attracting
visitors to your site, e-mail as a business tool, choosing vendors, set up costs
and more!
9:00 am TRADE SHOW OPENS
This is your last day to see and learn everything you need to keep your
business moving. Be sure to take advantage of all TCI EXPO 2001 has to offer!
9:30 - 10:30 am • BUILDING A COMPANY SAFETY PROGRAM –
Joseph Tommasi & Peter Gerstenberger
If your company is like most tree operations, you may hold pieces of the
safety puzzle, but you don’t know how they all fit together in a cohesive
program. Tommasi and Gerstenberger are going to share the outline and
content of a Model Company Safety Program that the NAA Safety Committee
has been painstakingly working on for the past year and a half.
9:30 - 10:30 am • MARKETING: WHAT IS IT? AND HOW DO I DO IT? – Don Willig
In this seminar Don will help you to understand the true definition of
marketing, its function in a company, and the variables (predictable and
unpredictable) you need to focus on to develop an effective marketing plan for
your company.
11:00 am ARBORBUCKS DRAWING - Tree Demonstration Area
It’s not too late too enter the drawing. You could be the winner!
12:30 pm ISA Certification Exam Check-in
1:00 pm ARBORBUCKS DRAWING - Tree Demonstration Area
This is your last chance to win! See you in the demo area.
1:00 - 5:00 pm ISA Certification Exam - To sit for the exam, you must call ISA to pre-register at
1-217-355-9411.
Application and registration fee must be received at ISA 12 working days prior
to exam date.
3:00 pm TCI EXPO 2001 TRADE SHOW CLOSES!

See you next year in
MILWAUKEE, WISCONSIN!
Nov. 7 – 9, 2002
Getting There . . .

Driving

From Port Columbus International Airport:
I-670 West, Exit 4-B to the Greater Columbus Convention Center, 400 North High Street.

To the Hyatt Regency Columbus:
Adjoins the Greater Columbus Convention Center and is located on the corner of North High Street and Nationwide Boulevard.

To the Crowne Plaza Hotel Columbus Downtown:
Connected to the Greater Columbus Convention Center and located across the street from the Hyatt Regency Columbus.

From Indianapolis, Ind. area (west):
Route 70 East to Fourth Street Exit:
North on Fourth Street to Nationwide Boulevard.

To the Hyatt Regency Columbus:
Adjoins the Greater Columbus Convention Center and is located on the corner of Nationwide Boulevard and North High Street.

To the Crowne Plaza Hotel Columbus Downtown:
Connected to the Greater Columbus Convention Center and is located across the street from the Hyatt Regency Columbus.

From the Cincinnati area (south):
Route 71 North to Route 70 East to Fourth Street Exit; North on Fourth Street to Nationwide Boulevard.

To the Hyatt Regency Columbus:
Adjoins the Greater Columbus Convention Center and is located on the corner of Nationwide Boulevard and North High Street.

To the Crowne Plaza Hotel Columbus Downtown:
Connected to the Greater Columbus Convention Center and is located across the street from the Hyatt Regency Columbus.

Flying

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US Airways has been selected as the primary air carrier. Special discounts have been arranged on your air transportation. To take advantage of this special offer, please call US Airways' Group and Meeting Reservation Office at 1-877-874-7687 and refer to Gold File No. 678671607. Plan ahead and receive an additional 5% discount by ticketing 60 days or more prior to departure.

Southwest Airlines
Southwest Airlines has been selected as the alternate air carrier. Southwest Airlines is offering a 10% discount on most of its already low fares for air travel. You or your travel agent may call Southwest Airlines Group and Meetings reservations at 1-800-433-5368 and reference ID Code R3145. Reservation sales agents are available 8:00 a.m. – 5:00 p.m. Monday – Friday, or 9:30 a.m. – 3:30 p.m. Saturday and Sunday. You must make your reservations five or more days prior to travel to take advantage of this offer.

Ground Transportation
Ground Transportation is available on the baggage claim level.

COTA, the public transportation authority, has service to all downtown hotels at a cost of $5 each way, exact change only, leaving every 20 minutes.

Arch Express and Urban Express Transportation offer shuttle service to the downtown hotels for $8.50 per person each way, leaving every 20 minutes.

Taxis are available for approximately $18 each way.

Directions to the Greater Columbus Convention Center
Finding a Hotel Room

This year the host hotel for TCI EXPO 2001 is the HYATT REGENCY COLUMBUS, adjoining the Greater Columbus Convention Center at 350 North High Street. The HYATT REGENCY COLUMBUS is offering TCI EXPO 2001 attendees a rate of **$117 single/double occupancy**. Valet parking is available for overnight hotel guests at a daily rate of $21. This includes in and out privileges on a 24-hour basis. Self-parking is available on a daily basis at a charge of $14 per day. Space is limited; be sure to make your reservation early. This rate will be offered until Oct. 5, 2001. To make your reservation, please call the HYATT REGENCY COLUMBUS direct at 614-463-1234. **Be sure to reference the National Arborist Association/TCI EXPO room block**.

Alternative accommodations are available at the Crowne Plaza Hotel Columbus Downtown, which is connected to the Greater Columbus Convention Center. The address for the Crowne Plaza is 33 Nationwide Blvd., Columbus, Ohio 43215. The Crowne Plaza will offer TCI EXPO 2001 attendees a rate of **$115 single/double occupancy**. Valet parking is available for overnight hotel guests at a daily rate of $19. This includes in and out privileges on a 24-hour basis. Reservations must be made by Oct. 5, 2001 in order to guarantee this preferred rate. To reserve your room, please call the hotel direct at 614-461-4100. **Be sure to reference the National Arborist Association/TCI EXPO room block**.

**EXHIBIT HALL HOURS**

- **Thursday**
  - Nov. 1, 2001
  - 9:57 am - 4:00 pm

- **Friday**
  - Nov. 2, 2001
  - 9:00 am - 4:00 pm

- **Saturday**
  - Nov. 3, 2001
  - 9:00 am - 3:00 pm

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**Map of Columbus**

1. Hyatt Regency - 350 North High St.
2. Crowne Plaza - 33 Nationwide Blvd.
3. East Parking Lot - Nationwide Blvd. at N. Fourth St.
4. West Parking Garage - Vine St., between High St. and Front St.
5. North Parking Lot - Goodale Blvd. at High St.
Registration

TCI EXPO 2001 online
...you could WIN!

Register online at www.natarb.com for the world's largest tree care show. NAA offers a secure transaction online, and confirmation of your registration will be received within minutes.

When you register online, you are automatically entered to win one of the 200 Arborwear shirts (retail value greater than $50), which will be given out at the show. This shirt is made of soft pre-washed 10-ounce canvas for a remarkably comfortable fit. The relaxed room in the sleeves and collar offers unparalleled freedom of movement.

This promotion is applicable only to online registrants and winners will be picked at random. Void where prohibited. All prizes must be picked up before the show ends. NAA will not ship unclaimed shirts. All Arborwear LLC products are unconditionally guaranteed.

Seminars

Check the box beside each seminar you wish to attend. Be careful not to pick two seminars scheduled for the same time. Count the total number of seminar hours indicated next to the seminar titles. Record this number in the space marked TOTAL SEMINAR HOURS.

If you are attending 5 or more seminars ... BUY GOLD!

To purchase the GOLD CARD, which will give you unlimited access to all educational sessions and the Trade Show, check the appropriate box on the registration form and enter the correct amount in the TOTAL COST line.

Seminar Registration Cancellations

All seminar registration cancellations must be received in writing at the National Arborist Association office. Cancellations received on or before Oct. 19, 2001, will receive a full refund less a $25 administrative fee. Fees cannot be refunded after Oct. 19, however you are welcome to send a replacement. No telephone cancellations will be accepted.

Please Note:
Registrations will be processed but not confirmed until paid in full.

How to Register

Please photocopy and complete a separate registration for each conference attendee. Register before the Early Bird deadline of Oct. 5 to receive discounts on Trade Show Admission and educational seminars. Registrations received after Oct. 5, 2001 that do not comply with the appropriate fees, will be billed accordingly. Registration is required to obtain your admission badge. Everyone is required to wear a badge issued by the National Arborist Association to enter the exhibit hall and all seminars. Be sure to pre-register and avoid long lines at the registration area.

All TCI EXPO admission badges will be mailed to attendees who register prior to Oct. 5, 2001.

Individuals registering after Oct. 5, 2001, must stop by the pre-registration desk located outside Exhibit Hall E to pick up their admission badge.
1. Registration Form

Name ____________________________________________
Title ____________________________________________
Company ___________________________________________
Address ___________________________________________
City ___________________ State ________ Zip ________
Phone ___________________ Fax ___________________ 
Signature ___________________ Date ____________

2. Source Request

How did you hear about TCI EXPO?
☐ TCI EXPO Brochure  ☐ TCI Magazine
☐ Arborist News  ☐ Other Industry Publication
☐ NAA website  ☐ Co-worker/Friend
☐ Other Trade Show  ☐ Other ______________

3. Seminar Selections

THURSDAY, NOV. 1
#1 - 9:30 am  15 Ways to Motivate Employees .............................................. 1 Hour
#2 - 3:00 pm  Balancing Estimating, Job Costing and Accounting ................ 2 Hours
#3 - 4:00 pm  Putting the Revised A300 Pruning Standard to Work for You .. 1 Hour
FRIDAY, NOV. 2
#4 - 8:00 am  Tree Planting Guidelines & Managing Soils .................................. 1 Hour
#5 - 8:00 am  Safety Philosophies & Experiences with OSHA ................................ 1 Hour
#6 - 9:30 am  Tree Failure Risk Assessment for the Climber .............................. 1 Hour
#7 - 9:30 am  Careers in Arboriculture ................................................................. 1 Hour
#8 - 4:00 pm  Young Tree Training ......................................................................... 1 Hour
#9 - 4:00 pm  Customer Service: How to Keep Clients for Life ............................... 1 Hour
SATURDAY, NOV. 3
#10 - 8:00 am  Pruning to Manage Shade ............................................................. 1 Hour
#11 - 8:00 am  Web Power: Branching Out Your Business on the Internet ...... 1 Hour
#12 - 9:30 am  Building a Company Safety Program ........................................... 1 Hour
#13 - 9:30 am  Marketing: What is it? And How Do I Do it? .................................. 1 Hour

TOTAL SEMINAR HOURS ________________________

4. Registration Options

☐ Gold Card - includes all seminar selections and admission to trade show
☐ Individual Seminars  Multiply cost by number of seminar hours _____ X _____
☐ Trade Show Entrance Only - Free with paid seminars
☐ Business Managers’ Workshop (Lunch not included) - Wednesday, Oct. 31, 2001
☐ Professional Practitioner Workshop (Lunch not included) - Wednesday, Oct. 31, 2001

ON OR BEFORE OCT. 5, 2001  AFTER OCT. 5, 2001
$205  $250  $
$50  $60 $
$15  $25 $
$95  $95 $
$95  $95 $

TOTAL $__________

5. Payment Method

☐ Check Enclosed  ☐ MasterCard/Visa/AMEX  AMOUNT $ ____________
CARD NO. ___________________ EXP. DATE ____________
NAME ___________________ SIGNATURE ___________________
(as it appears on your card)

6. NAA Membership & TCI Magazine Information

1. Is your company an NAA Member Firm? ☐ Yes  ☐ No
2. Do you wish to receive NAA Membership Info? ☐ Yes  ☐ No
3. Do you wish to receive a complimentary subscription to TREE CARE INDUSTRY (TCI) Magazine? ☐ Yes  ☐ No

You must complete the information below to receive your subscription:
4. Business/Industry: (Please check one that applies) ☐ Tree Service  ☐ Landscape Contractor
☐ Property Mgmt.  ☐ Consulting Firm  ☐ Utility  ☐ School/University
☐ Governmental Entity  ☐ Other: ____________________________
For the first time ever ... World's Largest tree care expo is stopping at ...

Milwaukee, Wisconsin
November 7-9, 2002
Midwest Express Center