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Meeting New Faces

Members of the arborist industry are a unique group, often characterized as willing to do almost anything to learn more about their chosen profession of tree care. That’s exciting in itself!

Having just come back from NAA’s Winter Management Conference in Cancun, I was privileged to witness many of these professionals interact. Almost without exception, all seemed to have an exceptionally good time as they met at the registration area, in general sessions and at special events and free time activities such as group tours of tourist sights. Tree care company owners, wives and children met with manufacturer and distributor representatives throughout this conference.

In order to be successful in our business, one must be assertive in getting to know as many arborists and leaders as possible. This can be accomplished during your local civic club meetings, regional conferences, state organizational gatherings, conventions and national/international trade membership assemblies.

Meeting someone new can be intimidating. For many, traveling, eating different foods, learning local customs or struggling with a foreign language brings on such a level of uneasiness that they shy away from the attempt. However, the benefits of meeting other arborists/industry leaders and learning more about them and their work far outweigh any drawbacks. It’s worth the “risks” to learn more about the growth of our industry from your peers, rekindle your thirst for more knowledge and listen to others who reenergize your spirits. See firsthand the excitement of the future in people’s faces, witness your own continued commitment to short-term and long-term goals and further develop an appreciation for the results of your hard work. You have an opportunity to make more accurate predictions about our industry, gather new information to be applied to new opportunity and keep up with changes within our industry. Along with family and friends, you have the chance to feel good about yourself and your career.

The value of visiting with other arborists goes beyond the greetings and introductions. You have the opportunity to make long-lasting friendships. This support network will help you make the most of every occasion and provides you with a golden opportunity to maximize yourself and your business. The next time you learn about such a gathering, take the time to go. Invest in yourself. Talk about your challenges and solutions. Meet old friends and new people as well. You’d be surprised how many have the same business experiences.

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MARCH

continued on page 6

Features

8 Advancements in Managing Arthropod Pests
By Dr. Michael J. Raupp

36 Maintaining a Unique Green Legacy
By Paul Hanson

64 Palm Research & Outreach
By Don Dale

Departments

2 Outlook
By Chris Brown
Industry gatherings are well worth your time and effort.

20 Industry Almanac
Important regional and national meetings and activities

22 Management Exchange
By Wayne Outlaw
Employee turnover is expensive. What are the top ten reasons workers leave?

Directions in Pest Management
Dr. Raupp examines biological approaches to plant health care, pest management and biological controls.

On the Cover

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MARCH
continued from page 4

Departments

28 Washington in Review
By Peter Gerstenberger

30 Readers' Forum
By Steve Sandforr
Do tree roots or shoddy construction cause sidewalk damage?

32 Cutting Edge
New products and news in the tree care industry

44 Branch Office
News and advice for small-business owners

46 Arbor Net
Internet listing of tree care products and services providers

52 Classified Advertising
Help wanted, services, businesses, new and used products for sale

68 NAA Forum
NAA selects John Wright of Wright Tree Service as new president of board of directors.

64 Palm Plantation Scours the World
Travel to Arizona where a germ plasm repository collects genetic information about the care and cultivation of palms. Genetic traits hidden in some varieties—disease resistance or heavy fruiting characteristics—may be of great value to palm breeders worldwide.

TCI's mission is to engage and enlighten readers with the latest industry news and information on regulations, standards, practices, safety, innovations, products and equipment. We strive to serve as the definitive resource for commercial, residential, municipal and utility arborists, as well as for others involved in the care and maintenance of trees. The official publication of the non-profit National Arborist Association, we vow to sustain the same uncompromising standards of excellence as our members in the field, who adhere to the highest professional practices worldwide.
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When considering advances in the use of biologicals, I prefer to expand the topic to include biological approaches that encompass plant health care and how they relate back to the issue of pest management and biological control. Plant health care has become one of our primary focuses. Ultimately, what we are trying to do with pest management and plant health care is create sustainable urban forests. As arborists, we are not in business for the short haul, but hopefully, we are creating an environment that is durable and has benefits for many years to come.

We seek a stable tree population that is resilient to short-term stresses, such as insect and pest attack, cold, drought and certain human impacts. When John Ball talks about integrated pest management, he stresses proper sighting, good soils and the correct plants in the correct place. All these components are very important in terms of developing a sustainable urban forest.

There are certain strategies that can create sustainability in our landscape. It is my firm belief that to be a good practitioner, you need to know the theory behind the strategies you practice. Theory is important when you must explain to a client why you are not going to treat an aphid population with an insecticide because natural enemies are present in sufficient numbers to control the pest. Then it is nice to be able to talk about the theory of biological control and show what biological control agents are.

One of the best ways to create sustainable landscapes is to use resistant plant
material, which is a whole separate subject. In addition, we can design diverse landscapes to reduce pest outbreaks. We all know some of the problems with monocultures. We saw what happened in our beautiful cities where we created monocultures that were wiped out by Dutch elm disease. We see different problems with monocultures now consisting of Bradford pears.

There are ways to design landscapes to conserve our beneficial organisms. The good guys out there working for us all the time. If we can design landscapes correctly, or at least recognize the elements of landscapes that need to be there to help make them resistant, our jobs will be much easier.

Proper fertilization regimes

Arborists tend to think about plant health care as a program of scheduled inspections and strategies that are designed to improve plant appearance and vitality. My concern is that in our attempts to increase plant vitality, we wind up exacerbating problems that might not have been there had we not done certain procedures or techniques. Everybody likes green, healthy plants. However, in landscape situations, we must be careful about excess fertilization.

There is a balance in nature between good bugs and bad. Things tend to stay in balance unless something upsets it. We do this inadvertently when we plant a landscape and create an unnatural situation. We may further upset this balance when we mistakenly assume that if a little fertilizer is good for plants, then more is even better. This is not the case and here is why.

All sucking insects love nitrogen. When we fertilize plants, particularly broadleaf and herbaceous plants, we increase problems with sucking insects and mites. I see this over and over again in landscapes where there are outbreaks of scale insects, adelgids and spider mites. I ask the arborists, “What are you doing in this landscape?” The answer is, “We do deep-root fertilization several times a year, and it really greens them up.”

Fertilization creates a positive response in pest groups, including sucking insects, chewing insects, mites, and insects that cause galls. In a recent review of 85 studies on sucking insects, researchers found insects laid more eggs, developed quicker, and survived better when plants were fertilized. Be careful. Don’t create more problems for yourself.

Here is another reason why excessive fertilization may make trees more susceptible to pest attack. The ISA book on plant health care, entitled Plant Health Care for Woody Ornamentals, contains a great chapter by Dan Hermes and Bill Matson that covers “plant defense theory.” Basically, plant defense theory says when nutrients or water are in low availability, plants might have much higher levels of what are called allelochemicals. Allelochemicals are defensive compounds such as tannins and certain kinds of resins. As we begin to fertilize and increase the nutrient availability, the plant grows. The carbon budget in many plants is limited, so the plant has to make a choice to put carbon into growth or into defensive allelochemicals. When the plant is told to grow by fertilization, the carbon that may otherwise go to allelochemicals to create toxins that kill insects, mites, and pathogens is now diverted into growth.
As a result, the defensive capability of the plant decreases. Under certain high levels of fertilization or water availability, plants become less able to defend themselves from pests. Don’t be surprised if you see declines in vitality because of the inability of the plant to defend itself. That is the heart of plant defense theory.

I won’t say don’t fertilize, but the trick is to avoid the use of excess fertilizer. In a recent issue of Arborist News, Robert Miller provided some excellent advice and guidelines regarding the use of fertilizers in arboriculture. The goal in our business is to create the proper level of fertility. Feeding plants in excess will exacerbate problems, particularly with sucking insects, by disrupting that balance. Keep this in mind, particularly relating to plant health care.

**IPM and plant health care tactics**

Several tactics of IPM and PHC programs can be used to reduce populations of insect and mite pests. These include resistant landscape design and several types of biorational pesticides and biological control agents. All of these tactics help to foster sustainable landscapes. Pest-resistant landscape design is an issue we began to address about five or ten years ago. We used to call this “key locations,” which were the places in any landscape where pests tend to occur first or most frequently. There are certain places I always go to find spider mites or lace bugs. Why does it work this way? Why does the dwarf Alberta spruce on the southern exposure of a house always have spruce spider mites? The keys are beneficial predators or natural enemies. For example, any time groups of azaleas are in full sun, they will be attacked by the azalea lace bug. When azaleas are grown in shaded, overstoried habitats with a nice canopy and understory, and with a diversity of plantings, we tend to see far fewer problems with this pest. We used to think it was a plant stress phenomenon, but now we are not quite so sure of that.

The azalea lace bug is a sucking insect pest that stiples leaves. Why is it that when we plant azaleas in full sun, we might wind up with 600 lace bugs per square meter of foliage as opposed to three when we plant in the shady location? At first we thought the plant in full sun was stressed and in some way that benefitted the insect. However, we found that in the sun, they lay just as many eggs as in the shady habitat, which means the plant in the sun isn’t a better food source than the plant growing in shade. If it wasn’t stress, what was it? We believe the answer is differences in generalist predators.

We went back and measured the generalist predators in these habitats and found significantly more generalist predators in the shady habitat. This is perhaps the biggest reason that many pests tend to outbreak in sunny habitats.

We also measured how long it took lace bugs to become reproductively mature. We measured their age to their first
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reproduction and found that in sunny habitats they could develop much quicker. They can go through more generations in a season. In shaded habitats, lace bugs take longer to develop because the shady spots are cooler. As a result, lace bugs never survive long enough to reproduce. In sunny habitats, the bugs develop rapidly enough to reach an age where they can reproduce before they are eaten. We see this over and over again.

More predators are in shady habitats because there tends to be litter, mulch and a diversity of plants. As you begin to add plants to your habitat and move away from a single plant species, you create opportunities for alternate prey to be available for predators. In other words, if the only prey source on a plant is a lace bug, once the predator eats the lace bug, the predator must migrate or die. If you have a diverse habitat that includes overstory, understory, other shrubs, and a diversity of plant material, after the predator has snacked on the lace bugs, it can move on to other plants to eat aphids, cottony maple leaf scale, etc. Habitats that allow generalists predators opportunities to feed on alternate prey tend to be far more stable and sustainable.

My point is that many of our predators need not only alternate prey sources but alternate food sources. A diverse habitat can encourage and support these omnivores by providing prey and plant material, such as pollen or nectar, that will sustain themselves in your landscape and help reduce pest populations. This is another reason why it is vitally important to be sure you use different kinds of elements in your landscapes. Don’t limit yourself to flowering perennials and annuals, but also plant flowering trees and shrubs. These encourage natural enemies.

Bio-rational pesticides

1. Short residual materials

A short residual material, such as oil sprayed on pin oaks, has no effect on tiny beneficial wasps called chalcidoids. Re-
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residual type materials, like Dursban or Diazinon, for example, had a significant impact on the beneficial insect community. If you have a well-developed natural enemy community, what you may want to do is use a material like horticultural oil. This will minimize adverse effects on the beneficial organisms that are present in the system since there is no residual. Whenever possible, use short-residual materials when you have beneficial insects.

2. Selective toxicity

A new miticide called Hexagon works well. For a study on butterfly bush infected with spider mite, we sprayed oil and Hexagon. By day 12, we had 90 percent reductions using oil and Hexagon, and these reductions persisted 43 days. The reason we like Hexagon is its selective toxicity; it only kills spider mites, not predatory mites. In fact, it kills only the eggs and the immature mite stages. It does not kill adult mites. Of course, you still have to kill the adults. One good approach is to get the adults with oil first, then follow that up with a spray which will kill the eggs and the immature stages. In a different trial with the honey locust spider mite, we were able to get very residual levels of control, just as good as we would get with a fairly standard miticide like Pentac. Materials such as Hexagon are very effective compounds and can help to conserve natural enemies.

In addition to deciding which materials to apply, you need to consider different ways to apply them. Cover sprays, particularly air blast sprays, are not a good way to conserve beneficials in landscapes. They drift and very little material reaches the plant. This can be very disruptive to natural enemy complexes.

3. Systemic materials

A way to avoid spray drift and the associated problems is through soil injection. New materials are available that belong to a class of chemicals called systemics. Merit, (imidachloprid) is a remarkable material—new chemistry, very safe to humans and non-targets. It has no odor and it controls a relatively broad spectrum of pests. Merit is good on sucking insects like adelgids, aphids, white flies, mealy bugs, scales, leafhoppers, etc. We have achieved control levels ranging from 95 percent to 99 percent on these pests with Merit. Trees treated with Merit are getting zero emergence of bronze birch borer. We may finally have a material that is effective against this pest. If this information holds up, this is going to be a very interesting development.

Merit will not be very good on pests like mites (because they are not insects), or for a lot of caterpillars. On the other hand, it can be put on in a very targeted way. We use granular applications, drenches, power injectors, or a Kioritz injector. We achieved good levels of control with Merit as a wettable powder. Certain pests such as hemlock wooly adelgid can be controlled with oil, if you can get good, thorough coverage. But if you have a hemlock up against someone’s house, or over a swimming pool, sprays have obvious limitations. This may be an ideal situation to use a systemic material such as Merit.

If you use Merit, especially as a soil injection or in granular form, one rule of thumb should be to put it down well in advance. For birch leaf miner, apply it the fall before, rather than the spring. Merit needs enough time to be taken up by the plant, so it can achieve maximum effect. In pin oak, it took eight weeks to reach a concentration that would be effective against aphids.

4. Formulated microbials

This is one of the most interesting advances in the use of biologicals in plant health care and IPM programs. We are beginning to see tremendous interest on the part of the agro-chemical industry in developing new compounds from the microbes that live in the soil. Perhaps our oldest and best-known example of this are products known as B.t. (Bacillus thuringiensis). We now have a wide range of B.t.’s that are effective against different kinds of Lepidoptera caterpillars. We also have strains that are effective against elm leaf beetle and imported willow leaf beetle. In other arenas, we have B.t.s that work well against flies such as fungus gnats or mosquitoes. There is great optimism, at least on my part, that additional B.t.’s down the road may work on other pests, perhaps sawflies.

The active agent in B.t. is a toxic crystalline structure. When the insect ingests the crystal, it dissolves in the gut and blocks open the pore channels of gut cells, causing them to become leaky. Water rushes in, the cells explode, and the insect stops feeding and dies. It is a very different mode of action than nerve poison chemicals. Feeding inhibition takes place in about an hour, but it may take several days for the insect to die and fall off the tree. If you are using B.t.’s, the insects are not going to go dive off the plant, as they would if you inject it with, for example, bidrin. It is not as dramatic, but it can work just as well.

Nematodes

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Similar studies have been conducted with the banded ash clearwing, Podosesia Aureocincta, the one that gets into all those little green ash trees and blows the tops out of them. With the nematodes, we can get high levels of control with hydraulic application.

We also used nematodes to control Iris borer. After the application, we found no living larvae in the bulbs treated with nematodes, which is even better control than with Imidacloprid, or dimilin.

More recently, we have been experimenting with bigger pests like gypsy moths. We have found that we can get anywhere from 70 percent to 98 percent control of second instar larvae treated with nematodes. For late instar caterpillars, we were looking at levels of control on 3-inch long larvae approaching 85 percent to 90 percent. There aren’t many materials you can spray on big gypsy moth caterpillars and get this level of control. We think nematodes have a lot of potential in the tree care industry, and
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we are continuing our work with these biologicals as well.

**Soil bacteria**

A number of naturally-occurring soil bacteria produce toxins that can be used to control insect populations. Products such as Avid, Conserve, and Greyhound are derived from microbes. Avid is in the class of compounds known as abamectins, and is derived from bacteria - the soil microbe called *streptomyces avermitilllis*. These are soil microbes that produce a compound that is a highly toxic, a virtual nerve poison to insects. Abamectin can be taken up systemically by the plant to kill sucking insects.

For one recent trial involving boxwood leafminer, we used Avid and found it gave us just as good levels of control as Imidacloprid for boxwood leaf miner, when applied at adult-flight. The adult-flight was our “bio-cue” that tells us when to apply the control agent. We also did a study where we used Imidacloprid and abamectin formulated as Greyhound for control of hawthorne lace bug, and the abamectin gave us just as good control as Imidacloprid.

One of the newest formulated microbial biologicals is called Conserve. It is in a class of compounds called spinocins. It comes from a very long-named organism called *Saccharopolyspora spinosa*. It is another soil microbe that makes a compound that is effective in killing insects. Conserve also acts as a nerve poison for insects. Conserve is very good to beneficials and has very low risk to humans and the environment. With the B.t.’s, we really have a fairly restricted range of things that we can use those on. The nice thing about Conserve is it will be effective against a very broad range of organisms. Not only can we use it against caterpillars, but we can also use it against things like leaf beetles and saw flies. It’s not as effective against sucking insects, but for those we have Merit. Now we have a material that is nice and safe and one we can use on a bunch of defoliating insects.

**Pathogenic fungi**

Just as athlete’s foot fungus can attack your feet, some predatory fungi attack and devour insects. We are doing work with Beauvaria fungus. This fungus attacks insects, including black vine weevil and spider mites. The way this fungus gets in is that first the tiny spores land on the skin of the insect and germinate. Each spore grows a small structure that releases enzymes and digests its way through the cuticle of the insect. Once it gets inside, it grows a fungal mass that takes over the entire machinery of the insect. When you have fungus growing out of all of your orifices, you can’t last very long. Beauvaria fungi are very interesting. We found that Beauvaria actually has some activity against spider mites. By day 27, after our application of Beauvaria, we saw significant reductions in the spider mite population. There is some very interesting work yet to be done here with these promising fungi.

In conclusion, I believe this is a very exciting time for arborists and landscape managers who offer IPM and PHC programs. We are now able to implement approaches that help conserve the biological diversity of landscapes, thereby accomplishing our goal of creating sustainable urban forests. Through careful plant selection, installation, and design, we can eliminate many problems from the landscape.

Using a diversity of plants in a landscape is of paramount importance because of the role plant diversity plays in conserving natural enemy communities. When pest populations outbreak and must be reduced, select biorational and biological control agents whenever possible. Materials with short residual activity such as oil or those with selective toxicity such as Hexagon may help to conserve natural enemies. Systemic materials such as Merit reduce problems associated with pesticide drift and may also help to maintain natural enemies unless these natural enemies contact systemics through the plant or their prey. Formulated biological control agents such as bacteria and their products, fungi, and nematodes, offer a diverse array of alternatives for controlling many of our key landscape pests. All of these developments signal progress for arboriculture and the tree care industry.

Dr. Michael Raupp is professor of entomology and chairman of the Department of Entomology at The University of Maryland, College Park, Maryland. His research interest focuses on the mechanisms of plant resistance and biological control of insect pests and ornamental plants. Dr. Paula Shrewsbury, Gabe D’Eustachio and Stanton Gill contributed in significant ways to the data and ideas presented.
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The only way businesses, especially service businesses such as those in the tree care industry, can satisfy customers and increase their success is to have an ample supply of employees who operate at top-level efficiency. Top employees not only benefit customers, they benefit the company and its owners.

According to a survey done by the School of Management and Labor Relations at Rutgers University, companies that provide comprehensive programs for employee recruitment, selection, and training, combined with sound incentive programs, have greater market value, higher annual sales, and higher profits per employee. This is due to lower turnover and higher employee productivity. Even great service, an innovative approach, or a superior product will not create results without a dedicated, capable staff to serve customers.

In today's tight labor market, where fewer are entering the labor force than the number of jobs being created, the problem continues to become more critical. It is extremely frustrating for an owner or manager of a tree care company to hire capable and talented individuals and give them the training and development to become effective employees, only to watch them leave. Not only is it frustrating, it is very costly. When the employee leaves, the investment in time, energy and training walks out the door. More important, the ability to serve customers, and sometimes even the customers themselves, go with the employee.

**Turnover cost**

In my book, *SMART STAFFING: How to Hire, Reward, and Keep Top Employees for Your Growing Company*, we identified the elements of turnover cost to enable managers and owners to calculate the annual turnover cost for their company. Surprisingly, much of the loss from turnover is not the direct cost that we easily recognize, such as termination cost, vacancy cost, replacement cost, and training cost. Turnover's hidden costs of reduced productivity, potential loss of cash, assets and customers, as well as lower sales effectiveness, can be dramatic. As much as 80 percent of the cost of turnover can be attributed to these elements.

To reduce this loss, businesses must learn the skills of smart staffing, whether they are hiring a few employees or hundreds. Productive employees, whom you and your customers can depend on, are the essential ingredient in any successful business. They can literally be termed "human capital," and may be more important than financial resources, equipment, or even innovative techniques. Without human capital, equipment would sit idle, innovative techniques would not be used, and products or services
would not be delivered. Without human capital, customers cannot be served or satisfied, therefore they begin to look elsewhere.

Even if you invest the time and effort to staff smart and reward top employees, some will choose to leave. This happens for many reasons, some of which cannot be prevented or even foreseen. However, the majority of employee resignations occur for common and even very avoidable reasons. Just as you invest the time and effort to find and keep good employees, you should take the time to review the factors in your employees’ lives that are proven to cause turnover. Take a good look at the costs every time an employee leaves. This will renew your motivation to do a better job of staffing smartly and keeping your human capital.

Ten Reasons Employees Leave
While there is no universal list of factors that pertain to every business, it is good to understand the common reasons people leave any place of employment, so you can compare them to turnover patterns in your tree care business. This will give you a starting point to respond to employee needs, address common problems, and spot specific ones that cause employee loss.

1. Basic financial needs
While money isn’t everything, any time earnings are below the individual’s minimum financial needs and the situation cannot be resolved at your company, the employee will look elsewhere. Few people reduce their income needs in order to stay with a company, so care must be taken to ensure that employees are able to live within their compensation. This is not to say you must increase compensation to support whatever lifestyle an employee chooses, but be aware of the consequence of not meeting these basic needs. For example, if an employee is meeting basic needs during the busy season—but due to less overtime or even lack of work during the slower season cannot meet their minimum needs—the employee will be forced to look elsewhere for more consistent, higher pay.

2. Lack of competitive salary
Individuals must not just meet basic needs, but must feel they are adequately compensated for their efforts. Employees don’t have to do a salary survey to know whether they are being adequately compensated. They can listen to other people in similar positions discuss their compensation. If you are paying below industry standards, it will open the door for turnover. For example, you can’t just compare wages between arborists in your area. If an employee can go from your company to work in another industry, such as manufacturing, with little training, you must compete with manufacturing wages. In heavy manufacturing areas, this is a tremendous

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TREE CARE INDUSTRY - MARCH 1999
The first step in reducing turnover is to understand why it is occurring. Take the time to conduct exit interviews to identify the real reasons employees leave. Don't accept the typical reasons given by employees, such as 'better job, more money.' Many times this isn't true. Conduct an effective exit interview to find the real causes.

problem due to union wage scales. If employees can't go to another company within the industry, being able to make more money in another industry might cause them to consider leaving.

3. Inadequate benefits

With the cost of health care and other essentials rising, more liberal benefit packages are becoming more and more important as a retention tool. Conversely, inadequate benefit packages are often reasons for higher turnover or difficulty recruiting. Employees consider salary and benefits as a package.

4. Poor communication

Poor communication causes many problems which reduce tenure. It is essential that employees have a clear understanding of their job and what is expected of them. A recent survey by American Express published in the Dec, 1998 issue of USA Today, pointed out that the number one factor in improving employee satisfaction was "candid performance feedback and appraisal." In today's fast-changing job market and unstable corporate environment, employees want to feel secure in their competence and in their position. Surprisingly, the desire for better communication ranked above compensation and benefits.

Employees who are criticized for falling short of unspoken expectations feel insecure and soon look elsewhere for work that makes them feel more confident. This very common problem of unspoken expectations is easily prevented when the employee is given a copy of a job description and essential job functions.

Employees also begin to feel insecure when they hear information about their company or their position through the "grapevine." In large companies, where jobs hang on mergers, acquisitions, and change, employees have a right to be very sensitive to poor communication from management. The smaller companies prevalent in the tree care industry are not immune to this lack of communication and employees need to know more about what affects them.

Candid and open communication will go a long way to reducing departures, even in difficult times. If one-to-one personal communication is abandoned in favor of high-tech mass communication, employees lose their feeling of connection with the company, owners and management. While this may not be prevalent in smaller companies, other forms of impersonal communication take place, such as voice mail or pages. Loyalty and trust, which keep employees, are built during informal chats on the job, at company functions, and while working shoulder-to-shoulder.

5. Negative workplace environment

Employees want a feeling of belonging and community. It is this feeling that creates the workplace environment or climate. If there is a positive environment in which people have an affinity for those around them and each feels valued and liked, employees tend to stay. This is especially notable in the multi-cultured, multi-racial workplace. Recently, I returned a call to a company in the landscape business and was pleased to hear the voice mail announcement given in English, followed by Spanish. The effort to include and respect other cultures pays dividends, especially in industries such as ours that staffs with diverse individuals. The owner and managers must be especially sensitive to the workplace environment that exists in the company. Few people will give their best effort or stay in their job if the climate is negative.

6. Lack of recognition

Lack of recognition is perceived by the employee as lack of success. Regardless of the level, position or job, each employee wants to be recognized for a job well done. Companies, even small ones that have recognition programs to reward success and effort, have a much better chance of keeping employees than those that don't. As a matter of fact, those companies with effective recognition programs have higher employee productivity and results. Programs range from formal recognition events, such as annual awards banquets, to informal recognition, such as notes acknowledging someone's efforts or accomplishments. Employees have a need to feel successful. If they do not feel successful in your company, they will change to one where they do.

7. Unfair and inequitable treatment

All your positive efforts to hire and reward employees can be erased in a moment if an employee feels he or she is not being treated fairly and equitably. Especially in smaller companies where there may not be formal practices and procedures, employees must be treated fairly and, most importantly, perceive rewards and penalties are equitably and consistently applied. Not only will owners and managers open themselves up to accusations of favoritism, the perception of unfair and inequitable business practices destroys trust and causes employees to leave.

Many times employees injure the company through theft, abuse of equipment, or poor treatment of customers when they do not perceive they are being treated fairly. This problem has become so commonplace it was even used by Michael Creighton as the basis for Jurassic Park. An employee who felt he was not fairly compensated created a scheme to get what he felt was a "just reward" and unleashed a problem. In our experience with com-
panies, many times employee theft comes from the employee's desire to "balance the scales" or "get what is coming to them."

8. **Lack of challenging job content**

Positions with the greatest turnover tend to be those that are boring, repetitive and do not offer a challenge to the employee. This is a problem that can develop over a period of time. The eager new worker of a few years ago may have gotten to the point where his work dragging brush is no longer a challenge. When employees no longer have to think about the job and it has become effortless and unexciting, they look for new challenges. Sometimes they look outside your company.

Plateaus based on job content are quite predictable if you are alert to them. They generally occur at three levels. The first is noticeable in the first few months in most positions, when the employee decides whether he or she can do the job and will be happy. At one to two years employees who have developed competence begin to ask themselves if they really want to do this job. At about the seventh year, if they are not promoted, they tend to ask themselves if they'd be happy doing this for the rest of their career. At each plateau they are faced with a decision to go or stay.

9. **Lack of job security**

American business has changed tremendously in recent years and only promises to continue changing. Employees, who many years ago looked at working for a company for a lifetime, now look at a company as their current employer. Even in the tree care industry, mergers, acquisitions and downsizing have changed corporate America dramatically, and those changes have also affected people who work in smaller companies. This lack of stability has caused employees to realize that excellent performance is not a guarantee of continued employment.

When employees feel continued employment is threatened and long-term job prospects are not good, they will take the initiative to find a company that provides them. Employees are very good at sensing when their job security is threatened and reacting quickly. It would be unreasonable to believe a company could guarantee employment for life, but all companies can reduce turnover by providing for the employees' need for job security.

10. **Family / work conflicts**

Companies that are not aware of the employee's need to have a fulfilling personal life, especially in the two-income family, will continue to see significant turnover. Several years ago, *Fortune Magazine*, in a cover story entitled "Is Your Family Wrecking Your Career or Vice Versa?", reported a revealing sta-
tistic. According to the information by the Institute for a New Commonwealth, 84 percent of the couples surveyed reported that both spouses are working. As an employer, we must realize this creates a radically different workplace than that of years ago. This creates a need for management to recognize the difficulty these families have in balancing work life and personal life. In the long-term, if the employee must choose between work and personal life, work loses.

Today’s “Generation-X” younger employees bring new family and work attitudes to the work force. Personal satisfaction and private life are very important to them. They will work hard and expect fair compensation but require clear boundaries between work and personal life. This may have resulted from them watching their parents and others who worked hard for years for a company only to find themselves out of a job and a victim of corporate restructuring and downsizing. Many Generation X-ers will leave companies that interfere with their family and personal life to take positions, even at lower wages, that satisfy the need for balance in their life.

Summary

While voluntary terminations generally fall into these categories and can’t all be prevented, we must realize that turnover must be controlled and minimized. The first step in reducing turnover is to understand why it is occurring. Take the time to conduct exit interviews to identify the real reasons employees leave. Don’t accept the typical reasons given by employees, such as “better job, more money.” Many times this isn’t true. Conduct an effective exit interview to find the real causes.

Many times, our consulting points out that the solution to the real causes of turnover may not be as costly as you think. It may not require a dramatic revamping of compensation or instituting a much more liberal benefit policy. It may be simply changing some policies, procedures, and most importantly, the way the employees are treated. After all, it may not increase costs to improve communication with employees, but it may save thousands of dollars in direct and hidden turnover cost.

Wayne Outlaw is author of SMART STAFFING: How to Hire, Reward, and Keep Top Employees for Your Growing Company. In it, he presents solutions to the specific challenges listed above. Outlaw speaks and consults to help organizations increase their results through employee performance. He can be reached at 800-347-9361 or www.smartstaffing.net
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What will be the next major regulatory issues to affect the tree care industry? This month, TCI does a little crystal ball gazing and sees two major issues on the federal docket. Keep in mind that if your state has a state plan OSHA, it may affect the interpretation or implementation of a federal initiative.

OSHA-mandated safety programs

Federal OSHA is considering requiring employers to establish workplace safety and health programs. If implemented, the rule would cover all employers currently under OSHA jurisdiction, except those engaged in construction and agriculture.

Employers would be required to set up a program designed to reduce injuries, illnesses and fatalities. The five core elements of the program would be: management leadership and employee participation; hazard identification and assessment; hazard prevention and control; information and training; and evaluation of program effectiveness.

Employers who have implemented a safety and health program before the effective date of this rule may be grandfathered if their program satisfies the basic obligation for each core element given above, and they can demonstrate the effectiveness of any provision of their program that differs from the other requirements included under the core elements of this rule. The employer would be required to establish responsibilities for managers, supervisors and employees and hold them accountable for carrying out those responsibilities while providing the authority and resources they need.

Companies would be required to communicate regularly with employees about workplace safety and health matters. Employers would have to establish ways for employees to report illnesses and incidents promptly. Employers would be prohibited from discouraging employees about making recommendations or otherwise participating.

To identify hazards and compliance, employers would be required to conduct inspections of the workplace, review safety and health information, and evaluate new equipment, materials and processes before they are introduced. They must also assess the severity of hazards and rank the severity of those that cannot be corrected immediately. This process must be repeated at least every two years or as often as necessary to ensure compliance.

Employers would be required to investigate each work-related death, serious injury, illness or near-miss having the potential to cause death or physical harm. Employers of 10 or more people would have to keep records concerning hazards identified, their assessment and actions taken to control those hazards.

These new OSHA rules would not become effective until 90 days after publication in the Federal Register. Employers with fewer than 10 employees will then have between 18 and 36 months to comply with the different provisions. Employers with 10 or more employees will have between nine and 18 months to comply. Initial information and training must be provided for all current employees prior to the compliance date and for new hires before assigning them to jobs where they are exposed to hazards.

New ergonomics standard by summer?

OSHA standards writers have been working on a standard that would require employers to recognize and mitigate injuries which are the result of repetitive tasks in the workplace. OSHA officials believe as many as one-third of all occupational injuries and illnesses are linked to repetitive motion, and claim that an OSHA standard would simply formalize the process that employers with good safety and health programs are already following.

CalOSHA, often regarded as a bellwether in regulatory issues, has already adopted and is enforcing an ergonomics standard.

The National Academy of Sciences (NAS) released a report that indicated a link between musculo-skeletal disorders and the conduct of work. It suggested workplace adjustments to reduce injury and called for more research to identify the cause and scope of the problem. Labor Secretary Alexis Herman said the NAS report puts to rest any question about whether OSHA’s efforts to reduce musculo-skeletal disorders are supported by sound science.

Many aren’t convinced. Congress does not support the OSHA standard and ordered several studies of the causes and extent of ergonomic hazards, including the NAS study. The National Coalition on Ergonomics, which opposes OSHA’s claim for a standard, said the NAS report only confirmation that more research is needed.

Peter Gerstenberger is director of safety & education for the National Arborist Association.
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Numerous articles over the years in professional journals circulating through the forestry, arboricultural, nursery and landscape industries have described how tree roots cause sidewalk damage, costing cities millions in repairs and trip-and-fall claims. Thousands of dollars in research grants have been awarded to study how to control root growth so walks will not be damaged.

Unfortunately, I have never seen an article which, even in part, studied how the damaged walks had been constructed, their service life, when repairs were needed and, especially, what caused walk damage where no trees were involved. In fact, one very detailed research project, published in 1996, stated, "No attempt was made to study defective walks where there were no trees." Why not? Can't people trip there, too?

Another study, published in 1997, gave a detailed list of tree species that seemed more associated with damaged walks in a dozen California cities, then stated, "All managers (City Foresters) agreed that the damage was more site specific than species specific." But the article failed to sniff out that trail. It went right back to barking up the wrong tree.

I'm just an old woods forester who has practiced urban forestry since 1970 in St. Louis, Atlanta and Cincinnati. After years of observation, questioning and study, especially since serving for the last ten years as a Supervisor for the Hamilton County Soil and Water Conservation District, I know beyond a shadow of a doubt that tree roots do not cause sidewalk damage. Lousy sidewalk design and construction does cause unsafe sidewalks. Period!

Nevertheless, most city foresters, who should praise and defend trees, keep getting sucked into the trap of mistakenly blaming them for causing damage. When city engineers and foresters blame tree roots for expensive damage, it affects city council decisions to fund tree planting.

In all the cities where I've practiced, there are areas where huge, old trees are growing in narrow tree lawns and the equally old sidewalks are perfectly level and safe. Driveways, patios, walks, concrete stairs, retaining walls and foundations on private property are also okay and almost never need repair. Yet, just a few streets away is an area where the same species and size trees are growing in the same narrow tree lawns and the sidewalks are like roller coasters—even where there are no trees nearby!

Private driveways, patios, walks, concrete stairs, retaining walls and foundations are also moving, cracking and showing evidence of frequent repairs. Why? Could it be that something else is going on underneath besides those nasty old tree roots causing all that damage? Could it be soil related? Why do you rarely find tree roots under the street causing all sorts of damage? Are streets built thicker on better bases? Might your city have built cheap, substandard walks on high shrink-swell and/or freeze-thaw soils?

Close your eyes. Picture a five foot-wide sidewalk constructed on top of a compacted base of B-19 gravel, 18-feet deep, with the walk on top made of steel-reinforced concrete poured 10 feet thick. Yes, that's 28 feet from the walking surface down to subsoil. What species of super tree has roots tough enough to budge that?

"Come on, it's stupid to build such a walk," you say. And you're right.

But, I say it's equally stupid for city engineers to continue building one type of sidewalk, usually 5 inches of un-reinforced concrete poured directly on each of the many types of soil. Sure, it's initially cheaper than building the proper walks for local soil types. Better yet, engineers need not be embarrassed by the results of their own design mistakes because they have done a great job of simply transferring the blame for damaged walks to tree roots.

If building one kind of sidewalk, regardless of the underlying soil characteristics, is perfectly all-right for the engineers, then wouldn't a 100-foot-long bridge be cheaper than a 600-foot-long bridge? Why not build just one length of standard bridge regardless of how wide the river is? The answer is simple. When cars were driven off the end and into the drink, the engineers couldn't blame trees! And the tree people wouldn't believe them.

What to do? Return to 1946, when the
F.W. Dodge Engineering Company showed in their “TimeSaver Standard Engineering Drawings” two types of sidewalk construction. One, 5-inch thick concrete on bare soil, which was for stable soils. The other, thicker and on a compacted base with drainage, was for use on unstable soils. At long last, we should begin to practice what we’ve known is correct for at least 50 years.

You should make certain your city engineer has a copy of your county’s “Soil Survey,” which is available from your soil and water conservation district. Read the book with your city engineer, so both of you can learn the limitations of construction created by certain problem soils. Next, map where those soils are located in your city. Then, build appropriate walks on those problem sites. Developing correlations between problem soils and the need for frequent sidewalk repairs should be easier every year as G.I.S. technology is perfected and used in more cities.

Whatever you do, be a champion for trees. How?
• Stop mistakenly blaming and sacrificing trees for causing sidewalk damage until a genuine effort is made to build good sidewalks.
• Stop wasting your time trying to figure out all sorts of ways to use and pay for various root barriers and root mutilating machines just to protect cheap, substandard walks.
• Start working cooperatively with your city engineer to help your city become the first one in the country to build super walks on problem soils and normal walks on stable soils. (I know of no city doing this now and would love to hear of one).
• Transfer what you’ve developed to golf courses, college campuses, office complexes and other developments, which have probably also been building standard walks, golf cart paths and parking lots on problem soils.

Once you have done all this, sit back with your friendly city engineer and watch how very few roots contribute to walk problems, how long the super walks last safely before needing repairs, and how the number of trip-and-fall claims against your city drops dramatically.

Steve Sandfort is an urban forestry consultant and supervisor with the Hamilton County Soil and Water Conservation District in Cincinnati, Ohio.
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New Ecto Tabs from JRM Chemical increase tree growth and reduce transplanting loss. The high performance tabs contain beneficial Ectomycorrhizal fungi with timed-release fertilizer and a rooting hormone. There are 10 million spores from five types of specifically selected mycorrhizal fungi. These spores are effective in increasing water and nutrient uptake, reduction in plant disease and improvement of soil structure. The tabs are cost effective, easy to apply and ideal for new tree planting in nurseries, landscapes or within the reclamation industry. For more information, call 800-962-4010.

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Miller Machine’s PRO 75S, skid steer powered stump grinder has been refined to satisfy the professional operator. Based on the PRO 75 mechanical drive, PTO powered, tractor-mounted grinder, the PRO 75S is powered by hydraulic drive. An Italian radial piston motor is employed to directly drive the Blanchard ground, OD-turned cutter wheel which rides directly on the 2-1/2-inch diameter, straight-keyed motor output shaft. The integral back-fill blade and metered hydraulic swing, lifts and extend functions on the grinder compliment the unit; a universal mainframe provides quick-attach brackets for all major loader bucket couplers. High-flow hydraulics are required on the skid steer to provide satisfying performance. Consult the company to determine if your loader has the requisite flow and pressure. Contact Miller Machine Works at 765-659-1524.

Tanaka Power Equipment has developed two new attachments that can turn a Tanaka grass trimmer into a pole saw or pole hedge trimmer. The TPS-200 Pole Saw Attachment provides a 98 inch overall length when mounted to a unit. In addition, it features a 10-inch Oregon bar and chain combination with a self-contained oil reservoir and automatic oiler. The TPH-200 Pole Hedge Trimmer Attachment (pictured here) features 20-inch cutting blades. It has an articulating/pivoting cutting angle up to 140 degrees. For more information, contact Tanaka at 253-395-3900.

ACRT, Inc. has added tree growth regulator (TGR) application to the growing list of services it offers utilities. Applications are made by graduate utility foresters who have all necessary training and licenses for the application jurisdiction. For more information, call 800-622-2562.

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Bartlett Elects Directors and Appoints President

Stockholders of The F.A. Bartlett Tree Expert Company recently elected three new directors at their annual meeting on Jan. 19, 1999. Jane Bartlett, granddaughter of the founder, Frank B. Heisinger, grandson of the founder, and Gregory S. Daniels join eight current directors to form an 11-member board.

The new board met on Jan. 20, 1999, and appointed Daniels president of the corporation. A graduate of the University of Rhode Island, he joined Bartlett in 1975 as area manager for Chicago and northern Illinois and was promoted to division manager, Lake States Division, in 1978. In October 1979 he was promoted to vice president and division manager of the Metropolitan Division with responsibility for general tree care operations in New York State, western Connecticut and northern New Jersey. When Southern Tree Surgeons, Ltd. was acquired by Bartlett in 1994, European operations were included in his responsibility. In addition, Daniels has served on and chaired several important committees in various professional arboricultural organizations and currently serves as a director of the National Arborist Association.

Coalition Lobbying for Nationwide Nursery Standards

Acting on a request from the Florida Chapter of the ISA, the board of directors of the ISA voted to establish a committee to consider the feasibility of establishing national grades and standards for nursery stock. Dr. Richard Harris, chairman of the Council of Tree and Landscape Appraisers (CTLA) will head the committee. The ISA vote follows the successful efforts of the Florida Chapter of ISA in assisting the Florida Department of Agriculture Division of Plant Industry in publishing and disseminating the revised 1998 Florida Chapter and Standards for Nursery Plants.

The goal is to promote a nationwide standard of better quality trees. The standards, which affect the trunk, branch and root structures, are the result of more than 10 years of research by a wide variety of nursery professionals. They were written by nurserymen with years of experience. Over a 10-year period, a coalition developed a document that was a synthesis of all the different viewpoints. The new standards were adopted because of problems with the production of trees in Florida nurseries. Florida’s standards now give a higher grade to trees that have a strong central leader with well-structured branches and a properly developed root system.

For more information, contact ISA President Dr. Dan Neely at (573) 264-2972 or CTLA Chairman Dr. Richard Harris at (530) 753-4042.

ASV & Cat Close Stock Transaction

ASV shareholders recently ratified an October agreement that provides ASV with access to a broad range of Caterpillar’s manufacturing, financial and dealer resources. ASV’s line of Posi-Track all-purpose crawlers will now become available to the Caterpillar worldwide dealer network. The two companies will also move forward on plans to develop new products.
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Certainly the largest living plants in any urban or rural landscape, trees present arguably the most diverse habitat for many other plants and animals, contributing perhaps more significantly than any other factor to our human existence.

Our horticultural predecessors, through the financial support of tireless plant collectors, engaged in a global search for new and unusual vegetation. The results of their efforts have left a most unique green legacy by providing a visual amenity in addition to native plants. Undoubtedly, the most impressive specimens today are the larger woody shrubs and trees found among public and private gardens and arboreta, with the occasional rare specimen seen elsewhere.

The creators of what have become internationally important collections of specimen woody plants unselfishly provided for a future that they were never to see. It is now, some 150 to 200 years since many of these plant introductions were made, that the plant maturity has been fully realized.

While many original plant collections arose for medical research, others developed more often as a horticultural version of philately. Consequently, man-made gardens and plant collections house some of the best, largest and oldest examples of a host of plants—often growing far beyond their natural range. The local, naturally resident flora and fauna, which are often dependent upon native mature plants for their very specialized habitats, have adapted to these exotic aliens. Together, they provide further amenity interest and conservation value in what are already internationally important plant resources.

One of the first botanic gardens of renown was founded in Cambridge, England in 1621, as a repository for "curious plants" essentially of medical interest. Indeed, the Cambridge "Penicillin Garden" was established in cel-
ebration of Oxford’s greatest medicinal discovery. Modern medicinal research, in particular that investigating the potential of Yew (Taxus baccata) in the treatment of some cancers, may benefit from the rare material contained in gardens of similar origin.

Plant collecting is not new in the human psyche; the first record of plant hunting is noted in 1495 B.C., and records detail an expedition sponsored by Queen Hatshepsut of Egypt journeying to Somalia to collect incense trees (Commiphora myrrha). The Romans, in their pursuit of world domination, took many plants with them, as did the Moors in their conquest of the Mediterranean, leaving their own unique horticultural stamp on the agricultural systems and gardens of those regions. Certainly the golden era of plant hunting/collecting flourished in Victorian Europe, with perhaps the most significant contributions coming from those intrepid souls venturing to the Middle East, Far East and North America. (The backbone of the European forest industry consists of

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introduced exotics, in particular Sitka Spruce (Picea sitchensis), Grand Fir (Abies grandis) and Douglasfir (Pseudotsuga menziesii), all of North American origin.)

On behalf of wealthy patrons, the Royal Horticultural Society in Great Britain financed many of the early expeditions by collectors, such as Sir Joseph Banks, Robert Fortune and David Douglas, all of whom endured severe personal difficulties in their chosen profession. Douglas lost his life in a tragic accident in Hawaii. Obtaining new and unusual plants rewarded the affluent backers of the global horticultural forays, providing them with a means to display their wealth in a socially acceptable way. This unusual fashion—in some cases passion—now resides in the domain of botanic gardens worldwide, since the affluent population of the latter half of the 20th century prefers to support other ventures.

It was at the Royal Botanic Gardens at Kew that international plant transfer between collections began. Much of the material that comprises the mature woody plant content of our present day collections was collected to represent one of each known type, in particular the pinetum at Kew. This has proved enormously advantageous to conservationists in terms of the reintroduction of endangered material to the wild. The Royal Botanic Garden Edinburgh (RBGE) has a satellite garden at Benmore, Argyll, Scotland, that hosts an invaluable genetic variety of Thujopsis dolabrata, which is more extensive than can be found in the wild in Japan. The trade in endangered plant material is governed by CITES (an international agreement regarding the Control In Trade of Endangered Species), which seeks to regulate trade and fairly distribute any accrued profit resulting in the use of the material in whole or part. In a way, zoos, which act as repositories for rare animals undertaking captive breeding programs, provide model examples for plant conservationists. The international Conifer Conservation Program, based at the RBGE, is actively engaged in the ex-situ conservation of rare and endangered conifers worldwide to stave off a very real possibility of our plant collections becoming museums that hold only memories of extinct great trees species.

Veteran or Heritage trees

Mature native and exotic trees have the potential to be described as “Vet-
eran,” or “Heritage.” Veteran describes those trees of extraordinary age for their species, and Heritage alludes to some human cultural connection, such as a folkloric or commemorative connection. In many cases Veteran and Heritage value may well be found in the same tree.

Through boundary delineation using hedgerows, agricultural practices have created invaluable tree reservoirs, complimented in our designed landscapes by the often-unwitting contribution of private landowners. While we can enjoy today’s heritage trees for many years to come, we should not do so ignorant of their basic requirements. In conflict with human demands for water, sunlight, oxygen and nutrients, routine maintenance only happens at the request of the enlightened few. Natural disasters (drought, storms, pest plagues) play a part in the normal life cycle of trees. When these are coupled with human factors (pollution, construction damage, vandalism and ill-advised pruning), what chance does a tree have of reaching a ripe old age?

It is thought that 80 percent of Europe’s ancient trees reside in the UK, most within 20 miles of a town or village. A greater public understanding of how old trees develop and interact with natural and cultural aspects of human life is essential to their continued existence. There is no doubt that all the present examples will die eventually. Their location will dictate removal either through tree surgery or simple site degradation. Surely current tree owners and managers have a moral duty to ensure the continuity of our inherited plant collections. The management requirements for these large, mature and even ancient plants are varied and invariably technical in nature, embracing innovations in the practice and science of woody plant care. Sustainable management of this valuable natural resource requires planning to ensure appropriate and adequate legal protection, supported through education and municipal funding, that encourages cyclical maintenance programs and provision for replacement.

Modern practices for mature trees

General research has given rise to highly efficient date recording and storage systems, resulting in accurate, user-friendly surveying and monitoring techniques. This vital information that can be quickly incorporated into management plans and subsequent work specifications.

Arborists have kept pace with engineering and scientific advancements, developing new techniques and sys-
Layered Lime at Scone Palace in Scotland.

tems in response to the results of research into the pathology, biology and mechanics of caring for trees. They are armed with devices developed to ensure non-damaging rope access and egress from tree canopies. It is possible to remove mature trees in whole or part from confined spaces with restricted access more efficiently and with a greater degree of safety than ever before. Where it is necessary to install cable or bracing systems, the auger bit is no longer needed—thanks to the introduction of more effective systems.

The introduction of “gadgets” to the world of arboriculture has primarily come from two areas.

- Practical arborists encountering a variety of technically difficult situations have had to develop innovative systems to overcome challenges. Techniques and equipment arising in this way include cambium savers, throw bags, various pulley adaptations and other equipment borrowed from caving and rock climbing, much of which we would have not considered using even ten years ago. Arboricultural equipment and techniques have also been created in response to academic research, some in conjunction with practitioners, which combine to produce non-damaging, more efficient and safer tree access.

- American arborists introduced the modern concept of “rigging for dismantling,” dealing with trees that routinely achieve heights in excess of 150 feet. This has resulted in unique tools and work systems to facilitate whole or partial removal. Lowering, utilizing pulley blocks, speed-lining equipment and rope-friction devices, is now becoming the norm for arborists worldwide. Rigging systems allow significant pieces of timber to be directed away from ground-based obstacles, such as man-made structures or important vegetation. These techniques simultaneously reduce the time to carry out the work, even yielding usable timber that would...
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Preserving mature trees

Retaining older, often decaying trees within our urban tree collection may involve operations carried out in phases over a number of years, re-pollarding a classic case in point. As trees get older, their ability to respond to wounds is lessened. In general, trees respond very well, albeit slowly, to ordinary external mechanical pressures. Of perhaps greatest benefit to our ailing Veteran and Heritage tree population has been the introduction of non-invasive tree cabling systems designed to support aging, heavy limbs or those showing signs of poor structural integrity.

Traditional cabling systems call for the use of wood augers to drill holes (usually into sound timber) in order to install lag hooks or eye bolts accompanied by steel wire to create the cable brace. The traditional method requires the application of many varied and specialized tools, which takes considerable time to install and allows little future adjustment. Having opted for bracing, any pruning should be carried out prior to installation of the main supporting system, though temporary support during pruning may be required. Certainly, where Veteran trees are concerned and the intention is to ultimately remove several large sections, temporary bracing is a useful solution to ensure removal does not naturally pre-empt the work schedule. In the case of endangered or rare trees, physical support may be required to preserve them while material is collected for propagation.

The incomparable value of the amenity contribution made by exotic woody plants has occurred almost accidentally rather than by design. In recent years, unrelenting human development has subjected our natural environment to enormous pressure, resulting in irreversible damage. While naturally occurring woodland provides a plethora of trees species and associated wildlife habitat, the new and inherited multitude of ornamental landscapes of the 20th century are a vital, integral piece of the global treescape.

Paul Hanson is a consulting arborist with SAC Arboriculture Services, a commercial division of the Scottish Agricultural College in Lanark, Scotland.
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Delegating - the Most Important Skill for a Manager

As the owner or manager in a growing tree service business, sooner or later you will learn that you can't run the business from the top of a tree. You need to begin delegating in order for the business to continue to grow.

Delegating properly does a lot more than make your life as a manager easier. It builds cohesiveness through teamwork, increases efficiency, develops careers, raises morale, and boosts productivity. But it's not always easy. Here are some guidelines to follow to help you delegate successfully:

Delegate responsibility, not just work. Your goal is to get employees to the point where they can use their own initiative and problem-solving skills to achieve your company's goals without constant supervision.

Let employees run safety and production meetings. This does three things: first, it shows them that you respect and trust their abilities; second, it builds their confidence and leadership skills; finally, it gives you a chance to see how they handle other people, questions, and even controversy - should you ever consider promoting the person into a managerial position.

Never ask an employee, "Do you understand?" Many employees will answer yes, regardless of how well they understand, not wanting to look stupid in front of the boss. Instead, ask a question like, "Any ideas about how you'll get this done?" You'll get a better idea of whether the employee understands you.

Keep a diary. The more you are able to effectively delegate, the more you will want to delegate, and the harder it becomes to track. Be careful, and be organized. Keep track of which tasks you've delegated to which employee, and when you delegated them, for follow-up purposes.

Establish routine checkups. When something is delegated, establish a time when you and the employee can visit to make sure everything is on track. Don't check too frequently. Remember, you're trying to establish trust while getting an employee to shoulder responsibility.

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The National Association for the Exchange of Industrial Resources (NAEIR) notes that if you donate inventory to charity, you may qualify for a tax deduction. A free guide is available that includes step-by-step instructions on the donation process, as well as a formula for calculating your company's potential tax savings. To receive a free copy, call 1-800-289-4551.

More Home-Office Deductions

Ringing in the new year for small businesses were several tax law changes of note. It is now easier for owners of tree care companies to qualify for home-office deductions. A provision contained in the Taxpayer Relief Act of 1997 that takes effect for the 1999 tax year allows business owners to deduct expenses for a home office, even if they conduct a substantial portion of their business away from the office.

The new law assists people, such as arborists and landscapers, who use their homes as an administrative hub but do their work elsewhere.

Unfortunately, while the new rules should make it easier for you to claim a deduction for items such as furniture, painting, travel, decorating, and utilities, the law's language is anything but easy to decipher. Tax experts recommend you meet with your accountant early in the year to begin tracking allowable expenses.
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continued on page 60
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Richard Harris is on a mission. He's trying to revive the diversity of the date palm as an ornamental and agricultural plant. His journey will be difficult, because not many specimens remain of the once-thriving breed, though there are a lot of palms in the temperate climes of the nation.

Arboretum Program Coordinator at Arizona State University (ASU), in Tempe, Ariz., Harris is also the curator of the Date Palm Collection at that institution. He is establishing a collection of date palm varieties, which also serves as a germ plasm repository, and he is disseminating information about the care and cultivation of palms.

"One of the reasons we exist is that the Salt River Valley was one of the largest date producers at one time," says Harris, a real palm aficionado.

As background, palms are a bit of a mess. First of all, they're dioecious, with male and female reproductive parts on separate plants (only the females produce fruit). The disparity between what exists in the U.S. and the Middle East is large, both in variety selection and information. There is no threat to palms in this country, but there is in the Middle East, where disease, war and other pressures...
have decimated native palm availability. "We have a source of germ plasm they might need," Harris says of the palms in his Date Demonstration Garden.

His collection of some 300 plants, representing about 50 date palm varieties of the species Phoenix dactylifera, is the only one of its kind in the nation. Several of the varieties are available nowhere else, as far as he can determine. There are another 1,800 palms on the ASU campus that are considered part of the arboretum.

One of the odd things about edible date palms is that many are varieties that came about because man bred them or discovered and utilized them for date production. The Phoenix area was once rife with odd date varieties, some of them consisting of only a few plants. Many of those have disappeared.

Date palm offshoots were imported into the area about 1890, and at one time the U.S. Department of Agriculture and the University of Arizona had date palm research facilities in Tempe. Both are now gone. The ASU Date Demonstration Garden, which was only established in 1993, doesn't have a research function now, though Harris hopes to develop research in the future.

"We are a germ plasm repository for the American Association of Botanical Gardens and Arboreta," Harris notes, and the official repository of the Phoenix date palm.

"The rationale at the time was we had available land and we already had a good date palm collection," he says, speaking of palms on campus, some of which have been growing there for 50 years or more. "It's the Arboretum's flagship plant collection."

What this means for arborists, landscapers and growers of palms, especially the edible date palm, is that the facility serves as a source of information for anyone with palm questions. Harris has experts come in and give classes on maintenance of the tricky plant. He gives out printed information on month-by-month care.

"We've held classes every year for people who want to learn more about dates," relates Harris, who explains that one emphasis of the facility is to teach date palm owners how to encourage and harvest the fruit. His staff and volunteers every year harvest 2,000 pounds or more of dates and give them away as promotions for the center.

But it is the germ plasm collection that Harris finds the most promising and emotional part of the facility. He suspects there may be genetic traits hidden in some of those varieties—disease resistance, perhaps, or heavy fruiting characteristics—that may be of great value to palm breeders worldwide; if he can only save them.

Germ plasm in many edible and ornamental plants resides in the seed. Save
some seeds and you've saved the genetics. Palms are more problematic, since their germ plasm is incorporated in the offshoots that spring out of the sides of the plant and are harvested for propagation.

"It takes quite a few years to build up your propagation materials," Harris points out, since each offspring must literally be chiseled or sawed off as it springs from the side of the plant. Those are then planted to produce the next generation.

"We would eventually like to have a repository of the ornamental varieties of Phoenix palms," he notes. Some, like the Canary Island palm, are already in widespread use, but more landscaping utility could be made of them if more information and research were generated.

One job of Harris, his staff and interested date palm volunteers has been to search for new and collectible varieties wherever palms grow in the United States. The next collectible variety might be a single plant in a homeowner's backyard, or it might be in a small grove maintained by a collector, who often will not allow an offshoot to be taken from the plant.

"Most of the collectors are people who had commercial groves," explains Harris, and sometimes they aren't willing to share proprietary genetics. The only other significant collection of edible date palms is at the USDA Germplasm Repository for Citrus and Dates in Riverside, Calif., which isn't as accessible to the public as the ASU center. The Riverside facility has shared its germ plasm with ASU, and currently each facility has some varieties that the other doesn't have.

Of course, many date palms are grown simply for their ornamental value. "The same general information on care can be used on fruiting palms as on the ornamentals," Harris insists. "The culture and care will be more or less the same."

An essential difference between
Part of the germ plasm repository trees at the Date Demonstration Garden. Offshoots on the side of a date palms are used to propagate a new tree.

This should be added only during the late winter and early spring when the tree is flowering and not when the fruit is maturing.

Dates go back some 5,000 years as a cultivated fruit, making it one of the oldest cultivated crops. Spanish missionaries introduced dates in California and Florida, and the fruit probably arrived in Yuma, Ariz., about the time of the Civil War.

Harris says that international politics prevents the date growers of America and other countries from trading information and offshoots. That is particularly unfortunate for some overseas palm production. He cited the example of the Halaway date palm of Iraq that has been devastated by war.

"We have a source of germ plasm they might need," he says of all of his varieties. He is currently trading offshoots with other arboreta and collectors around the country and hopes for a time when international borders will be open to palm genetic material.

In the meantime, the Date Demonstration Garden serves as a source of information on palm care and propagation—especially if you want to eat the fruit. They can be reached at ASU, Facilities Management, Box 873305, Tempe, AZ 85287-3305. Phone: 602-965-9498.

Don Dale, a freelance writer from Hollywood Calif., specializes in horticultural topics.
John Wright New President of National Arborist Association

John R. Wright, president of Wright Tree Service, Inc., officially ascended to the presidency of the National Arborist Association on January 30, 1999, at the NAA's Winter Management Conference in Cancun. In his inaugural speech, Wright laid out his priorities during his tenure as president.

He noted that since his background is in the utility side of the tree care industry, his business expertise and his decades of experience in dealing with the federal government would be his most important contributions.

"I hope to enhance the financial stability of the NAA and start a program where we can develop sufficient cash reserves," Wright stated. "As a general rule of thumb, a non-profit organization should have at least six months of operating expenses in reserve, and we are substantially below that now. In addition, we need to work on an investment program to strengthen the financial position of the NAA."

Wright also recognizes the heavy influence government regulation exerts on the industry. He pledged to pay particular attention to several long-standing areas of concern to the profession.

"I would like to get more heavily involved in OSHA issues," he said, "specifically regarding the logging standard. I hope over the next 12 months we can get that issue resolved with OSHA favorably. The people who have done all the groundwork so far have done an excellent job of spelling out our position to OSHA, and we need to continue with those efforts.

"I would also like to open a dialogue with DOT, in conjunction with other organizations with similar concerns, to try to lessen the strain that DOT regulations and requirements put on tree care companies. Both of those are issues affecting the entire industry, not just NAA members."

While the NAA presidency is a year-long position, Wright did not limit his priorities to issues that can be solved in 1999. He addressed two issues, in particular, of growing interest to tree care companies.

"I hope to at least make a positive start on solving the biggest challenge facing the tree care industry today—recruiting, training and retaining qualified people," Wright noted. "We need to do a much better job of marketing the tree care industry. We have to pull people from other industries into ours. I'm not sure how we are going to do that, but we must start."

He also offered some predictions on the future of the industry. He predicted that mergers among electric utilities are not over, and line clearance contracts will be bigger, longer and demand more resources from contractors. Wright sees a continued pressure over the next 10 years on all tree care companies to merge.

"Even if they don't want to," Wright cautioned, "it seems that tree care companies must grow larger to hold their own. There are people looking to finance buyouts and consolidations, and our industry is in their spotlight."

Wright Tree Service, which has almost 1400 employees in 18 states, has been a member of the NAA since 1977. He became a member of the NAA board of directors in 1991.

Wright worked for the family-owned tree service in summers while in high school "dragging brush for the first day, then they put me in the trees." He continued working on a tree crew while attending Drake University in Des Moines, where he studied marketing and business administration.

Wright credits his employees for the company's success. "We have people in their late 30's who have been with Wright Tree Service for over 20 years. We have developed a reputation for being scrupulously honest and the integrity that goes along with it is important."

Wright enjoys gardening, especially growing flowers. He and his wife, Nancy, also enjoy boating at area lakes and spending as much time as possible in the Colorado Rockies.
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Your Comments Needed

ANSI A300 (Part 3)-DRAFT 07 Tree Support Systems a. Cabling, Bracing, and Guying has a public comment period of January 15 to March 16, 1999. The text of this important draft was included in the January issue of TCI magazine. The new forward to ANSI A300 was included in the February issue of TCI magazine. Annex B of the Part 3 draft, Cabling system types, is provided on this page for your examination. Take a moment to read it and submit comments. Next month, in April TCI, we will provide Annex A - Size, strength, and application tables for support system hardware. The committee will accept comments on the Annex A and B drafts after the public comment period has ended.

How to submit a comment
Comments must be submitted in written form and posted through the mail. Phone, fax, and e-mail comments will not be accepted. Comments should outline your differences with a specific line and/or diagram, evidence to support your opinion, and an alternate wording and/or diagram.

Mail comments to: NAA, ATTN: Bob Rouse, PO Box 1094, Amherst, NH 03031-1094

Annex B - Cabling System Types
Cabling systems should consist of one or more of the following types:

Direct. Direct cabling consists of a single cable between two tree parts, e.g., two limbs, two stems, or a trunk and a limb (3 direct cables shown).

Box. Box cabling consists of connecting four or more tree parts in a closed series. This system should be used only when minimal direct support is needed.

Triangular. Triangular cabling consists of connecting tree parts in combination of threes. This method should be preferred, when maximum support is required (2 triangular systems shown).

Hub and Spoke. Hub and Spoke cabling consists of a center attachment (hub) with spans (spokes) of cable radiating to three or more leaders. Hub and Spoke cabling should only be used when other installation techniques cannot be installed.

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<td>68. Western Tree Equipment &amp; Rentals</td>
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Changes for the Better?

There is a small sign on the wall behind my desk which reads "The older you get, the more you like to tell it like it used to be." Hence, the following remarks:

After reading various articles of instruction and observing modern climbing and rigging demonstrations promoted by practitioners and champions in the arboricultural industry, I am both amazed at the vast array of hardware and other equipment now deemed necessary for climbing. I am also amused at the intense effort to complicate what formerly was a fairly simple activity.

Although laborious and somewhat hazardous, accessing the crown of a tree and performing the required work never seemed, in another time, to be the difficult endeavor which is portrayed today.

When I climbed during the 1930s and into the mid-1950s, standard equipment for the average tree-climber consisted of:

• a 100-foot length of 5/8-inch manila climbing line into which was fashioned, as a saddle, a loose single bowline loop with a tail long enough to tie the taut knot;
• a Diston D-27 hand-saw clipped to the trouser's belt;
• a pruning pole approximately 12 feet long, to which was attached a Seymour-Smith "telephone" pruner head with a length of knotted clothesline fastened at the bottom;
• a paint can made from an empty beer can (this, of course, was pre-Shigo) and tied around the leg at the top of the 16-inch boots, along with reclaimed U.S. Cavalry breeches, purchased from the Army/Navy;
• a rack-body truck (no winch, no dump hoist) on which were stored 3/4-inch and 1-inch "bull-lines" for lowering heavy limbs and dropping large butts with a pull from the truck;
• a "bull-saw" (one-man cross-cut) and a two-man cross-cut saw, both of which were used for large cuts and felling.

Everyone developed a called area between the buttocks and top of the thigh where the rope cut in and chafed during long hours spent sawing off large limbs and leaders, but this was considered normal and a part of arboricultural work.

All climbing was accomplished using the foot-lock method, after a balled-up length of climbing line was thrown over the highest attainable limb. The "taut" knot was not tied until the climber was in position to work and had pulled the saddle loop around his body. The knot consisted of two turns around the standing part of the line with a half hitch over the top for ease of operation, which still provided security. Every climber soon learned to crotch his line on the highest limb strong enough to hold his weight, thereby providing flexibility for movement around the tree.

Many times, light pruning was possible by ascending the rope and standing in a foot-lock position as the shoulders and upper body were thrust between the two standing parts of the line, leaving arms and hands free to work the pruning pole.

Ascent into the tree might have been somewhat slow, but descending could be much faster simply by untying the taut knot, wrapping the gauntlet of a work glove around the two standing parts of the line and jumping out of the tree. One's hand was protected from burning by the glove, and descent could be slowed or stopped by the simple expedient of turning the line upwards.

Another time-saver in city utility pruning was to move from one tree to another walking the telephone cable and maintaining balance, tight-rope style, by lightly sliding the hands over the two fire-alarm wires.

I am sure OSHA would frown upon these time-saving practices today, which brings up another point. I don't believe the accident rate for tree workers is any less today than it was during my time. At least twice I have asked OSHA officials if the accident rate has declined over time. Their (red-faced) answer was that statistics were not available, but a study was in progress.

The use of pesticides has also changed considerably since the early half of this century. Until shortly after World War II, just about all tree spraying was accomplished with the use of hydraulic equipment consisting of a tank (reservoir) for the diluted material, a powerful pump, and many feet of heavy rubber hose with an adjustable gun at the end.

There were no EPA or state pesticide control boards, but intelligent operators read the labels, followed instructions, and problems were few. DDT and Malathion, along with miticides and fungicides, were the chemicals of choice. If they were as harmful to humans as the public was led to believe, many of us "old-timers" would not be here today. We were soaked with spray residue daily without the use of masks, waterproof clothing, or any other protective device. Many of the rules changed after the establishment of EPA and state pesticide control boards. However, a whole new level of bureaucracy was created which exists to this day.

There have been many technological changes in arboriculture over the years along with changes in practice. One thing remains constant, however, the trees have not changed!

Byron Kirby is a consulting arborist in North Hampton, N.H.

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"Go Ahead–Ask Big Al"

By: Jeffrey Lee, Branch Management, Riverside, CA (909) 319-7003
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Dear Al,

I am an engineer by profession, and I recently saw a copy of Tree Care Industry magazine. I noticed that there are an awful lot of knots involved in tree care. I have no experience with tree climbing, but as an engineer I know that all of those knots on one rope must have an effect on the strength integrity of the rope. Is there a standard or guideline for someone who is new in the industry, or someone that is just interested?

Signed
J.P. Winkeldorf, IV

Dear Mr. Winkeldorf,

First off, you are absolutely right about the strength compromise of knots on ropes. However, there are other determining factors involved. Let's take a brief glance into the world of knots.

Essentially, it's a two-part equation. The quality and care of the rope is one part of that equation. Ropes should be stored in a dry area, free of toxic chemicals and hot or sharp objects, and inspected daily for any type of damage or excessive wear.

The second part of the equation is the knot itself. ANSI Z133.1 (the standard specifically for tree work) provides minimum breaking strength standards for a climbing line, allowing for strength loss due to commonly used knots and applications.

Here are a few examples of the percentage strength loss due to knots and splicing:

Eye splice ...................... 10%
Bowline ........................ 35%
Fisherman's knot .......... 55%

For now, let's concentrate on the Bowline. The Bowline is an "end knot," most commonly used to tie the end of the rope to a carabiner or snap clip, which is then attached to the climber's saddle. The Bowline has a distinctive look (when tied properly) that cannot be mistaken. It is important that the knot be tied correctly to be assured that the knot itself will hold. This is the knot that (for obvious reasons) must not come untied, or cause the rope to break when tested with an unforeseen fall, or even under normal use.

Out of habit, many climbers tie a clip into their ropes using a Bowline. They make the mistake of leaving that clip in that one location—sometimes F-O-R-E-V-E-R—until the rope starts to look like a frayed hourglass. Not a good thing! That's why ANSI recommends that the location of the snap clip be changed daily.

As always,

Big Al

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