Cummins Power for the Tree Care Industry

THE BEST JUST GOT BETTER
Ask Us About Our "New 4-Cylinder Power Units" for the Brush Chipper Application

(248) 478-9700
Please circle 17 on Reader Service Card
To many, a Shindaiwa is more than just a piece of landscaping equipment.

The Shindaiwa T230 grass trimmer boasts the industry's best power-to-weight ratio, meaning you finish more work without the fatigue of operating heavy equipment.

While your Shindaiwa won't host you a bachelor party, it will provide a long relationship. Such loyalty results from individually designed components that hold up to the toughest demands. So your Shindaiwa will always stand attentively by your side. Whatever the task may be. For additional information, call us at: 800-521-7733 or visit our website: www.shindaiwa.com.

Please circle 52 on Reader Service Card
PROVIDING THE POWER TO GROW

We specialize in financing the equipment you need to grow your business.

You select the new or used equipment.

First Sierra provides the financing – leases or loans.

Keep your cash
Easy application form
Affordable payment plans
Flexible or seasonal plans

Fast approval
One call does it all
Preserve your bank lines
Up to $75,000 – App Only

See us at TCI EXPO '99!

Hatfield, PA
800-933-7101
Bill Stauder
David McDonald

Cleveland, OH
800-366-4228
George Ziegler

Atlanta, GA
800-443-8301
Eileen Gresens

www.firstsierra.com

Please circle 25 on Reader Service Card
Standard One Ton Forestry Body: Model MP-11

**Overall Body Dimensions:**
Length 138"  Height 60"  Width 92"

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

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

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

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

**Optional:**
1. Top ladder pruner rack

**NOTE:** Chassis cabs available to complete package 84" C/A Chassis cab required

Southco Industries, Inc.
1840 E. Dixon Blvd. • Shelby, NC 28152
e-mail: southco@shelby.net
(800) 331-7655 or Phone: (704) 482-1477
Fax: (704) 482-2015 or (800) 458-8296
Come to TCI EXPO
... for the tenth time!

Hindsight is not only 20/20, it is a terrific measure of our dreams! Who would have thought that the glimmer of a trade show would become the world's largest exposition for our industry, attracting attendees from other countries? Who could have imagined we would have waiting lists for exhibitors? Who would have dreamed that we would attract 2,500-3,000 people annually to an event of this scale?

You did! The industry has supported NAA's trade show to the hilt. You have recognized the value of networking with suppliers of our industry's equipment and materials; understood the need for educational opportunities for yourselves and your employees; networked with friends and made new ones. You've taken the time to come and be a part of a business you love with others who share your passion. Hindsight has proved that dreams do become reality, and we're the lucky ones ... Lucky to have the opportunity to meet with you each year. From those of us at the NAA office who serve the industry daily, we have to tell you our secret. We love this time of year. EXPO is one of those special occasions for us when we are reminded by you in person of how important what we do is to helping you be successful. You make it all worthwhile.

Meeting together in Indianapolis at our tenth trade show is a fabulous way for our industry to celebrate the success of the tree care industry and begin to dream about the 21st century. Who among you can remember thinking that, "God willing and if the creek don't rise, wonder what I'll be doing when the millennium comes?" I remember thinking as a child that I was going to be old. I'm pleased to report I'm feeling right spry, and not nearly as old as I thought I would be. Though the tree care business has been around for a long time, I personally think it too has only just begun in many respects. We have come so very, very far in recent years in terms of safety, business management and in recognizing the increased value of banding together to learn together through our association.

Now, we look ahead and wonder how technological developments will change our lives as we all become "digitally connected." In many respects, technological developments can help make us safer; help us share information quicker about business successes and educational materials; and help new customers find us quicker. However, some things will remain the same: the hard work and dedication it takes to be successful; the love of taking care of one of our most precious natural resources; and the determination of doing a good job. In an era when the world keeps drawing us farther and farther away from nature, business ethics and the principles of a sound work ethic, the tree care industry is one of the last bastions that connects people to nature and the value of honest hard work. Some of the finest people I have met have been during my last few months within the industry.

So come join your colleagues at NAA's last TCI EXPO of the 20th century. Your dreams of what the 21st century will bring can be found in the aisles at Indy! We'll be looking for you!
1996 - 1998
479% Sales Increase

RESULTS

HI-RANGER TREE TRIMMING AERIAL DEVICES

simple, available and cost effective

TEREX TELELECT

600 Oakwood Road • Watertown, SD 57201 • (605) 882-4000 • FAX (605) 882-1842

See us at TCI EXPO ’99!

Please circle 57 on Reader Service Card
Facts and Fallacies About Stormproofing Trees
Dr. Jim McGraw

Visual Tree Assessment
By Dr. Claus Mattheck & Oliver Heim

Prescription Fertilization:
Selecting Materials and Rates
By Dr. E. Thomas Smiley

Protecting the Urban Forest with Trenchless Technology
By Todd Versteeg

Helping Trees Survive Storms
We cannot plan for disasters by stormproofing trees. Natural disasters always come with wind speeds that produce tree-damaging forces. We can provide our best protection for trees by proper care when the weather is not severe.
NEW JOHN DEERE POWERTECH 12.5 L ENGINES

VALUABLE DIFFERENCES

This 500-hp (373 kW) engine uses only 14.2 gallons (54 L) of fuel per hour at 60 percent load factor.

From convenient dipstick locations to self-tensioning belts, routine maintenance is quick and easy.

These new 12.5-liter engines provide a steep torque curve and maintain peak torque to 1,000 rpm.

Fast parts, professional service, expert advice, and rock solid warranties — you get them all from John Deere.

Your New Choice in 325- to 500-hp (242-373 kW) Engines

1-800-J-ENGINE (1-800-536-6446) • e-mail: jdpower@deere.com • http://www.deere.com/jdpower

Please circle 20 on Reader Service Card
OCTOBER
continued from page 4

Departments

28 Washington in Review
By Peter Gerstenberger
Latest word from front lines in Washington

30 Winter Management Conference
Food, fun and sun in Bermuda—site for next year’s Winter Management Conference.

32 TCI EXPO News
Climbing, rope applications, lightning protection, and chain saw sharpening & maintenance are among hands-on demos at TCI EXPO

34 Career Days at TCI EXPO
A Jobs and Internship Fair, Tree Care Skills Competition and Tree Care Skills Workshops await sponsors and students at Career Days.

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

58 Industry Almanac
Important regional and national meetings and activities

64 From the Field
By Johnny Curtis
One arborist tries to scale new heights with U.S Olympic Team.

Center TCI EXPO '99 Registration Brochure
Everything from equipment, products and services to hands-on educational opportunities will be on display at TCI EXPO '99. Register today! See the brochure in the center of this magazine.

36 Fertilization Programs and A300
The ANSI A300 Fertilization Standard for Trees and Shrubs provides guidelines for the use of fertilizers. Don’t miss this article on selecting materials and rates.

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.
Reach. Grow. Succeed.

You depend on your experience, knowledge, and tools to take your business to its most attainable height. So reach for a company with the experience to handle your insurance needs.

For years, The Hartford has helped arborists protect their livelihood through an insurance program designed especially for your industry. Find out why hundreds of arborists across the country have chosen The Hartford to help them achieve their business goals.

Call your agent today. Growth. Bring It On.

For details, call: 1-800-533-7824
The phrase "stormproofing trees" is an oxymoron. Trees have survived for many years on this planet by falling apart at certain wind speeds. Just like Indianapolis racecars, they break apart at certain impact forces because they are made to peel away to increase driver survivability.

Trees survive because they have dormant growing or meristematic points. They resprout epicormic shoots, which are phenomenally unsafe and create terrible wood products. But the point is trees have a back-up system to put on another set of photosynthetic producing organisms, called leaves. Trees do not care whether their limbs fall off and hurt someone. Trees have a survival mechanism for dealing with storms. They send a message to get the leaves back on and focus on living. So philosophically, the problem is not with the tree. The problem is with the people who want to sue when limbs fall and land on things. That is why you're in the business of trying to make trees safer.

I have an ongoing argument regarding this problem. We cannot plan for disasters by stormproofing trees. Natural disasters always come with wind speeds that produce tree-damaging forces.

If I were to rename this article, I would call it "Arboricultural Lessons Relearned from Weather Events." If you go back into your town's newspaper archives, you will find accounts of storms from before you were born. If you read and understand Dr. Alex Shigo's work on how branches attach to a tree, you will know a branch is a cantilevered stick, a very unusual condition. We are really expecting a lot for trees to be safe and not damage property during historic, catastrophic weather events.

I am a firm believer that man, not the weather gods, goddesses or demons, most often creates the factors responsible for predisposing trees to storm damage. Communities and individual property owners allow the structural condition of their trees to be dictated by the last, most severe storm that occurred. In other words, they do not clean up. They rake the lawn and leave debris hanging above. Hurricane Bonnie hit Wilmington, N.C., in 1998, but some people were still cleaning up damage from Hurricane Fran that hit in 1996.

We can provide our best protection for trees by proper care when the weather is not severe. That is where I would challenge you to work. Yes, clean up after storms, but also do crown-reduction pruning and remove included bark branches. Those are the limbs that will fall out of the best tree in the world. When a storm approaches, go in the house and find a safe place. At 50 mph, something is going to break.

I have come to the conclusion that the best stormproofing is the every day operation and application of correct and proper arboricultural and horticultural practices. Everything you do to a tree will have some ramification during the next inclement event. Be a professional every day.

Everyone should be familiar with ANSI Z 133.1, but have you ever heard of C2? That is the National Electrical Safety Code, the standard for electrical transmission and distribution hardware like the ones that failed last winter in the
Northeast. This is some information that you might want to look at regarding the weight of ice. The code makes clear that during ice or freezing-rain storms, it does not take long to add 500 to 700 pounds to a tree.

We ask a lot of trees, even under the best conditions. We have to get property owners to understand that they are responsible for their trees or the parts that have fallen or been damaged.

There are trees that have a lot of good characteristics for withstanding storms. You need to learn what those characteristics are in your area. Live oak is the premier tree where I live. It will take a lot of pressure. We can start to encourage people to plant trees that don't fall apart during storms. We are professionals and we need to give people our professional advice. We need to encourage people to plant the correct trees for the site and conditions. It is no use spending taxpayers' dollars to plant trees that die when a storm occurs.

Growing in coastal areas are maritime trees that are structured to withstand high winds. They are structured to look like airfoils and they shoot the wind up and over. We have live oak in our area that are naturally stormproofed. In the mountains and inland forests, the forest canopy deflects the wind, keeping it aloft. Then man comes along and cuts holes in the forest to build a school or shopping mall, interrupting the forest canopy. During major storms, the wind drops down and boils just like a whitewater river. You can not storm-proof against that.

We are our own worst enemy. Nobody ever thinks about the real reason trees fail. Instead, we blame the tree care company or the utility industry for the way they trimmed the trees. When you do an appraisal at a site where a six-year-old was killed in his bedroom by a storm-damaged tree that should have been taken down, your attitude changes about assigning responsibility.

How can you stormproof trees? Learn proper planting techniques and choose the right species for the climate and location. If you plant poor quality or the wrong species of trees in the landscape, you cannot expect them to withstand the weather. Pick trees that can withstand the pressure from your area's weather and environment. One question I have been asked frequently is which kind of trees are damaged more by storms, conifers or hardwoods? My exact, scientific answer is, "The trees you have the most of in your area will be the type of tree that will be damaged the most. It doesn't make a difference whether the ground is frozen or soaking wet or how high the wind is." Reporters love to hear that explanation.

There are species of trees that should never be used as shade trees. Each of you has a tree species in your area that if someone sneezes around it, it will drop a branch. We don't need that kind of tree out there. Unfortunately, after we have trees that are accustomed to the normal weather conditions of snow, the great god of weather throws a curve ball and instead of snow, we get freezing rain. The trees evolved over hundreds of years to snow. Then they get a dose of freezing rain and they do not do so well. You can do very little to plan for quirks in the weather. During freezing rain, I tell people to go out, if they can do it safely, and look at their customers' trees. Go see what the trees are doing. Where are they bending, swaying; are they looking stressed?

Early frost or late frost can happen. Picking the wrong cultivars can create a disaster. For an example, the bark on a tree cracks because the tree was planted beyond its hardiness zone. An entire landscape can be destroyed because someone planted the wrong species.

Another weather event that has not registered with the public is drought. A lot of young landscape trees burn up without watering and mulch. Do things to improve root growth and get trees planted correctly so that they can survive events such as drought.

How can you stormproof trees? Learn that most plants grow toward sunlight. When a house is built in a forest clearing, the limbs of the trees are going to
grow over your house. You need to talk to your customers, look at the house site and plan for it. You have to help change the weight load on the trunks and the branches or the trees will overload toward the houses.

How can you stormproof trees? Think about storms when installing shrubs. When putting in new landscapes, plant high-quality shrubs that have one well-defined stem. Then as they grow, you can prune and do crown lifting so that the shrubs will not be as susceptible to splitting apart during storms. If there are V-crotches with included bark, by the time the shrubs get large enough to have landscape value, they could be torn apart and ruined completely.

How can you stormproof trees? Learn about the site and soil conditions before planting. When we start a design in urban areas, we almost always have compacted soil on the site. We put a curbing system on top of the compacted soil, then we plant our trees and shrubs. We can't expect them to survive extraordinary droughts or floods. It does not matter what the wind speed is, when the roots are not in the ground, the trees are not going to remain standing. Break up compaction and do other things to minimize its effects. If the landscape industry does things that restrict the roots of trees and their growth, we have to expect problems in certain wind conditions. The root system holds the trees up. If trees are not anchored in the soil, they fall over. We have to be responsible for our actions. If you design landscapes where tree roots can’t spread out, you are responsible when the trees fall down. Granite curbstones are the best root-restricting device that you’ll ever see. It is not the materials, it is how they are installed. Likewise, if you leave the wire basket or the burlap on the root ball and a hurricane comes along six years later, the trees are going to fall over. We have to be good, professional arborists every day.

<table>
<thead>
<tr>
<th>#</th>
<th>Speed (MPH)</th>
<th>Definition</th>
<th>Conditions at Sea</th>
<th>Conditions on Land</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>Calm</td>
<td>Sea like a mirror</td>
<td>Smoke rises vertically</td>
</tr>
<tr>
<td>1</td>
<td>1-4</td>
<td>Light air</td>
<td>Ripples on the water</td>
<td>Smoke drifts with wind, Spanish Moss sways</td>
</tr>
<tr>
<td>2</td>
<td>5-7</td>
<td>Light breeze</td>
<td>Small Wavelets</td>
<td>Leaves rustle</td>
</tr>
<tr>
<td>3</td>
<td>8-12</td>
<td>Gentle breeze</td>
<td>Large波浪lets scattered whitecaps</td>
<td>Leaves and small twigs in constant motion</td>
</tr>
<tr>
<td>4</td>
<td>13-18</td>
<td>Moderate breeze</td>
<td>Small waves, frequent whitecaps</td>
<td>Small branches move, dust raised</td>
</tr>
<tr>
<td>5</td>
<td>19-24</td>
<td>Fresh breeze</td>
<td>Moderate waves, many whitecaps</td>
<td>Medium branches move, debris moves about</td>
</tr>
<tr>
<td>6</td>
<td>25-31</td>
<td>Strong breeze</td>
<td>Large waves, white foam, some spray</td>
<td>Large branches in motion, wires whistle, wind heard in pines</td>
</tr>
<tr>
<td>7</td>
<td>32-38</td>
<td>Near Gale</td>
<td>6-10 ft. seas, foam blown in streaks</td>
<td>Whole tree in motion, difficulty walking, roar heard in pines</td>
</tr>
<tr>
<td>8</td>
<td>39-45</td>
<td>Gale</td>
<td>8-12 ft. seas, dangerous to be out, foam everywhere</td>
<td>Twigs break off trees, lawn furniture rocks</td>
</tr>
<tr>
<td>9</td>
<td>46-53</td>
<td>Strong Gale</td>
<td>10-16 ft. seas, foam/spray, restricted visibility</td>
<td>Large branches break, lawn furniture moved, car rocked by wind</td>
</tr>
<tr>
<td>10</td>
<td>54-63</td>
<td>Storm</td>
<td>12-18 ft. seas, sea appears white</td>
<td>Trees uprooted, roof shingles damaged, car motion affected</td>
</tr>
<tr>
<td>11</td>
<td>64-74</td>
<td>Violent Storm</td>
<td>16-20 ft. seas, white sea and froth</td>
<td>Structural damage, lawn furniture airborne, difficult to drive car</td>
</tr>
<tr>
<td>12</td>
<td>75 or greater</td>
<td>Hurricane</td>
<td>Seas greater than 20 ft., air filled with foam/spray</td>
<td>Widespread damage, power lines down, cars blown off road, trees broken</td>
</tr>
</tbody>
</table>
1996 Ford F800 5.90 Cummins diesel, 210 hp, 6sp, w/15-ton USTC crane. $64,900

1988 Mack CS300. 215 hp, 6sp, 12' dump with 5-ton Hiab Knuckleboom crane & winch. 35' side reach. $29,500

1987 Ford LT 8000. 7.8 diesel, 10 sp, 20' bed w/12.5-ton National crane. 101' hook height. $48,500

1987 Ford LTS 8000. 7.8 diesel, 13 sp, tandem with 6.5-ton Hiab 140 crane. 21' side reach. 22' bed. $34,500

1995 Ford F800. 5.9 Cummins diesel, 210 hp, 6sp w/10-ton USTC crane. 66' hook height. $52,500

1986 International 1954 DT-466. 10 sp tandem with 7-ton National knuckleboom. 25' side reach. $19,500

1986 Mack MS200 diesel, 5sp/2sp with 4-ton Hiab crane. 22' side reach. 22' bed. $14,500

1975 Ford LN700 V8, 5sp, A/B 4-ton Hiab crane. 16' side reach. $8,900

7 Piggyback Forklifts in stock. Teledyne, Princeton 3500-4500-5000 lb., all diesel. $9,500 & up

1991 Int'l 4700 DTA 360, diesel, 6sp, chip body and 51' Lift-All bucket. $39,500

1990 Ford F800, 6.6 diesel, 5sp/2sp, A/B w/51' Altec Model AN650 double bucket. $32,500

1981 Ford LNT9000, 6-71 Detroit, 8sp tandem w/4-ton Hiab Crane Model 950. $16,900

1988 Ford F800 7.8 diesel, 5sp/2sp, Airtag 18' flatbed w/rear mount 6.5-ton Hiab Model 140, remote controls. $26,500

1990 Peterbilt 320 8.3 Cummins diesel auto w/5-ton Effer Knuckleboom crane. 18' dump body w/ high sides, liftgate. $39,500

1988 GMC 8.2 diesel, auto, chip body with Aerial Lift of CT 50' bucket. $37,500

1989 L18000. Narrow cab, steel hauler. Haul long logs from front to rear, 6 x 6 all-wheel drive, 7-8 dsl, auto, 37k miles w/6.5-ton IMT crane. $44,500

Prentice 120-yard machine. Diesel, pony engine, on gas International. $12,500

1990 Ford LN8000 4x4, 7.8 diesel, 6 sp, 14' steel dump. $19,500

1984 GMC 8.2 diesel, auto, A/B with 52' Hi-Ranger bucket. $24,900

1988 International DT466. 5sp/2sp, with 18' flat dump and Hiab crane. $27,500

1991 Ford F700 crew cab. V8, 5sp/2sp, under CDL. 16' wood flatbed, lift-gate. $19,500

(10) 1 Ton Buckets: 26' to 36' in Stock Call For Price List

(1) Hiab: IMTCo; National; Etc. Knucklebooms Unmounted Or Mounted $4,500 And Up

(10) Chip Body Dumps in Stock; Call For Prices & Descriptions

Opdyke's Truck & Equipment Sales 3123 Bethlehem Pike • Hatfield, PA (Phila. Area) 19440

(215) 721-4444

Please circle 41 on Reader Service Card
A lot of strange root systems are developing in our urban forests. The root systems are flaring out, upside down, instead of sweeping out. They are doing this because they have gone around the tree and run out of room. I call this a “porpoising” root system. Trees did not grow on this planet for the last 5000 years with that kind of root system. This has happened over the last 50 years. I constantly see trees that were planted 40 to 50 years ago that have circling roots and have fallen over. We are going to have some really interesting things occur in the years ahead with all of the large, poorly conceived tree plantings underway today.

How can you stormproof trees? Advise utility companies on how to install cables, wires and pipes without fatally damaging a tree’s root system. We build and excavate around trees and then wonder why they fall down when they get two inches of ice on their branches. It is hard for a tree to stand up when it has hardly any roots remaining.

I once heard a story about a tree whose root system had been cut to install a curb and guttering system on a commercial property. When the tree died, the grounds people cut it down. As time passed, people got tired of looking at the old rotting stump. On a Friday afternoon when this major institution was using electronic communications to transmit payrolls to the banks, a laborer went out with a backhoe to dig up the stump. He dug up the stump and the telephone cable that was responsible for killing the tree. The entire communication system crashed at 2:30 on Friday afternoon. Justice!

How can you stormproof trees? Learn how trees grow in the urban forest. A tree can be debarked during a windstorm because the decking installed around it did not allow enough room to sway. Trees growing in a pit in the street can be debarked because they can whip around and beat the bark off when they hit the tree grate. Other trees develop hollows because of a lawnmower blade. Mulch around trees to stop damage to the root systems. If you may not stormproof trees. Instead, some strange things can happen when you prune. You remove one branch and multiple epicormic shoots grow back. What’s worse, they are attached to a rotting head. In addition, branches grow straight up in the air instead of outward. Pruning often rearranges the entire physics of a tree. If you change the structure of a tree, it can fall apart.

How can you stormproof trees? Learn how to care for and prune trees properly. There are an exact number of branches on every tree. Before pruning, think about this. A tree has the number of branches it needs to stay alive! If we take off too many when pruning, we put the tree in a high degree of stress. Pruning
SURVIVAL OF THE FITTEST

The Natural Selection when you're up against hostile environments, unexpected hazards and you need constant readiness. Under these conditions, only the strong survive. Track down a RACINE product. You'll discover a prevailing species of efficient, heavy-duty, low pressure hydraulic tooling and evolutionary designs specifically for the job at hand.

Witness the Power. Versatility. Stamina. Watch for RACINE tool's Nimble, Lean, Fast and Quieter characteristics. Wonder at their long life expectancy... just what you'd expect in such a prime specimen.

For RACINE products call: 1-800-763-3843.
autopsy a tree whose roots were cut time and time again, you will see decay where the roots were damaged. You can't have rotten roots on a big oak tree and not expect it to fall down.

How can you stormproof trees? Learn the early signs of tree failure before a storm hits. Have you ever had a client (or another arborist) insist a tree is healthy because it has green leaves? Nevertheless, when the wind hits that tree just right, it comes down. We are the professionals and we need to make people aware that a tree can appear healthy but not be structurally sound. A tree will come down in the right conditions.

Public advocacy often saves trees at the time of construction, only to see them fail some years later. People don't want to get rid of historic old trees, but when they build a parking lot over the roots, the roots are killed. If you start to see mushrooms developing at the base of the tree, you need to examine it. That is how you stormproof.

How can you stormproof trees? Watch out for trees that have been struck by lightning. The lightning sometimes goes in a spiral around the tree. By the time it gets to the ground, it has encompassed the entire circumference of the tree. In time, the tree can deteriorate. The right wind conditions will twist the crown and the tree will come apart. Monitor these trees and put in approved lightning protection. Be professionals. Do it right. Use standard-approved materials. You can only make trees safe up to a certain point. You know the standards to follow.

I will close with a story. Shady Lane was lined with 38 water oaks planted in 1920. In 1954, Hurricane Hazel devastated them. They were “hat racked” at about 20 feet. These four-foot diameter trees were hit by three hurricanes; originally by Hazel (1954), second by Bertha (1996), and six weeks later by Fran. The owners should have cut these trees down in 1954 and planted new ones, but they didn’t. It wasn’t until 1996 when they were removed at a cost of $96,000. A very dangerous situation was set into motion after the hurricanes hit. If someone had made the unpopular, politically incorrect decision in 1954 to cut the trees down and replant new, healthy ones, I wonder what they would look like now?

I learned a very important lesson on Shady Lane. When you have storm-damaged trees, give them a dignified death. Cut them down and plant safe, healthy trees. Plant good species and give them good arboricultural care day in and day out if you expect them to withstand storm damage.

Dr. James McGraw, a professor of forestry at North Carolina State University, is an expert on planting, pruning, construction protection, storm damage and problem diagnosis. This article was excerpted and adapted from a lecture at TCI EXPO 1998.
Our Reputation Speaks For Itself.

Write your own success story with a low mileage chassis and NEW body from Royal Truck & Equipment. Call today.

Royal TRUCK & EQUIPMENT
Toll Free 1-800-283-4090

See us at TCI EXPO '99!

Please circle 47 on Reader Service Card
J ust filling a sales position with a willing and motivated candidate isn't enough to ensure top sales results. We all know of situations where an applicant sounded great during the interview, was hired, but did not perform well and even left quickly. What happened?

Salespeople are usually very effective at selling themselves for a position, sometimes better than they are later when selling the prospect on using your tree service. A salesperson's success in a position goes beyond just the ability to sell. It is affected by the real content of the position itself.

Sales covers a tremendously wide variety of job duties, responsibilities and expected levels of performance. In reality, sales jobs—even within the same company—can be as vastly different as administrative or field jobs. It is important to understand that a person might be successful in one type of sales position, but not another. For example, a person may have been successful in a position generating new business because of drive, ability to withstand rejection, and fondness for challenges. This same individual may not be successful in a position requiring consistent activity, detailed follow-up, and the meticulous work of an account sales position handling a large account.

At Xerox, I remember a person who created impressive sales results and a track record of consistent success in a new business position designed to sell four to six low-volume copiers each month. He even closed a top-of-the-line system that sold for over $100,000. Like many people, because of his positive attitude, work ethic, sales skills and proven track record of success, he was given a promotion. He was promoted to a major account territory within the same branch. This position involved working with only a small number of accounts to get them back from competitors after they had been lost. Success in this position required meticulous, long-term planning and the ability to sustain his motivation over months, even when the positive reinforcement of orders did not come frequently. Unfortunately, even after making substantial progress, he did not feel as successful as he felt in the past and left the company to find a position where he would not only feel more successful, but happier with the day-to-day activities the job required. Had the company understood the real differences in the two types of sales positions and the individual's natural behavioral style, they might not have made this mistake.

The first step in hiring a person who will be a top performer is to understand clearly what the position requires. To do this, it is important to recognize that the types of sales positions are determined by the degree the salesperson risks personal rejection and failure. All sales positions can be defined by these two dimensions, however it is a lot easier to see how it applies with the four principle types of positions.

The Display Sales Position is one typified by retail or showroom sales. (This position is rare in the tree care industry unless the firm has a retail gardening or arborist supply operation too.) Individuals have a low risk of personal rejection and a low risk of failure because the salesperson provides assistance and the customer buys if he or she wants to. The salesperson is not forming a relationship and has done his or her job by being knowledgeable and helpful to the customer.

The Closing Sales Position is focused on getting the customer to buy or landing the order. Individuals have a high risk of failure, however, they have a low risk of personal rejection because their objective is to get the business and not develop an on-going relationship. The person in a closing sales position sees it as a one-time event. Success in this position is measured by effectiveness or closing rate.

The Relationship Sales Position is the one focused on developing a relationship with a prospect and providing a variety of products and services to meet their needs. They tend to be those who work for larger organizations with an extensive commercial client list. As long as they develop and maintain the sales relationship, the customer will buy products or services as needed.

The Consultative Sales Position combines the aspects of both relationship and closing. This position not only requires the salesperson to develop a relationship of trust with the client, it also requires the salesperson to have an in-depth knowledge of their company's products and services and be able to relate them to the satisfaction of the customer's needs. This is the most difficult type position to succeed in within the tree care industry, and, as a result, is the most difficult to staff.

While these are the basic types of sales position, most real-world sales positions don't easily fit in these general classifications. To ensure the individual hired fits the position, it is important to examine the position and determine the real duties and responsibilities the individual is expected to accomplish. It is very easy to say, "generate sales," however it is more important to determine "how" the salesperson will generate sales results. Will she be responsible for calling on current customers in a planned pattern, ensuring they are happy with the service and solving problems to expand the company's business with the prospect? Or will his primary function be...
The more the individual’s natural behavior and attitude match those required for the position, the less the difficulty of training and managing. It only makes sense to start with someone who naturally wants to do what you are asking him or her to do.

to prospect to find people not using the company’s products and services and convince them to buy?
The person whose natural behavioral style fits the position will be far more successful than the one who has to adapt behavior significantly to the work style required. For example, if an individual likes working a predictable routine and developing long-term relationships, he may be very successful in a relationship type position. However, in a closing or consultative sales position, he will probably not withstand the constant personal rejection he must face to generate prospects. If a person has been successful in a closing type sales position, she may not be successful in a relationship sales position handling your largest customers and doing routine customer follow-up.

Hiring a person who fits the position makes the manager’s job easier. The more the individual’s natural behavior and attitude match those required for the position, the less the difficulty of training and managing. It only makes sense to start with someone who naturally wants to do what you are asking him or her to do. All too often, managers want to take a current employee, simply because they are known and available (or someone who is very knowledgeable about the arborist business), and put him in a sales position. Managers think if he “knows our business,” he can learn sales. If the “fit” or the ability to do the tasks required is not there, it is a mistake to put him in the position.

Some recruit a person without putting enough time into matching the individual to the position, invest a tremendous amount of effort in training and managing, only to find even when the individual is fully applying himself he does not have the capability to be successful. Whether you are hiring your first salesperson to move your tree care service to the next level or you are a large arborist or equipment provider expanding your sales force, you can’t afford a mistake.

While conducting a study for a major financial services firm, our organization found it costs them over $100,000 to hire a financial advisor who is a poor fit and fails. While it may not cost you as much, the pain of failure within a small firm can be much greater.

Wayne Outlaw, author of SMART STAFF-ING, will be the keynote speaker at TCI EXPO '99 in Indianapolis, Ind., Nov. 4, 1999. He will give two talks, one on recruitment and the other on employee retention. For more information, see the TCI EXPO registration brochure in the center of this magazine. Outlaw can be reached at (800) 347-9361 or www.smartstaffing.net.
And the Winners Are ...

The June issue of TCI magazine featured a Reader Survey and circulation promotion on the cover. As part of the promotion, readers who returned the Business Reply Card were entered to win prizes totalling $1,000. And the winners are ...

First Place - $500: Michael Davie, owner of Appalachian Arborist in Mars Hill, N.C.
Second Place - $300: Samantha Reese, an instructor at Columbus Technical Institute in Columbus, Ga.
Third Place - $200: Wil Delbrook, owner of Highland Tree Care in Springfield, Va.

Congratulations! Keep those cards and letters coming.

Cleary to Market Nutri-Grow

Cleary Chemical Corporation will be the exclusive marketer of Biagro Western Turf and Ornamental's Nutri-Grow line of fertilizers. Charles Nash, president of Biagro Western T&O commented, "Cleary Chemical is an ideal vehicle to distribute our products to the Turf and Ornamental businesses. They have an established reputation since 1937 of providing technical service and expertise to the fine turf and ornamental sectors." Bob Alvarez, vice president of sales and marketing for Cleary added, "the acquisition of the rights to Nutri-Grow opens a door into the fertilizer business with outstanding new technology." For more information, contact Cleary's Customer Service Department at 800-524-1662.

Heroism Recognized

Peter J. Burton, vice president of sales and marketing for STIHL, recently presented the STIHL Forestry Heroism Award to 14-year-old Michael McElroy.

Michael accepted the award for his father, Firefighter E. Alan McElroy, who died as a result of injuries sustained in a fire that ravaged southeastern Arkansas last year. The Forestry Heroism Award is open to firefighters, loggers, forest and park rangers, botanists, scientists and anyone employed in the care and maintenance of the nation's forests. For information or a nomination form for the 2000 Forestry Heroism Award, contact Debbie Thomas at 757-486-9151.

New Uses for Merit

Merit Insecticide, manufactured by Bayer Corporation Garden & Professional Care, added seven new turf and ornamental pests to its label. The label now includes the suppression of Royal palm bugs, black vine weevil larvae, psyllids, flatheaded borers, eucalyptus long-horned borers and Japanese beetle. In addition, the labels for both Merit granular and wettable powder were revised to show suppression of hairy chinch bug nymphs when applied preventively to turf grass. For more information, call the Bayer Product Information Center at 800-842-8020.

Melroe Adding Attachments

Melroe Company, the world's leading manufacturer and marketer of skid-steer loaders, announced it has purchased certain assets of E-Z Implements from owners Chuck and Kathy Devaney of Jordan, Minn. E-Z Implements developed a line of attachments for use in nursery and landscaping applications, including several models of specialty digging and grading attachments and a line of three- and four-blade tree spades. "Adding this line of attachments increases our ability to help customers get the most from their skid-steer loaders," said Melroe President Chuck Hoge. Melroe will offer the new line under the Bobcat and Palm Attachment brand names. For information contact Wanda Roath at 701-241-8740.
WHEN IT COMES TO TREE AND WASTE PROCESSING EQUIPMENT...

LOOK TO BANDIT

Model 3680 Beast Recycler™
By Smoracy
The most effective waste reducer and mulch producer available. Processes stumps, logs, brush, pallets, railroad ties, wet leaves, construction waste and demolition material.

Model 250XP

Model 1850 Track Bandit™

Seven Models of hydraulic feed disc style chippers with 6", 9", 12" & 18" diameter capacities
Models of conventional drums

The most productive, cost effective whole tree chippers. Available as towable and self-propelled in 14", 18" & 19" diameter capacities.

See Us At Booth #400, TCI EXPO ’99

BANDIT INDUSTRIES, INC.
6750 MILLBROOK RD. • REMUS, MI 49340
PHONE (800) 952-0178 or (517) 561-2270 • FAX (517) 561-2273
E-Mail: brushbandit@eclipsetel.com • Website: www.banditchippers.com

Please circle 8 on Reader Service Card
**PRODUCTS & SERVICES**

MTI S5 easy-to-maneuver tree trimmer with up to 46 feet (14.02 meters) of side reach and working heights up to 60 feet (18.28 meters) is now available for immediate delivery. It is operated through a one-handled platform control with 138-degree lower-boom articulation and 210 upper-boom travel for maneuverability. These units are designed without cables for reduced maintenance. The MTI S5 can be mounted on a flatbed with the bucket "stowed low" for easy access. Self-contained chip box units and units mounted on all-terrain vehicles also are available. All feature side-by-side rectangular booms for added strength. For more information contact Dave Wick, MTI Insulated Products at 219-747-1631.

Please circle 109 on Reader Service Card

VERSALIFT/TIME Manufacturing introduces Arbor-Mate. It was created to trim or remove tree limbs in a no-drop situation and is mounted on an articulated VERSALIFT aerial device for maximum capacity. Arbor-mate uses a hydraulic chain saw and can take tree limbs up to 12" with a 300 lbs. limb capacity. It has 270-degree rotation, 112-degree tilt and 180-degree side swivel. Once the grapples grab the limb, the hydraulic chain saw cuts it off and then the limb can be maneuvered into a safe position for proper disposal. A radio remote controlled transmitter controls all functions and allows the operator to safely achieve the best view of the work. For information contact Dana G. Scudder at 254-399-2145 or email at danas@timemfg.com. Web site: www.versalift.com.

Please circle 110 on Reader Service Card

DICA Marketing Co. of Carroll, Iowa announces new material and design for it’s "Outrigger Pad" for the arborist industry. Now manufactured from solid Ultra High Molecular Weight based (UHMW), a revolutionary new material which greatly enhances the strength and flexibility of the outrigger pad while remaining lightweight, non-conductive, moisture resistant, cost effective (comparably priced to wood) with a comfortable, easily accessible rope handle. Many sizes are available. For information contact DICA Marketing Co., 249 Windwood Dr., Carroll, IA 51401 or call 800-610-3422.

Please circle 111 on Reader Service Card

Rapco Industries Inc. in Vancouver, Washington, makers of carbide chain introduces the all-new ‘Terminator’, a carbide chain for Fire Departments, Rescue Work, and ideal for demolition, tree stumps, etc. The ‘Terminator’ is 3/8-inch pitch and .063 gauge. For more information contact Rapco Industries, Inc. PO Box 5219, Vancouver, WA 98668 or call 800-959-6130.

Please circle 112 on Reader Service Card

Jeffrey introduced the new Road Hog 320, capable of producing 40 to 80 tons of product per hour, it reduces construction and demolition, wood waste, pallets and brush into reusable materials for a variety of applications. It can be trailered with the folding discharge conveyor retracted, and setup time is less than 30 minutes. It has an EPA/CARB certified 575 hp Caterpillar diesel engine and can be operated remotely or with a tethered control pad. The 47WBDH shredder features fixed hammers with inertia weights to prevent plugging and a rear door that can be opened hydraulically for fast hammer and screen grate changes. On the feed-end, the Road Hog 320 is equipped with an upper feed roll that is hydraulically controlled for consistent feeding, a 13-foot in-feed conveyor and a hydraulically driven belt conveyor with a 15-foot discharge height and optional overhead belt magnetic separator. For information contact Jeffrey at 800-615-9296.

Please circle 113 on Reader Service Card
MORBARK introduces the Model 3600 Wood Hog, giving another option for wood recycling equipment. Power ranges from 325 to 500 hp giving the 3600 the muscle and size to process a wide variety of wood waste while maintaining portability and relatively low capital investment. The 3600 has a 16” by 49” hammermill rotor equipped with 18 T-1 steel fixed hammers with double-edged replaceable cutting inserts. Material feeds into the rotor from an 8 ½-yard hopper with a live chain bed assisted by a 30” by 59” horizontal feed wheel. Material is discharged with a 48” belly belt onto a 36” stacking conveyor with a stacking height of 14 feet. Standard equipment includes electronic RPM sensor and emergency shut down system, remote control and full breakaway torque limiter. For information contact Morbark at (517) 866-2381 or check the web at www.morbark.com.

Jonsered has introduced the new model 2149 Turbo, a fast-cutting, high-performance professional-quality saw in a lightweight, streamlined design. The 3.0 cubic inch (49.4cc) saw develops 3.1 horsepower with a powerhead weight of just 10.8 lbs. Features include: a compression-release valve for easy, low-resistance starting, a quick-release top cover with snap-lock tabs, a single-lever start/choke/stop control and a new side-mounted chain tensioner for fast and easy adjustment. The slim body profile and rounded edges make it ideal for limbing and a new, improved steel spring anti-vibration system gives the 2149 Jonsered’s lowest vibration levels ever. For information call (877) 693-7729.

STIHL’s HT 75 pole pruner is designed for professional landscapers, arborists, farmers and pro loggers. The adjustable shaft telescopes to 11.5 feet, eliminating the need to use a ladder. This pole pruner is equipped with STIHL’s exclusive Easy Start system with ElastoStart shock absorbing handle and a fuel pump primer for easier starting. The HT 75 is equipped with a 12-inch PICCO Micro Narrow bar and saw chain combination. For more information, call toll free 800-GO-STIHL (800-467-8445) or visit the web site at www.stihlusa.com.
Visual Tree Assessment (VTA) is a descriptive method based on our knowledge of the structural anatomy of trees. It allows interpretation of the body language of trees to provide criteria that are used to predict the likelihood of failure. VTA is not wedded to any particular defect-measuring instrument and is open to inclusion of new tools and methods.

The VTA method was developed at the Research Center in Karlsruhe, Germany to answer the question on how the actual trees optimize their shapes to resist failure. It has spread rapidly worldwide, giving arborists a common language to describe tree structure.

VTA relies on visual monitoring, which is cost effective and gentle to the tree. The idea is that when a tree's external anatomy exhibits apparently superfluous material, these swollen or otherwise unusually shaped areas indicate that the tree is creating repair structures to reinforce around defects. Trees grow in a manner which provides a knowledgeable observer with indication of such defects. These anatomical structures serve as warning signals communicated through the body language of trees.

VTA is used as the first step in a logical progression as an investigator examines a tree. If warning signs are found, then—and only then—should a more detailed investigation be made.

A variety of tools are available for examining trees more closely. Many practitioners already own and use a simple drill and an increment borer to look at the internal wood structure of the tree. New technology tools are available to test trees using sound velocity measurements, drill resistance or fracture
strength. Using these tools allows a measured defect to be evaluated using failure criteria based on engineering mathematics. Once a clear picture of tree structure is determined, appropriate measures for preserving the tree can be discussed.

The VTA method has already been the basis of several judgements at regional high courts in Germany. However, it should never be forgotten that even healthy, defect-free trees could fail.

Just as reading a medical handbook will not, by itself, make you into a good doctor, VTA is not a routine method that guarantees safety without the practitioner putting his or her mind to it very seriously. It should train the eye of the practitioner to recognize trees that could be dangerous to persons or property. Every diagnosis first requires a trained eye for the important symptoms, and a feeling for the living being—in this case a tree—that is to be assessed.

VTA should not be used as a shield for those who are unable to make a decision about a controversial tree. Often enough, despite all your knowledge, the tree will defy a final, definitive diagnosis. This means there will always be a need to exercise one's own responsibility in making decisions, such as whether a tree can remain standing, what if anything should be done to it, or whether there is no longer hope for it.

VTA is an aid toward making these decisions, but by no means the only one. We must keep an open mind toward a multiplicity of methods and responsibly search out those which we consider to be technically most appropriate for the case in hand. It is therefore essential for us first to scrutinize the various available methods, understand their principles and decide whether they can provide the sort of results that we need. That is not an easy task, because the learning process can require us to give up some firmly held beliefs when circumstances demand. The arguments for and against various methods must be discussed on a scientific basis—without getting mixed up in personalities—and each indication of a flaw should be seized upon gratefully so that with its help the right way can be found.

INBOARD BEARING SUPPORT

NO WORRIES!!

ARBOR TOUGH!
DESIGNED AND BUILT FOR DURABILITY

- Take replacement clutch cost out of your chipper's cost of ownership.
- The New Standard with the leading chipper manufacturers.
- Ask for AUTO clutch on your next chipper order.
- Call us for pricing on replacement clutch kits.
- No more worries! From the side load killer!

AUTO
CLUTCH
Industrial Spring Loaded PTO

650 Wheat Lane
Wood Dale, IL 60191
Ph. 800.456.AUTO(2886)
Fax 800.432.9745
This method helps to explain unpredictable damage, such as a brittle condition of the wood or alternations due to temperature (which might be the cause of summer branch drop), and to distinguish it from damage that can be foreseen. Nature's principle of light structures allows a natural failure rate—even among healthy trees—so as to reduce the costs of the success of the species. There are no promises where tree safety is concerned. VTA compares the safety of the defective tree with that of the defect-free one that could also break in the normal course of events.

VTA inspection proceeds in three stages:

1. Visual inspection for defect symptoms and vitality. If there is no sign of a problem, the investigation is concluded.

2. If a defect is suspected on the basis of symptoms, its presence or absence must be confirmed by a thorough examination.

3. If the defect is confirmed and appears to be the cause for concern, it must be measured and the strength of the remaining part of the tree evaluated. VTA represents a synthesis of the work of many scientists. It is a wonderful opportunity for tree people to embrace a descriptive system, which will allow us to communicate our findings to many diverse constituents.

Those interested in more details on the concept of VTA should obtain a copy of "The Body Language of Trees, A handbook for failure analysis" by Dr. Claus Mattheck. Dr. Mattheck and other VTA practitioners will be giving workshops in the United States in the near future.
The Fastest, Smoothest, Low-Kick Cutting Chain We've Ever Made

Gen. Chuck Yeager (USAF Retired)
Distinguished American and test pilot: Fighter Ace, First aviator to break the sound barrier. Numerous high-performance aircraft records. Consultant to USAF: "I am a long-time Oregon chain user. And the new Vanguard 72V is the right stuff for all my cutting needs. It's on my saws right now."

Vanguard 72V Series is simply the best 3/8-inch-pitch round-ground chisel chain we've ever made for arborists. It's a real performer for arborists who want a higher degree of chainsawing safety, yet value exceptional cutting speed and silky smoothness—attributes that really count in difficult pruning or take-down situations—whether you are up in a tree or in your bucket. This fine-tuned product has won Underwriters Laboratories certification for its low-kick out-of-box qualities.

1. Depth-gauge filing area located by a witness mark.
2. Increased cutter grind radius for excellent out-of-box performance.
3. Increased depth gauge angle for smooth entry into cut.
   - Streamlined depth gauge for improved performance life.
   - Advanced design gives cutters aggressive bite.
   - Wide gullet for greater chip flow.

BECAUSE EVERY CUT COUNTS.
Oregon Cutting Systems Division • Blount Inc. • Portland, Oregon • www.oregonchain.com

Please circle 42 on Reader Service Card
through my traveling years, which continue to this day, I have spoken to hundreds of saw operators, owners, dealers, sales representatives, manufacturer's technical representatives and design engineers. From each of them, I draw new meaning and understanding of the importance of chain saw maintenance. Yet, each of them seems to have his own idea of what maintenance entails, and it's evident that specific, individually designed programs are used by tree care crews. When asked, all quickly explain what they do and when they perform maintenance on their equipment.

Despite the diversity of programs, two types of maintenance systems seem to float to the top:

1. "We don't run junk! - If this saw doesn't work for us, we replace it with something that will. We've been in business a long while and we can't make a living with junk."

2. "We keep spares! - We can't afford downtime, so we have three new saws in our storage room."

These are wise thoughts and profitable ... to a point. From a practical standpoint, however, there are slight problems in implementing both of these viewpoints. When does a saw or piece of equipment become junk? There is a fine line between junk and a saw that is better off repaired than replaced. Why is a saw junk? If we can run the saw another week, would it provide more profits to apply to the new purchase?

As for the sound notion of keeping spares, if you have three spare saws in the shop, how many do you have to maintain? One or four?

Some have questioned whether a maintenance program is even needed for the chain saws of today. It seems that if technology is on the rise, maintenance requirements should be on the decline. To a certain extent this is true. The developments in chain saw and other two-cycle technology over the past few years have eliminated a lot of routine maintenance. The ignition, carburetor, de-carboning of ports, rubber and plastic parts all require less attention than in years past. Maintenance time demands, though, are still about the same for the operator or serviceman.

What Is Chain Saw Maintenance?

By Tim Ard
Let's look at a few reasons for today's maintenance requirements. Many are the same as in the units of yesterday, only amplified:

- Higher RPM's
- Higher Filter Requirements and Wear
- More Critical Adjustments

The key to a good maintenance system is the evaluation of your saw operations. This system, which I call the "RDT" system, stands for Reduced Down Time. A repair is not the largest expense of a failure. It's the downtime that costs when an accident occurs or production is lost. "RDT" is the overall goal of any preventive maintenance program.

The place to start setting up a system is to do a quick study of the situation. Some of the areas to observe are:

1. How many working hours are placed on the units daily? You should not be concerned with workday hours, but production hours. Your saws are not running during lunch or during the commute between jobs. For an effective system, you need actual working, production hours. To get this, use a stopwatch and measure the actual time the unit is running in an hour (this can also be done by monitoring fuel tanks). In most cases, you will find no more than 45 minutes of run time per hour. This reduces the actual run time total for a ten-hour day to 7.5 hours.

2. Track the total number of hours per week from the time study. Formalize a system for recording the hours so they can be kept on a running total basis.

3. Check the running condition the units have been working in. Are they operating in areas with excessive dirt, deadwood dust and abrasive conditions, such as sandy soils or where heavy equipment is causing excessive dust?

4. Notice signs of wear on the units' sprockets, chains and guide bars. What components have been replaced most frequently? What have been your highest costs to date? Are filters and hoses the most frequent and costliest, or are cylinders and pistons the most frequent repairs? Maybe replacement of small items can eliminate some of the major repairs. Are small things—such as starter repairs and screws, nuts and bolts—causing missed production?

5. Use a stopwatch to time some average cuts throughout the working day. Are the times staying consistent? Are the chains running dull? Dull chains wear guide bars and chain sprockets. They also cause powder sawdust that plugs filters and add vibrations that affect bearings and seals. Most of all, dull chains add to the operator fatigue. Many of these items hamper production and can affect operator safety.

This information can be compiled to help you understand when and why preventative maintenance needs to be performed. I would suggest that a systematic cleanup and checkup be performed on all units. This starts with a daily inspection.

Check Daily
- Safety Features
- Missing Parts
- Starter
- Lubrication
- Air Filter
- Saw Chain
- Engine & Chain Adjustments

Crosscheck all your ideas with your owner's manual, which is also a great place to look for important maintenance concerns for your specific saw.

Over the next couple articles I hope to delve into more specifics of these maintenance areas, especially saw chain. If you have any comments or questions, you can reach me at my Web site: www.forestapps.com or email me at timard@forestapps.com.

Tim Ard, a nationally known chain saw safety and applications instructor, is president of Forest Applications Training, Inc., in Hiram, Ga.
Ergonomics-Focus on Senate

Tree care industry employers won a small victory with the passage of a House bill to delay the controversial OSHA Ergonomics standard until a Congressionally funded study is completed on the relationship between ergonomic injuries and workplace exposure.

The issue now moves to the Senate where GOP leaders are discussing whether to press forward on a companion bill or simply attach the bill to one of several "must pass" bills that are expected to survive presidential veto.

On Aug. 3, the House passed HR 987, introduced by Rep. Roy Blunt (R-MO), by a vote of 217-209. With time running out on the 106th Congress, some observers predict the measure will either be brought directly to the floor or attached to another measure such as the pending labor-related appropriations bill. The Senate bill, S.1070 introduced by Senator Christopher Bond (R-MO), has 44 Republican co-sponsors and not a single Democratic co-sponsor.

Any attempt to attach such language to the fiscal 2000 spending bill would be opposed by labor unions and the Clinton administration. They will argue that the GOP agreed last year to stop using spending bills for that purpose, a tactic which has been successful in blocking the ergonomics rule since 1994. Opponents argue that only the House made such a pledge and the Senate is not bound by it.

The issue is complicated by the fact that the spending bill in question, which would fund the Departments of Labor, Health and Human Services and Education, is perhaps the most controversial of the 13 annual appropriations bills. It has essentially stalled in both chambers and many observers predict that Congress will ultimately return to a familiar pattern of negotiating a last-minute omnibus spending bill.

Since both Congress and the president signed the bill last year to provide $890,000 for the ergonomics study to be completed in 2001, it only makes sense to wait until the facts come in before OSHA moves forward. The Senate bill was referred to a House Committee for markup on May 18.

Bill Status: Sponsored by Rep. Thomas Petri (R-WI), HR 1459 is supported by the Voluntary Protection Program Participants' Association, which represents companies certified by OSHA for the program. The bill was referred to the House Education and the Workforce Subcommittee on May 6. In the Senate, there is no comparable bill. However, S.385 sponsored by Sen. Michael Enzi (R-WY) would codify the program under Section 9 of the bill.

Outlook: The House bill is relatively non-controversial. In the Senate, it is questionable whether Enzi can move his bill to the floor. The administration is expected to support VPP codification with some modification though it opposes the overall Enzi measure.

Peter Gerstenberger is director of business, safety & education for the National Arborist Association.

See us at TCI EXPO '99!

Your NEW #1 Source For All your Arborist Supplies!

Featuring Quality Products From

SANDVIK

ARBOR DIRECT, LLC
P.O. Box 95
Newfane, NY 14108
phone: (716) 778-7021
tax: (716) 778-5568
http://www.arbordirect.com

Call Today Toll Free
1-877-796-5999

See us at TCI EXPO '99!

Please circle 6 on Reader Service Card
The bright summer sun glistened off the Widow Carter's powder blue Ford Fairlane as she slowly made her way out of the downtown area. Her groceries and staples had been carefully nestled in the trunk of her car by the fine young boxboy at the local market, and she had carefully planned her route home to avoid any last-moving traffic or distractions.

Just then, disaster struck! As the Widow crested the Old Oak Hill at 35 mph on her final stretch home, she suddenly came upon a warning sign and a collection of orange cones obstructing the roadway. Barely able to read the sign, the Widow stopped - DEAD - in the middle of the roadway, clogging traffic for a solid mile behind her. Tempers flaring, horns blaring, the outraged motorists administered all the usual gestures and verbal assaults that one might expect in such a situation. Unable to tolerate even the slightest change in her normal routine, the Widow Carter sat quivering beneath a barrage of insults (like a porcupine in a balloon factory) trying to determine what to do.

What person or people could have created such a mess? That's right, you guessed it - Max Bunyan! What started off so innocently, turned out to be tragically miscalculated. But, how? The cones were out, the signs were in place. How could these actions have turned the job upside down?

One of the most overlooked skills in the arboriculture industry is traffic and pedestrian control. The practice actually involves the safety of the crews working on the side of the road with cars speeding by, and pedestrians, bicyclists, joggers, mothers with newborn babies and strollers, and even children who, like the Widow Carter, may not be able to read warning signs.

Such a situation is a unique opportunity for the tree care professional to take control in order to minimize potential danger. The key here is to provide ADVANCE WARNING to people "visiting" the job site. Most just want to get by with as little inconvenience as possible.

ANSI Z133-1994, 3.4.1. provides:
"Effective means for control of pedestrian and vehicular traffic shall be in instituted on every job where necessary following U.S. Dept. of Transportation (DOT) Standards and Guidelines - Work Zone Traffic Controls, or applicable state/local laws and regulations."

It is also a good idea to maintain eye contact between climbers and ground personnel. This will forewarn the impending "headache" plunging earthbound. Since Z133 requires:
"Where brush may fall upon or be carried across a sidewalk, signs SHALL be placed on either side of the work area so as to close of the sidewalk to pedestrians."

Remember that these guidelines are designed for your safety, and the safety of the public.

"Max Bunyan"

**Cones & Signs**

By: Jeffrey Lee, Branch Management, Riverside, CA (909) 276-8060
Branch Management—specializing in educational programs and training for the tree care professional

Sponsored by The Bishop Company for the advancement of our industry.

The durable Zephyr portable sign stand is constructed of a steel plate molded into a recycled rubber base (38 lbs.) with built in carry handles for ease of placement. Set up is a snap, simply release and raise the mast, insert the corner pocket of the sign into the mast and your ready to go (signs must be equipped with plastic corner pockets standard on all our new signs or retrofit your existing signs.) Sign frames flex to spill wind without the use of springs.

If simplicity, durability, and ease of use aren't enough to get your attention, check out the Zephyr's low profile for ease of storage and stacking (only 4" tall when folded.)

**To Order Call...**

**Bishop Company**
1-800-421-4833
24 hr. FAX: 562-698-2238
Se habla Espahol, Jerry Araya, ext. 350, Manny Ebronaga, ext. 350, Keith, ext. 220, or Jack, ext. 110

New FREE 50th Anniversary Catalog
160 pages plus complete price list.

**Zephyr Portable Sign Stand**
Model 26000ZRS
Sign stand only ....................... $71.00 ea.

Model 26036HFZ H.D.
36" Frame assembly ...................... (38 lbs.) $14.25 ea.

All Stock 36" Mesh Sign with plastic corner pockets. SALE PRICE .......... $29.86 ea.

Offer expires November 30, 1999

For the Next Millennium— All Of Your Arborist Needs

Please circle 11 on Reader Service Card
An island waiting to be discovered ... by you!

With so much to discover in Bermuda, you will never wonder what to do, just how to find enough time to do it all! We have several exciting activities planned as part of the NAA’s Winter Management Conference to help you discover the spirit of Bermuda.

On Wednesday, Feb. 16, 2000, why not try a cooking and tasting demonstration of Bermudan cuisine, which is a melting pot of ethnic influence. Join us as we venture into the capital city of Hamilton for a cooking experience with one on Bermuda’s best. Savor each bite and make your mouth happy with the incredibly delectable foods prepared right before your eyes. You will enjoy your morning at the cooking class, where one of Bermuda’s culinary artists will demonstrate cooking techniques and share cooking tips. Following the demonstration and preparation, these delicious dishes will be served for lunch.

A Bermudan cooking class where the reward for attendance is lunch.

On the schedule for Thursday, Feb. 17, is a Historic Homes & Gardens Tours. We have convinced some of Bermuda’s most prestigious residents to open the doors to their private homes for your viewing pleasure. These homes are steeped in history and elegance and surrounded by beautiful gardens and picturesque views. Don’t miss this opportunity to enjoy the sights of island splendor!

Perhaps you would like a more vigorous afternoon on one of Bermuda’s many golf courses. The island has more acreage dedicated to golf per square mile than anywhere in the world. The world-class golf courses have one hazard few others can claim—arresting beauty. Babe Ruth, Winston Churchill, Harold Macmillan, President Eisenhower, the Duke of Windsor and President Bush are just a few dignitaries who have been challenged by links designed by such notables as Robert Trent Jones, Charles Banks and Charles Blair MacDonald.

This year the National Arborist Foundation welcomes you to a Thursday afternoon of relaxation and friendly competition at the Port Royal Golf Course. Situated among some of Bermuda’s most lush and beautiful ocean-side terrain, Port Royal is a very popular and challenging golf course. No matter where you look, the genius of architect Robert Trent Jones is evident.

If you like a challenge and are a serious fisherman, you might want to angle for a position on the Reef and Deep Sea Fishing Trip, also scheduled for Thursday afternoon. Your destination will be Bermuda’s outer reef where the big fish...
lurk, waiting for your best cast. There are a few marlin, but most likely you will come across other challenging fighters, like sailfish, tuna and the "speed merchant of the ocean" - the wahoo. These fish weigh between 25 and 500 pounds, and you'll never know what's tugging at your line until it breaks the surface.

We've checked the maps and charted the course for a Sunset Harbor Cruise on Friday, Feb. 19. Set aside this time to join us on the Lady Tamara as we set sail in search of the magnificent Bermuda sunset. Relax as we cruise through Bermuda's historic harbor under moonlit skies. Enjoy hors d'oeuvres and a cash bar while renewing old friendships and meeting new NAA members.

If you find you have leisure time on your hands and are not quite sure what to do with it, the following are a few things to discover by yourself.

**Gibbs Lighthouse:** See all of Bermuda's 21 square miles from the top of this landmark. Rising 362 feet above sea level, the Parish Lantern atop Gibbs Hill in Southampton began warning ships in 1846.

**Somerset Bridge:** Take in the smallest details between Ely's Harbour and the Great Sound, where you'll find the smallest drawbridge in the world. Its draw (formerly only 22 inches) actually used to be opened by hand, allowing sailboats to pass through.

**Unfinished Church:** Spend a leisurely morning or afternoon wandering the historic eastern town of St. George. There you will come upon the haunting skeleton of the unfinished church. This half-constructed Gothic Church, begun in 1874 to replace St. Peter's Church, was abandoned due to a series of mishaps - natural and man-made.

**Spittal Pond:** Within Bermuda's largest nature reserve are two unsolved mysteries. At the end of the winding trail to Spanish Rock is a bronze plaque with the cryptic inscription: TF 1543. Many believe that the original was carved in stone by an early Portuguese discoverer. Not far away, longtails nest in the cliff face high above the surf. Deeply etched on the rock ledge is a checkerboard large enough to accommodate human-sized chess pieces. No one knows how it got there.

**Crystal Caves:** Bermuda has one of the highest concentrations of limestone caves in the world. Most of the cave-making activity began during the Pleistocene Ice Age. As early as 1623, the adventurer Captain John Smith remarked that he had encountered "very strange, dark caves." Deep in the earth's interior, you can roam in caverns of great stalactites and stalagmites.

Other sites you will not want to miss are the Royal Naval Dockyards, the Botanical Gardens and Bermuda Perfumery.

For more information about the National Arborist Association's Winter Management Conference 2000, call 1-800-733-2622.

A view of the fifteenth fairway at Port Royal Golf Course.
Back in 1992, the organizers of TCI EXPO placed a 30-foot tree and two expert climbers in the center of its trade show floor, starting a tradition that would be carried on each year, even inspiring spin-off presentations at other green industry shows around the United States.

Demonstrations at the “EXPO Tree” were exciting, educational and fun. The concept behind the tree was simple: create more value in the trade show at no additional cost to the attendee, and you create a better overall show.

While you won’t see a tree at TCI EXPO ’99 in Indianapolis, EXPO organizers will carry on the tradition of a value-added trade show by introducing a new feature: Arborist Skills Training. Again, there is a simple underlying concept—one tends to learn more by doing. Instead of watching someone footlock climb, this year, if you are so inclined, you will actually put on a saddle and practice the technique under the tutelage of some of best climbers in the world!

Take a look at the diverse subjects offered in the Skills Training schedule below. We are sure you will find something of interest to you or your associates.

Sign-up for Arborist Skills Training will take place at EXPO only, and is first come, first served. Those who sign up will be eligible for ISA Certified Arborist CEUs. Best of all, in keeping with the tradition of added value at TCI EXPO, there is no additional cost for this training.

Demo Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>11:00</td>
<td>Rope Applications – Demo Area 2</td>
</tr>
<tr>
<td>1:00</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>2:30</td>
<td>Lightning Protection – Demo Area 3</td>
</tr>
<tr>
<td>3:00</td>
<td>Chain Saw Field Sharpening &amp; Maintenance – Demo Area 2</td>
</tr>
<tr>
<td>3:30</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>Friday</td>
<td></td>
</tr>
<tr>
<td>11:00</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>11:00</td>
<td>Rope Applications – Demo Area 2</td>
</tr>
<tr>
<td>1:00</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>2:30</td>
<td>Diagnosing Tree Disorders – Demo Area 2</td>
</tr>
<tr>
<td>3:00</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>3:30</td>
<td>Diagnosing Tree Disorders – Demo Area 2</td>
</tr>
<tr>
<td>Saturday</td>
<td></td>
</tr>
<tr>
<td>11:30</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>12:00</td>
<td>Cabling – Demo Area 3</td>
</tr>
<tr>
<td>1:30</td>
<td>Climbing – Demo Area 1</td>
</tr>
<tr>
<td>2:00</td>
<td>Cabling – Demo Area 3</td>
</tr>
</tbody>
</table>

HIGHEST PERFORMANCE TEETH ON THE MARKET

LEONARDI MANUFACTURING COMPANY, INC.

PHONE: 800-537-2552
FAX: 315-834-9220

E-MAIL: leonardimfg@worldnet.att.net

Please circle 32 on Reader Service Card

TREE CARE INDUSTRY - OCTOBER 1999
FIRST TIME EVER
at TCI EXPO ’99

LIVE, Hands-on Training from the BEST

Hands-on training! ...
Sign-up exclusively on-site and on a first-come, first-served basis.
ISA CEUs available for all sessions.
Se habla Español (Spanish instruction is offered in designated arborist skills areas, at specific times).
FREE! Cost is included in the price of admission to the trade show.

Demo Area 1
Climbing

Demo Area 2
Rope Applications
Chain Saw Field Maintenance
Diagnosing Tree Disorders

Demo Area 3
Cabling & Bracing
Lightning Protection

For Trade Show registration and more details call ... 1-800-733-2622
E-mail: naa@natlarb.com
The NAA Student Career Days is growing in excitement and enthusiasm.
At Student Career Days, tree care industry companies look for potential employees while helping to direct the future of arboriculture and present their company as a dynamic industry leader.

Sponsor companies, representing both commercial tree care and the affiliated tree care industry, have been lining up to make NAA Student Career Days at TCI EXPO '99 the most exciting Career Days yet. This is your chance to showcase your dynamic and growing company. The Davey Tree Expert Company was the first to sponsor Student Career Days programs this year. Is your company going to be next?

Students can find the job they are looking for while learning more about tree care and tree care industry. Walk the trade show floor and talk with exhibitors. Attend seminars by some of the top tree care and business experts in the country. Watch live arborist demonstrations right on the trade show floor.

In addition to attending TCI EXPO '99, students can take part in the Jobs and Internship Fair on Friday, Nov. 5 and compete in the Tree Care Skills Competition in Military Park on Saturday, Nov. 6. Students can attend Saturday’s Tree Care Skills Workshops in tree climbing, cabling, throw line, and hazard tree identification for climbers. All events give students a unique opportunity to learn first hand about commercial tree care and find out where they “fit” in this exciting industry.

This year, Arbor Care is sponsoring the Tree Care Skills Competition with support from Davey Tree Experts. These companies have pledged to provide personnel and expertise to help make sure the students participate in an exciting, challenging and safe competition.

Last year, Arbor Care, Davey Tree Experts, and ArborMaster Training set up a fun but challenging course on two different trees. You can be sure this year’s course at Military Park will be just as exciting.

The F.A. Bartlett Tree Expert Company

This year’s preliminary Career Days schedule of events is:

Friday, Nov. 5 at Indiana Convention Center:
11:00 AM – 3:00 PM  Job and Internship Fair
3:00 PM – 6:00 PM  Tree Care Skills Competition begins

Saturday, Nov. 6 at Military Park, Indianapolis (2 blocks from Convention Center):
8:00 AM – 3:00 PM  Tree Care Skills Competition (field events).
10:00 AM – 12:00 PM  Tree Climbing Basics Workshop
11:00 AM – 1:00 PM  Cabling and Bracing Workshop
1:00 PM – 2:00 PM  Hazard Tree Identification for Climbers Workshop
2:00 PM – 3:00 PM  Throw line Basics Workshop
4:00 PM  Awards Ceremony
also jumped on the bandwagon in a big way and will be offering student spectators at the Tree Care Skills Competition a chance to saddle-up and climb trees during various Tree Care Skills Workshops. This will give the students who don’t have a chance to compete an opportunity to climb and use a throw line. Who knows, maybe they’ll discover a future ITCC champion! ArborMaster Training will be helping with the Tree Climbing workshop and Preformed Line Products will offer their own Cabling and Bracing workshop.

In addition, Weaver Leather and the Bishop Company are providing much needed sponsorship to guarantee the high quality of this event—as well as providing product awards to tree care skills champions and student spectators alike!

Kramer Tree Specialists is the latest addition to our list of sponsors and will bring coveted local knowledge and talent to the event. How about your company? No business is too large or too small to get involved. Support the tree care industry by reaching out to its most important resources—future employees!

Don’t miss the NAA’s fourth annual Student Career Days at TCI-EXPO ’99.

Tree care companies should call 1-800-733-2622 to talk to Chris Brown about partnership opportunities at the Tree Care Skills competition and Jobs and Internship Fair. Or ask for Bob Rouse to learn more about exhibiting at the Jobs and Internship Fair. Students and student advisors call 1-800-733-2622 to learn more about attending.

The Awards for the Student Career Days Tree Care Skills Competition are awaiting the winners! Here’s the updated award listing.

**Tree Care Skills Competition overall awards (Tree Care Specialist challenge) are:**
1st Place – ArborMaster Training module (2-day training / $350 value)
2nd Place – Husqvarna 335 XPT top-handle chain saw
3rd Place – 120-foot Blue Streak climbing line from Samson

**Tree Care Apprentice (vocational) challenge:**
1st Place – $100 Gift Certificate from Buckingham Manufacturing
2nd Place – event pole saw with Weaver Leather pole saw scabbard

**Work Climb event:**
1st Place – $100 Gift Certificate from Weaver Leather
2nd Place – event pole saw with Weaver Leather pole saw scabbard

**Throw Line event:**
1st Place – Big Shot line delivery system from Sherrill Arborist Supply
(All competitors in this event receive a free throw-line kit from Weaver Leather.)

**Safety Equipment event:**
1st Place – Husqvarna arborist boots

**Written exam:**
1st Place – 48-inch Friction Saver device from Vermeer Manufacturing Company

---

**YOUR BEST SOURCE FOR USED TREE CARE EQUIPMENT**

**CALL FOR PRICING AND AVAILABILITY**

**SOUTHEASTERN EQUIPMENT COMPANY**
Buford, Georgia
800-487-7089 • 770-271-8286
www.seequipment.com

See us at TCI EXPO '99!
Prescription Fertilization:
Selecting materials and rates

By Dr. E. Thomas Smiley

The ANSI A300 Fertilization Standard for Trees and Shrubs provides guidelines for the types of fertilizers that should be used and the rates at which they should be applied. The Standard correctly assumes the most commonly deficient element in the landscape is nitrogen and the Standard concentrates on this element.

The specific recommendations are that the fertilizer is slow release, that is, at least half of the nitrogen should be in a water insoluble form. Slow-release fertilizers slowly break down in the soil, either by biological activity or the effects of water, releasing small amounts of nitrogen over a long period of time. Slow-release nitrogen has been found to have the least effect on groundwater since it tends to resist leaching from the topsoil. It is also thought to provide the greatest benefit to trees because it can supply nitrogen in relatively constant amounts throughout the growing season.

Choices of slow-release nitrogen products include Nitroform (38% N), IBDU (31% N) and encapsulated products. Nitroform is a synthetic, organic material that releases nitrogen as soil microorganisms consume the carbon in the molecules. Since the dogwood is a common symptom of nitrogen deficiency. Foliar or soil nutrient analysis will determine if other nutrients are deficient as well. Treatment with Prescription Fertilization should be able to remedy the problem.
Release rates are based on biological activity, nitrogen availability corresponds closely to root activity and the potential for plants to absorb the nutrient. Nitroform is available as a powder or granular for either soil injection of dry application.

With IBDU and encapsulated products, the release of nitrogen is based on the amount of water reaching the product. During periods of high rain or irrigation these products will release large amounts of nitrogen, while during droughts, the release rates will be very low. One disadvantage is the potential for nitrogen release during periods of low root absorption.

Controlled-release nitrogen products (30% to 32% N) also have a place in prescription fertilization; however, they are not considered slow-release under the A300 definition. Controlled-release products are liquid forms of nitrogen that adhere to soil particles. This adhesion reduces leaching and keeps them within the plant’s root zone. Nitrogen in controlled-release products is available much more quickly than water-insoluble, slow-release materials. Some slow-release products may last a year or longer in the soil, while controlled-release materials may persist six weeks or less. The major advantage of controlled-release products is they can be used in any type of liquid application equipment, whereas slow-release suspension products require mechanical agitation.

Natural organic forms of nitrogen can
also be used in prescription fertilization. Organic matter must be degraded by microbes before the nitrogen is released. At one time it was thought that organics released their nitrogen slowly over an entire growing season (or longer); however, research has shown that most organic sources release the majority of nitrogen within the first three weeks of application. Organic sources high in nitrogen include activated sewage sludge (6% N), dried blood (13% N) and peat (3% N). With low analysis products, however, much greater volumes must be transported to the job site, which increases transportation and application costs.

The other factor cited in the A300 Standard is Salt Index. This is a relative measure of the salt content of a fertilizer measured by comparing the osmotic potential of the fertilizer against standard sodium nitrate. If the salt level of a fertilizer is too high, it will inhibit water absorption by roots and desiccate root cells. The Standard specifies a maximum salt index of 50. The salt index of Nitroform is 10, while urea is 78. These values indicate that it is much easier to damage trees or shrubs with urea than Nitroform. If you must use fertilizers with high salt indices, they must be distributed properly at lower rates.

Seldom do woody plants exhibit symptoms of phosphorus deficiency. Phosphorus is seen as deficient on poor urban sites that are also deficient in nitrogen and other elements. The selection of a phosphorus fertilizer is based on the need for additional elements in the bag and the desire for a liquid or dry material. Virtually all sources of phosphorus are long lasting in the soil and have very low salt indices. Excessive application of phosphorus can lead to deficiencies in other elements. Good choices for phosphorus fertilizers include superphosphate, monoammonium phosphate and liquid phosphate.

Potassium, like phosphorus, is rarely identified from visual symptoms as being deficient in trees and shrubs. Since this element is important in controlling stomatal closure, it is essential that it is available—especially in drought-prone areas. Salt indices for potassium fertilizer tend to be rather high, ranging from 46 with potassium sulfate (sulfate of potash, 50% to 53% K₂O) to 114 with some potassium chlorides (muriate of potash, 60% to 63% K₂O), so this is an important factor in product selection. All of the common potassium fertilizers are water-soluble and will leach from the soil under certain conditions.

Secondary and micro-elements may be more commonly deficient in some areas than macro-elements listed above. Products, rates and application methods are somewhat different and beyond the scope of this article. The application of these elements must be considered with any prescription fertilization program.

**Application Rates**

Nitrogen application rates are well defined in the A300 Standard. The Standard rate is between two and four pounds, not to exceed six pounds of nitrogen per 1000 square feet. As discussed in the previous Prescription Fertilization article (TCI, August 1999), application rates depend upon the fertilization goal and plant nitrogen levels. A simple matrix containing goals and soil analysis levels is probably the best way to illustrate various nitrogen application rates (Table 1).

Fertilizer prescription. This is an example of a fertilizer prescription produced by proprietary computer software at the Bartlett Tree Research Laboratories for clients of the F.A. Bartlett Tree Expert Co.
Table 1. Nitrogen application rates in pounds per 1000 square feet depending on nitrogen level and goals.

<table>
<thead>
<tr>
<th>Nitrogen Level</th>
<th>Goal</th>
<th>Very low</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintenance</td>
<td>2-4</td>
<td>1-3</td>
<td>0-1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Growth</td>
<td>4-6</td>
<td>2-4</td>
<td>0-2</td>
<td>0-2</td>
</tr>
</tbody>
</table>

Nutrient ranges are provided rather than single values due to specific goals, soil moisture, soil volumes, pest problems, symptoms and nitrogen source—all of which affect the application rate.

How do you convert from pounds of nitrogen to pounds of fertilizer? Use the formula below where \( F = \text{pounds of fertilizer} \), \( N = \text{pounds of nitrogen} \) and \( A = \text{analysis (% N)} \).

\[
F = \frac{N}{A} \times 100
\]

So for a 10% nitrogen fertilizer with a desired application rate of four pounds of nitrogen (\( F = 4/10 \times 100 \)), 40 pounds are required per 1000 square feet. The same formula can be used with any element and fertilizer combination.

Phosphorus and potassium rates are not as clearly defined in the Standard but can be extrapolated from the recommended complete fertilizer (section 8.1.2). As with all nutrient levels, they should be adjusted based on plant response under local conditions. Potassium rates are highly dependent on the soil’s ability to retain the element. This retention capability is called cation exchange capacity (CEC) and is presented on most soil analyses. Guidelines for application are presented in Tables 2 and 3.

Table 2. Phosphorus application rates in pounds \( P_2O_5 \) per 1000 square feet based on analysis results and goal.

<table>
<thead>
<tr>
<th>Phosphorus Level</th>
<th>Goal</th>
<th>Very low</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintenance</td>
<td>1-3</td>
<td>0.5-2</td>
<td>0.25-1</td>
<td>0</td>
</tr>
</tbody>
</table>

Nutrient ranges are provided rather than single values due to specific goals, soil moisture, soil volumes, pest problems, symptoms and phosphorus source; all of which affect the application rate.

Potassium Level

Table 3. Potassium application rates in pounds \( K_2O \) per 1000 square feet based on analysis and goal.

<table>
<thead>
<tr>
<th>Potassium Level</th>
<th>Goal</th>
<th>Very low</th>
<th>Low</th>
<th>Medium</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maintenance</td>
<td>1-3.5</td>
<td>0.5-2</td>
<td>0.1-1</td>
<td>0</td>
</tr>
</tbody>
</table>

Nutrient ranges are provided rather than single values due to specific goals, soil moisture, soil volumes, pest problems, symptoms, CEC, base saturation and levels of other cations and potassium source; all of which affect the application rate.

Conclusion

Prescription fertilization is not always an easy process. It starts with setting goals for the plant and deciding why you need to fertilize, then taking samples of foliage or soil to determine the current nutrient levels, soil pH and cation exchange capacity. This information is then combined to develop fertilizer rates for the plant. Using these techniques will supply the necessary nutrients at proper levels and avoid over-application that can be detrimental to the plant and to the environment.

We are still in the infancy of prescription fertilization. This article tries to combine scientific information with knowledge of fertilization gathered by the Bartlett Tree Research Laboratories to provide a workable guideline for arborists. As prescription fertilization grows, so will our knowledge of what works best on trees and shrubs.

Dr. E. Thomas Smiley is a researcher with Bartlett Tree Research Laboratories in Charlotte, N.C.
A flourishing urban forest is a primary goal of municipal forestry operations. These valuable assets to the community, however, are threatened every day by reckless utility installation construction.

Construction damage is one of the leading causes of premature tree mortality in urban areas. When proper care is not taken, trees are severely damaged by traditional utility installation methods such as excavation and open trenching. Even when careless methods do not kill a tree outright, construction will often cause the tree to suffer extensive root loss, structural trunk damage, and crown damage—transforming the tree into a public safety threat.

Some municipalities are taking an aggressive course of action to prevent tree loss during construction. In Milwaukee, Wisc., the Department of Public Works' Forestry Division has developed a manual titled "Preventing Construction Damage to Municipal Trees," to help stop the unnecessary death of its urban forest. Ken Ottman, past president of the International Society of Arboriculture (ISA) and manager in Milwaukee's forestry division, believes there are three key steps a city can employ to help prevent damage to its trees—intervention, education and consequences.

To avoid tree loss during construction, Milwaukee's forestry division developed rules for utility installation. "We've established buffer areas around each tree," explains Ottman. "Inside this area, no construction material may be stored, no equipment may be operated, and fuels or chemicals are not to be spilled. This buffer
zone varies by tree size and extends 3 to 10 feet from the trunk. By avoiding these areas, we ensure the life of the tree.

"We allow trenching outside the buffer area, but we encourage trenchless technology," continues Ottman. "Any underground facilities to be placed inside the boundaries of these undisturbed areas may only be installed using horizontal directional drilling, tunneling, or augering techniques. Utilities can be installed under the root system and avoid any major root damage."

As one of the three key steps in the protection of a city's urban forest, intervention is most effective at the design stages of a project, adds Ottman. "Each project is looked at beforehand to evaluate any possible tree damage. The education component supports this intervention; planners must be taught some basics about trees. Finally, it is important to have consequences to help ensure the first two steps are taken seriously. Those responsible for damage to trees must be held financially liable for their actions."

A common element overlooked by contractors and engineers but understood by arborists is the arrangement of a tree's root system. "Under ideal conditions, tree roots can extend out from the trunk two to three times the radius of the tree crown or two to three times the height of the tree," says Ottman.

While most arborists understand the structure, depth and breadth of a tree's roots, most construction companies do not. Too often, roots are severed, torn away or crushed during construction, causing serious wounding. Less severe damage may lead to the drying out and death of exposed roots.
Engineers too often view tree root damage as unavoidable. However, advances in the trenchless market are helping many public works authorities begin to see that there is hope in saving tree roots. By using trenchless installation, streets, sidewalks and lawns do not need to be torn up and there is minimal public annoyance.

A recent fiber-optic project reached from Vancouver, B.C., to San Diego, Calif. Two contractors from the Sacramento area installed fiber-optic lines through orchards and farmland in the Sacramento Valley.

"Destroying habitat and vegetation was the environmental impact of open trenching in sensitive areas," explains Jim Patrick, owner of Renaissance Construction, Inc., of Yuba City. "During the project, we used a Vermeer Navigator horizontal directional drill to go through the orchards. We wanted minimal disruption of the vegetation."

Using the Vermeer rig, crews were able to avoid the above-ground disruption and below-ground root damage that open trenching would have caused. "Inspectors came out before we began work in this area. They took pictures and inspected the conditions of the orchards before the installation," relates Billy Corkern, foreman for Manuel Brothers, Inc., of Grass Valley, Calif. "We had to drill in these areas because any disruption to the orchards would have lead to fines and caused future permit problems."

The economics of an installation are also very important to the forestry division in Milwaukee. "We try to figure out all the economics of the entire installation," says Ottman, "but our job is to protect the tree. We are trying to keep everyone happy and the trees alive."

The horizontal directional boring unit pilot bores a path underground. Without affecting surface structures, the horizontal directional drill creates a path determined by the operator for
When you get serious about stump cutting...

Quick Change Dual or Extra Grip Tires

Smooth cutting hydrostatics

...it is time for a RAYCO RG50

The World's Most Complete Line of High Performance Stump Cutters.

Call 1-800-392-2686

RAYCO
“The Stump Cutter People”
How Tunneling Saves Trees

Trench 40% Root Kill

Tunnel No Root Kill

1-800-94-ARBOR (27267)

The ONLY number you need to remember for...

Saddles - Climbers - Rope - Safety Equipment
Carabiners - Hand Saws & Pruners - Hand Tools
Educational Books - Power Tools - Protective Clothing
Rigging Equipment - Chippers & Stump Grinders
Pole Pruners & Saws - Scabbards - Snaps and more...

NEW ENGLAND - SAMSON - PELTOR - ELVEK - WESCO
BUCKINGHAM - KLEIN - STRINGER BROOKS - BASHLIN

Watch for our NEW Revised Catalog

MC / VISA / DISCOVER accepted

WESTERN TREE EQUIPMENT & REPAIRS

Please circle 7 on Reader Service Card

Finally, a good reason to wear pants.

See us at TCI EXPO '99!

Treat yourself or your employees to industrial apparel that wears like iron, but doesn't compromise freedom of movement or comfort.

Arborwear
The Original Tree Climber's Gear
Toll Free: 888-578-TREE (8733)
visit our web site at www.arborwear.com
or email us at info@arborwear.com
PO box 341, Chagrin Falls, OH 44022

Please circle 61 on Reader Service Card

44
The use of horizontal directional drilling and pneumatic tools by contractors servicing municipalities is growing. In West Memphis, Ark., crews used a Vermeer Hammerhead Mole pipe-bursting system to replace 460 feet of sewer lines. By using the Vermeer pipe bursting system, crewmembers were able to avoid disruption to streets, sidewalks and trees—both above and below ground.

"With horizontal directional drilling, contractors can avoid additional costs by getting under the roots," stresses Ottman. "By mandating that contractors use trenchless technology, we can avoid any problems with severed roots. When roots are severed, it not only kills the root at that spot but everything beyond it, too. Contractors may be cutting off roots that extend out to 75 feet. This can have huge impact on the well-being of the tree."

Milwaukee is doing everything it can to help maintain its urban forest. With personnel specifically assigned to inspect and monitor construction zones, the program is proving to be a success.

"The forestry division reports to the commissioner of public works," notes Ottman. "We are one of five operating divisions that make up Milwaukee's Department of Public Works, and we sit at the same table as the other public works authorities. By having this operating structure, we can all work together to get utility installations accomplished and protect the trees."

For years, municipal officials have assumed that tree removal is a sacrifice they have to live with in order to move forward with utility updates. Now, with advancements in utility installation equipment like horizontal directional drills and pneumatic pipe bursting tools, other cities can follow Milwaukee's lead.

Milwaukee Department of Public Works, Forestry Division's manual, "Preventing Construction Damage to Municipal Trees," can be purchased for $28 (including shipping). Contact the City of Milwaukee Forestry Division, 841 North Broadway, Room 804, Milwaukee, WI 53202, for more information.
HELP WANTED

Established Tree Service Company seeking to employ experienced climbers and arboriculture-related persons. Daily work consists of supervising ground crew for small and growing tree service. Located north of Boston. Year-round, full-time employment. Send resume to Westford Tree Service, PO Box 1081, Westford, MA 01886, or call 978-692-8050.

Climbers, 25-year established, premier company in Clearwater, Florida is seeking experienced climbers. Certification preferred. Drug-free workplace. Please fax resume to (727) 507-TREE (8733) or call us Monday to Friday, 7 a.m. to 5 p.m. at (727) 535-9770. Westenberger Tree Service, Inc. 2030 58th Street North, Clearwater, FL 33760.

FLORAPERSONNEL INC. In our second decade of performing confidential key employee searches for the landscape/tree industry and allied trades worldwide. Retained basis only. Candidate contact welcome, confidential, and always free. 1740 Lake Markham Rd., Sanford, FL 32771. Phone (407) 320-8177. Fax (407) 320-8083.

Expanding - Planned opening of two new offices in Chicagoland area. Great opportunity with established, North Shore arboriculture company. Qualified applicants must have experience in arboricultural or related green industry. We offer competitive wages and benefits including medical and paid holidays/vacations, profit sharing.

Sales/Operations Manager
Tree Climber/Foreman
Plant Health Care Technician
Autumn Tree Care Experts, Inc.
2091 Johns Court
Glenview, IL 60025
847/729-1963 Office
847/729-1966 Fax

Why choose SavATree?

CUTTING
EDGE

SavATree utilizes the latest arboricultural techniques, state of the art equipment, exclusive products and fully customized solutions to provide tree, shrub and lawn care to residential and commercial properties throughout the northeast.

To be on the cutting edge, call SavATree.

Phone: (800) 666-4873, ext. 153
Fax: (914) 666-5843
Visit our website!

Commercial Wood Processing Equipment
For the Tree Care Industry
1-800-340-4386

118 Spruce Street
Rutland, VT 05701
E-mail: twolf@sover.net
www.timberwolfcorp.com
www.vallpro.com

See us at TCI EXPO '99!

Please circle 49 on Reader Service Card

Please circle 58 on Reader Service Card
A great opportunity in Fort Lauderdale, Florida
Climber experienced with rope and saddle needed for established company. Year-round work, good pay and benefits. Call or send resume to:
Tree Trimmers & Assoc. Inc.
566 NE 42nd Ct.
Fort Lauderdale, FL 33334
954-561-9514 (phone)
954-561-9550 (fax)
Wayhoyt@aol.com (E-mail)

Help Wanted
Climber and/or crewleader climber needed. Above average pay, co-pay health insurance, co-pay retirement account, paid vacation + holidays, education, conferences, seminars. Racine, Wisconsin on the shore of Lake Michigan offers 4 seasons of activities and the culture of nearby Milwaukee and Chicago. Small, close knit company of tree caring professionals and a humanist attitude. Contact Brian Cassity at Cassity Tree Service, PO Box 232, Franksville, Wisconsin 53126. Tel: 414-886-5224.

Fairfield County, CT - Growing company with over 20 years impeccable tree care experience is looking for quality-oriented individuals to join our staff. Experienced and professional candidates are needed. Responsibilities would include tree removal, cabling and bracing, truck and equipment maintenance. Supervisory positions are available. Excellent compensation, paid vacation/holidays, medical benefits, including dental and pension plan. We offer a drug-free environment. Please contact O'Neill's Tree Care, Inc., PO Box 2387, Darien, CT 06820, (203) 655-7665 or fax resume to (203) 327-5455.

Experienced Tree Care Specialists - Chicago North Shore. Full service tree care and landscape firm serving exclusive, residential clients has various positions in management & production. Superior compensation & benefits package. Contact Robert Kinnucan at: 28877 Nagel Court, Lake Bluff, IL 60044. Tel: (847)234-5327; Fax: (847)234-3260.

Arbor-Nomics
ARBOR-NOMICS, INC. in Atlanta, GA is now hiring Climbers and Foremen. We offer top pay and benefits. No drugs, DUI's or felonies. Send resume to 585 Langford Lane, Norcross, GA 30071 or fax 770-448-4804, or call Dick Bare at 770-447-6037.

Hawaii - Tree Climber. Applicant MUST have a minimum of 5 years climbing (which includes pruning, shaping, rigging, take downs and removals) and experience working with cranes. Line clearance experience would be helpful. Pay starts at $18.00 per hour but is based on experience. Benefits include paid medical and dental insurance, paid federal holidays, vacation pay, 401(k) pension plan and a profit sharing plan. Send resume with salary history and employment references to:
Jacunski's Complete Tree Service, Inc.
P.O. Box 4513, Hilo, Hawaii 96720.
Phone: (808) 959-5868
Fax: (808) 959-0597

FORESTRY BODY BUILDERS SINCE 1944
Capacity From 12-2/3 to 35 Cubic Yards!

STANDARD FEATURES:
• 60" in Height
• Double Panel Tailgate
• 3 Die-Formed Corrugations in Front and Side Panels
• All Galvanneal Construction
• 40% More Welding for Added Strength

• Quality Sherwin Williams Acrylic Finish
• High Security Lock Rods on Tool Box Doors
• Chassis Available....And More!

OPTIONS:
Removable Aluminum Roof • Dump-Thru Lift Gate
• Customized Heights • Extra Tool Boxes

SCHODORF
885 Harmon Avenue, Columbus, OH 43223
Call Mike Cassidy at: 1-800-288-0992

VEGETATION CONTROL
Chemical Sales Representative
Come join one of the largest Vegetation Management Companies in the United States
DeAngelo Brothers, Inc. has immediate openings for Chemical Sales Representatives throughout the United States.
Responsibilities include direct marketing of DBI's full product line of chemicals and related equipment throughout a regional territory. Horticulture or related degree desired, with a working knowledge of Vegetation Management Chemicals. (Minimum two years experience.) Qualified applicant must have strong interpersonal and communication skills. Applicants will work out of a DBI Regional Office and must enjoy travel. We offer an excellent salary and benefits package, including 401(k) and company paid medical coverage.

Please forward resume for confidential consideration, and include salary history and geographic preference in cover letter. Send or fax resumes to:
DeAngelo Brothers, Inc.
Attn: Charles Sizer
100 N. Conaham Dr.
Hazleton, PA 18201
Fax: 570-459-5500
EOE/AAP/M-F

Please circle 19 on Reader Service Card
Exciting Career Opportunity for Tree Trimming Personnel

DeAngelo Brothers, Inc., is a vegetation management company with five (5) regional U.S. offices servicing railroads, utilities, industries and State departments of transportation for the last twenty years. There is an immediate need for the following positions in our Chicago Region:

- Division Manager w/5+ years experience
- Climbers-Class I and II
- Foreman and Bucket Operators
- Tractor Operators

CDL License, experience in arboriculture, urban forestry or related fields a plus. We offer excellent starting wages, company benefits, excellent working conditions and the opportunity for year-round work. For a confidential interview, mail or fax your resume to: DeAngelo Brothers, Inc., 8450 West 191st Street, Mokena, IL 60448. Attn: Mike Harvey. Phone: 815-464-9862; Fax: 815-464-7152.

EOE/AAP/M-F

Great attitudes wanted to help us complete our team. We are located in the North Shore area of the Chicago suburbs. Roles needing to be filled for this growing Hendricksen, the Care of Trees District are: Assistant District Manager, Spray Technicians, Experienced Climbers, as well as entry-level positions. If interested in applying to become part of our team, please respond to Jim Matkovich at (847) 918-8749. Please fax your resume to (847) 918-7033 or e-mail to: lakebluff@careoftrees.com

Work Hard, Make Money!

The Almstead Tree Company is located in one of the best markets in the country. We have immediate openings for:

- Branch Managers • Arborists
- PHC Technicians • Tree Climbers

Great salary, great benefits, great people... Why Wait? Send resume to: Kevin Rooney, Regional Manager 58 Beechwood Ave., New Rochelle NY 10801 1-800-427-1900 Fax: 914-576-5448 Email: atc@bestweb.net Internet: www.almstead.com

... continued on page 50
STUMP CUTTERS

2500-4
- 25 Horsepower • Self Propelled
- Full Hydraulic Control • 35” Width

3500
- 35 Horsepower • Compact Tow Behind • Large Cutting Dimensions

3500-4
- 35 Horsepower • 35” Width
- Self Propelled

4400-4
- 44 Horsepower Diesel • Remote Control Available • Most Powerful Portable

7500
- 75 HP Diesel • 1 1/2” Thick 31” Diameter Cutterwheel • Suspension Available • Remote Control Available

Hurricane
- 125 Horsepower Diesel • 6’ Tongue Extension • Suspension Standard • Remote Control

See us at TCI EXPO ’99!

J.P. Carlton builds the highest quality stump cutters available. For more information, or to arrange a demonstration call: (800) 243-9335.

121 John Dodd Road • Spartanburg, South Carolina 29303
800-243-9335 / 864-578-9335 • FAX 864-578-0210
We have a passion for trees. Do you?

ARBOR CARE, a high-quality, customer service-driven company performing technical tree management has new career opportunities available in the following locations: California, Arizona, Florida, Georgia, and North Carolina.

Positions include:
- Regional Service Line Manager
- Service Line Managers
- Business Developers
- Crew Leaders
- Arborists

Come visit us at TCI Expo

ARBOR CARE
an ENVIRONMENTAL CARE company
A passion for perfection.™
I-888-OUR-TEAM
www.envcare.com

CALL US FOR YOUR BEST CHOICE OF PRE-OWNED EQUIPMENT
1-800-597-8283

60' wh Altec LR33 Forestry Packages mounted on '90-'95 GMC Topkicks also available.

60' wh Altec LR33 Forestry Packages mounted on a 1989 GMC 67.230 miles, 5/2 trans, 7000, diesel, 29,860 GVW. Brand New. Mounted on an 1986 GMC rear-mount flatbed.

55' w.h. Aerial Lift of CT, rear mount, flatbed, cab guard, 84 CA, custom built on diesel or gas chassis. Many to choose from.


70' w.h. Hi-Ranger 6H-65PBL Cab guard, util. body can be made into flatbed. Mounted on an '89 GMC 570 transmission. Beautiful. Can be made into 70' boom w/5.5-foot-long grapple, 16'3" long box on a 1986 Ford Cab over guard, rear mount winch up. Many to choose from.

55' w.h. Aerial Lift of CT, rear mount, flatbed, cab guard. 55' w.h. Aerial Lift of CT, rear mount, flatbed, cab guard, 1990-1997 Fords, gas or diesel.


55' w.h. Aerial Lift of CT, rear mount, flatbed, cab guard. 84 CA, custom built on diesel or gas chassis. Many to choose from.


55' w.h. Asplundh LR50, GMC Topkick, 1990-1991, Kubota pony engines. Large selection available. Please circle 43 on Reader Service Card

FINANCING • LEASING • RENTALS
RENTAL/PURCHASE OPTION

Pete Mainka Enterprises, Inc.
633 Celia Drive • Pewaukee, WI • 53072
Phone: 414-691-4306
Night Phone: 414-968-9763
30 years of Success
Specializing in Pre-Owned Equipment

Please circle 5 on Reader Service Card

Tree climber/Foreman
Nationally recognized, ranked 17th, full service landscape, irrigation, maintenance & tree care company in rapidly growing South/Central New Jersey is seeking career minded, skilled and highly motivated professionals for our expanding Tree Care Division. Forward resume & salary requirements to Katy Kelly, HR Mgr. Lipinski Landscape & Irrigation Contractors, Inc. PO Box 605, Mt laurel, NJ 08054. Fax: 856-234-0206. Email: katy@lipinskiland.com

Climbers and Lift Operators
Established and growing tree-care firm seeking experienced tree trimmers to help us continue our growth. Prefer enthusiastic and hardworking self-starters with proven leadership abilities. Arborist certification a plus. We offer competitive pay, medical and dental insurance, paid vacation, profit sharing, and 401(k) retirement plan. Please send resume and cover letter to Grover Landscape Services, Inc., 2825 Kiernan Avenue, Modesto, CA 95356, or call 800-585-4401.

Central NJ: Climber/Line Clearance Professional
Expanding company seeks in charge type individual w/ CDL license to join our positive working environment. Able to offer quality customer service. Must be drug free and have knowledge of and abide by safety standards. Good growth opportunity. We offer competitive salary, incentive plans and medical benefits available. Contact L. Ward at Elite Tree Service, Toll Free phone (888)247-9745. Fax(732)264-5660. Email: ELITETREE@AOL.COM

SALES: Looking for self-motivated outside sales people to promote Bucket Truck sales in West, CT. Helpful to have outside sales/computer literate/hydraulic equipment operator background. Excellent compensation program. Send resume to C.U.E.S. Inc., 14 Caldwell Drive, Amherst, NH 03031. Fax: 603-886-5909.

Established Tree Care and Landscape firm located just minutes east of St. Louis, Mo. is seeking working foreman to be in charge of operations of tree care. Must have a min. of 5 years climbing exp. Send resume with salary history and work refer. to 8710 Old St. Louis Rd., Belleville, IL 62223 or call (618) 538-5949.

Established tree care company in Berkeley, CA looking for Certified Arborist with climbing experience. We offer competitive wages and a good benefit package. Location consideration. The Professional Tree Care Company., PO Box 2559, Berkeley, CA 94709. 510-549-3954.
**Hawaii - Foreman.** Applicant would be in charge of operations, which includes but is not limited to: estimating, planning jobs, scheduling jobs and supervising crews. You MUST be a certified arborist with knowledge of disease diagnosis and fertilization and have a CDL driver's license. You MUST have a minimum of 5 years climbing (which includes pruning, shaping, rigging, take downs and removals), 5 years utility line clearance and experience working with cranes. Pay starts at $18.00 per hour but is based on experience. Benefits include paid medical and dental insurance, paid federal holidays, vacation pay, 401(k) pension plan and a profit sharing plan. Send resume with salary history and employment references to: Jacunski's Complete Tree Service, Inc. P.O. Box 4513, Hilo, Hawaii 96720. Phone: (808) 959-5868 Fax: (808) 959-0597

**POSITION OPENING**

**SALES REPRESENTATIVE**

Come join our well known and continually growing organization. We are a full service tree care, landscaping & turf maintenance company based in the Philadelphia area. We are offering a motivated individual the opportunity to grow with our progressive company managing, supervising and developing work for new clients. We will compensate the successful candidate with a guaranteed weekly salary for a 6 month training period, thereafter a weekly draw against commissions. Benefits include a monthly auto allowance, pension & 401K plan, vacation, choice of medical plans and all other benefits specified in the company Policies, Procedures and Benefits document. B.S. or higher degree in environmental field preferred, but not essential. For further information, please contact:

Jeanne Houser, General Manager McFarland Landscape Services, Inc. 255 West Tulpehocken Street Philadelphia, PA 19144-3297 Phone: 215-438-3970 Fax: 215-438-1879 E-Mail: mcfarland@onrampcom.com

**LOWEST PRICES ON THE MARKET**

G & A EQUIPMENT, INC. See us at TCI EXPO '99! 1-800-856-8261 KNOXVILLE, TN EVENINGS: 1-423-986-0905

60' w.h. TECO on 1990 GMC, gas, auto. **$32,000**

55' w.h. Altec buckets. Five to choose from. Starting at **$18,500**

53' w.h. Hi-Rangers. Diesels, 1985-1987. Starting at **$25,000**

1988-1992 Chip Trucks. 9 avail. Gas & diesel starting at **$10,800**

46' w.h. Reach-All on 1985 Ford, 3208 CAT diesel, auto, air cond. **$16,500**

37' w.h. Lift-All on 1991 Super Duty, 7.3 Int'l diesel **$20,500**

40' w.h. Hi-Ranger on 1987 Int'l diesel. **$17,900**

42' w.h. Lift-All on 1989 Chevy, 8.2 DET diesel, auto. **$16,500**

Home of the Indy 500 and Brickyard 400 Professional Tree Care Company in Indianapolis, this is highly respected and well established with over 26 years of service. Has year round work with overtime pay. Top wages, benefits include medical, paid holidays, vacations, life insurance. Our company is looking for highly qualified bucket operator/climber with minimum of 5 years commercial and residential experience. Company will help relocate successful candidate. Contact Phil or Stephanie Ping 1-317-298-8482
EXCITING CAREER OPPORTUNITIES FOR SERVICE INDUSTRY MANAGERS

Come Join One of the Largest Vegetation Management Companies in the United States

DeAngelo Brothers, Inc. is experiencing tremendous growth throughout the country, creating the following openings:

Branch Managers
(Various locations throughout the USA)

Responsible for managing day-to-day operations, including the supervision of field personnel. Business/Horticultural degree desired with a minimum of 2 years experience working in the green industry.

Qualified applicants must have proven leadership abilities, strong customer relations and interpersonal skills. We offer excellent salary, bonus, and benefits packages, including 401(k) and company paid medical coverage. For career opportunity and confidential consideration, send or fax current resume, including geographic preferences and willingness to relocate, to: DeAngelo Brothers, Inc., Attention: Paul D. DeAngelo, 100 North Conahan Drive, Hazleton, PA 18201. Phone: 800-360-7702; Fax: 570-459-5500. EOE M/F/D/V.

VEGETATION MANAGEMENT
SALES/OPERATIONS

Osmose, Inc. is expanding its operations in utility right of way vegetation management. Seeking qualified persons with consulting sales and/or operational experience in vegetation management. Positions are located in the Southeast, Mid-Atlantic and Great Lakes. Extensive traveling is required. Two years experience required. Fax resume with salary requirements to Human Resources at 770-251-6464.

EOE M/F/D/V

Tree Care by the Bay

Northern California—Oakland Branch seeks foremen & supervisor to be a part of a growing 30 year operation. Tru-Green LandCare—Golden Bear Arborist division is nation wide with over 300,000 employees and excellent benefits (i.e. health, dental, 401K, vacation, sick leave, company vehicle and more). Tru-Green LandCare is destined to be the biggest and the best. Get in on the ground floor with the latest ServiceMaster merge! Ideal employee should be an ISA Certified Arborist or Tree Worker with a minimum of 2 years progressive leadership role. Call Ray at (510) 633-5050 or fax resume to (510) 633-5038.

FOR SALE


USED EQUIPMENT FROM BANDIT INDUSTRIES, INC

Brush Bandit Chippers
(1) Mighty Bandit II, Kohler gas 23 hp; (1) Mdl 65, Honda 20 hp; (1) Mdl 90W, Wisconsin 37 hp; (2) Mdl 90W, GM 76 hp; (1) Mdl 90, Wisconsin 37 hp; (1) Mdl 100, Wisconsin gas V465; (3) Mdl 200+, Cummins 76 hp; (1) Mdl 200+, GM 4.3L 120 hp; (1) Mdl 250, Ford 109 hp; (2) Mdl 250, Cummins 100 hp; (1) Mdl 280, Cummins 116 hp; (1) Mdl 280, John Deere 110 hp; (1) Mdl 1890, John Deere 200-JP

Bandit Whole Tree Chippers
(1) Mdl 1200, Cummins 177 hp; (4) Mdl 1254, Cummins 200 hp; (1) Mdl 1690 drum, Ford 119 hp; (2) Mdl 1290 drum, John Deere 80 hp; (1) Mdl 1400 tree, Cummins 220 hp; (1) Mdl 1850 w/ loader, Cummins 250 hp; (1) Mdl 1850 track, Cummins 250 hp; (1) Mdl 1850, Cummins 250 hp; (1) Mdl 1900 tree, Cat 3406TA 425 hp; (1) 3680 Beast Recycler, contact Tuttle Hill Farms 248-437-7354

Morbark
(1) Mdl 5, Kohler 12 hp; (1) Mdl 7, Wisconsin 35 hp; (1) Mdl 10, John Deere 56 hp; (1) Mdl 16, Cummins 250 hp; (2) Mdl 17, Turbo Cat & Perkins 220 hp; (1) Mdl 100, Onan 24 hp; (1) 2070 Deutz 40 hp; (1) Mdl 3036, Cat 330 hp; (1) Eeger Beever, Wisconsin 65 hp, Hercules gas

Vermeer
(1) Mdl 1230, Perkins 102 hp; (1) 1250; (1) 665-A, stump grinder

Miscellaneous
(3) 12' Asplundh drum, Ford 6 cylinder; (1) 12' Asplundh drum, Perkins 80 hp; (2) 16' Asplundh drum, Ford V-8; (1) 12' Wayne drum, Chrysler 6 cylinder; (1) WC-17 Woodchuck, GMC 120 hp; (1) Mits & Merrill, 6 cylinder torque; (1) Mdl M-18 Trehan, Deutz 250 hp; (1) Innovator 8' tub, Cummins 177 hp; (1) Duratech tub, CAT 183 hp.

Bartlett Industries, Inc., 6750 Millbrook Road, Remus, MI 49340. Phone 800-952-0178 or (517) 561-2270. Fax (517) 561-2375.

...continued on page 54
COMING SOON TO A VCR NEAR YOU

BASIC TRAINING FOR TREE CLIMBERS

THIS VIDEO HAS NOT YET BEEN RATED

Call: NAA 800-733-2622 or ISA 888-472-8733 Reserve your copy today!

Please circle 36 on Reader Service Card

1997 Big John 65-B tree transplanter, less than 500 trees, on '88 GMC W7 cab over, 225 hp, 6 speed, 31,000 GVW, 74,000 miles, mint, $41,000. Call 218-543-6000.

BRUSH BANDIT 200+ 1990 Cummins Diesel 4BTA engine. Good condition. Low hours. $12,000. Call 610-449-8293

Resistograph F-300, $1450. Shigometer, $750. Grow Gun Probe, $325. All like new. 817-222-9494.

Bucket trucks, chip trucks, trailer chippers, cranes, skidders, track machines and custom-built units to meet your individual needs. For sale or rent. MIRK, Inc. Phone 330-669-2000.

FOR SALE

75 Chevy truck w/75 Skyworker OC 55 ft wh, rear mount; 1 owner Eager Beaver chipper, hydrofeed, bad engine, 65 hp. WisCon; John Bean Royal, 20-20 pump, never used; Chip box & tool box, hydro dump; 300 Gal. JB 20-20 sprayer, Call 800-774-9364, or 660-886-9602.

Can your stump cutter operate for $3 an hour and go anywhere? Ours can. The Alpine Magnum weighs just 88 lbs., can operate near fences, walkways, buildings, and sidehills. It can clear brush, dig shallow trenches and maneuver over soft ground without making tire tracks. Call or write: Alpine Machine, 7910 Thornbury St. S.W., Olympia, WA 98512-2368. (360) 357-5116.

Alexander Equipment is the only used equipment source offering a full satisfaction guarantee! We have a huge selection of used chippers and stump grinders ... fully serviced and ready to work! See our complete inventory list on the web at www.alexequip.com or call Matt or Steve at 630/268-0100 for detailed information. Alexander Equipment Company, 1054 N. DuPage Avenue, Lombard, Illinois 60148. We can deliver anywhere!

Hardware and software by an arborist for the arborist. For more information about the industry's best selling package, call or write Arbor Computer Systems, 117 Weston Road, Westport, CT 06880. Phone: 203-226-4335.

Tired of selling just your time?

Sell your customers a new do-it-yourself Microbial fertilizer capsule. Inventory or Drop-ship. Good Profit Margin. PepTree Products, toll-free 877-737-8733. www.getmoreinfo.com

When You Build The World's Best Stump Grinder . . .

You Power It With a Kohler

KOHLER engines

Model - 691SP
20 HP Kohler Engine

DOSKOCIL INDUSTRIES, INC.
1324 Rialto Ave.
San Bernardino, CA 92410
(909) 885-0988
FAX (909) 381-4743

Please circle 22 on Reader Service Card

Ropes, Ropes, Ropes

All types and brands of professional climbing and lowering arborist ropes at warehouse prices. Call for current price list. Free shipping. Visa, MC, AX. Small Ad - Big Savings 1-800-873-3203.


Cure Yellowing Iron Chlorosis Fe-26 Iron Chlorosis Tablets

Fe-26 Tablets contain a unique sucrated formulation of 26% Iron, 18% Sulfur, 6% Manganese, 2% Zinc, as well as Humic Acid. Just punch holes in ground and insert Tablets. Amend soils, lower pH around trees/ornamentals with the proper amounts of Fe, S, Mn and Zn that creates a successful growing environment. Can install any time of the year. Minimum 12-month release. Eliminates drilling holes in tree trunks. Mn-21 Manganese Tablets also available for those plants that exhibit Mn deficiencies. For details or free Fe-26 Tablet literature write: Remke Enterprises, Inc., PO Box 9357, Downers Grove, IL 60515, or call 630-810-1662, or fax 630-810-0947. Distributor inquiries welcome.

1990 GMC Top Kick, 92k miles, 3208 Cat diesel, 6-speed, air brakes w/ 4-ton knuckle boom crane, 2 stage hydraulic extension, 32k GVW, 24 ft. side reach, w/ winch, 11 ft. dumping bed gd condition. 6 1/2 ft. by 12 ft. tandem axel trailer, 7,000 lb. GVW. Call 812-336-9017. Indiana.

BUSINESSES FOR SALE

Established Tree Spraying Business for 14 years in Billings, Montana.


See us at TCI EXPO '99!
Classified Ad Rates:

$60 per inch ($50 NAA members), 1-inch minimum.
Payable in advance, due 20th of the month, two months prior to publication.
Send ad and payment to:
TCI, PO Box 1094, Amherst, NH 03031

“Gold Mine!! The new wife says sell: 20yrs of reputable tree service, with Universities on account along the Gulf Coast. High profits and room for expansion. $150,000. Inquires: PO Box 850331, Mobile, AL 36665-0331.”

SERVICES

ArborWare, The Business Solution for Arborist, Landscape and Lawn Care Professionals includes complete Customer Management: Estimates, Proposals, Work Orders, Invoices, Statements, and Accounts Receivables. Also includes: Customer Property Inventory, PHC and Pest/Disease control, chemical application and DOA reporting, maintenance and generation of Renewal Contracts, scheduling/routing of Crews and Sales Reps, Vehicle Maintenance and DOT reporting, Job Costing, Marketing and Management Reporting, comprehensive User Manual, and more ... Call 1-800-49-ARBOR (2-7267) for more information.

---

Colorado Tree Care Business
Established, successful tree care business with 17 year history and $250,000 net. Excellent growth potential. Real estate included. Enjoy the good life in a booming Colorado market! Call Chris, BA, Ltd. 303-758-4600.

Very profitable full service tree care business in a thriving N.E. Indiana resort area. Well established - 12 years - this company dominates the market in this area. Well-trained crew, continuous 2-3 month backlog, includes all equipment for turnkey operation. A steal @ $98,500. Retiring: Contact Evan R. Rice @ Rice Tree Service, Inc., 1-219-495-5021 evenings or weekends.

Established tree care business for 34 years on Maryland's Eastern Shore. Long-term contracts and good workforce in place. Year-round work with good growth opportunity. Possible owner financing. Box PL, TCI, PO Box 1094, Amherst, NH 03031.

---

Lewis Utility Truck Sales, Inc. * 628 North Portland Street * Ridgeville, IN 47380 * 1-800-856-2064

---

I certify that the statements made by me above are correct and complete.

---

Mark Garvin

---

U.S. Postal Service
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
Required by 39 U.S.C. 3685

Title of Publication:
TREE CARE INDUSTRY
Publication No.: 007-113
Date of Filing: 9/1/99
Frequency of Issue: Monthly
No. Issues Published Annually: 12
Annual Subscription Price: $30.00

Complete Mailing Address:
P.O. Box 1094, Rte. 101,
Meeting Place Mall,
Amherst, NH 03031-1094

Publisher:
National Arborist Association
P.O. Box 1094,
Rte. 101, Meeting Place Mall,
Amherst, NH 03031-1094

Editor:
Mark Garvin, P.O. Box 1094,
Rte. 101, Meeting Place Mall,
Amherst, NH 03031-1094

Owner:
National Arborist Association,
P.O. Box 1094, Rte. 101,
Meeting Place Mall,
Amherst, NH 03031-1094

Extent and Nature of Circulation:

Avg. No. Copies Actual No. Copies
Each Issue of Single Issue
During Preceding Published Nearest
date to Filing Date

Total No. Copies 29,090 29,070
Paid and/or Requested Circulation 0 0
Paid and/or Requested Mail Subscriptions 24,395 25,481
Paid and/or Requested Circulation 24,395 25,481
Free Distribution by Mail 3,105 2,019
Free Distribution Outside the Mail 809 500
Total Free Distribution 3,914 2,519
Total Distribution 28,309 28,000
Copies Not Distributed 781 1,070
Return from News Agents 0 0
Total 29,090 29,070
Percent Paid or Requested Circulation 86 91

I certify that the statements made by me above are correct and complete.

Editor Mark Garvin
Real World. Real Solutions.

IN THE REAL WORLD, YOU CAN'T AFFORD FOR YOUR TREE CARE EQUIPMENT TO TAKE A DAY OFF. That's why Altec is committed to providing you with equipment solutions. Our complete line of aerial devices and wood chippers is highlighted by our newest machine - the Altec LRV55 Overcenter Aerial Device. It combines 60 feet of working height, smooth maneuverability, and low maintenance costs for unmatched performance in the industry. If you need real world solutions for your tree care equipment needs, call the company that builds them. 1-800-958-2555.

www.altec.com
Events & Seminars

October 4, 1999
25 Annual Western PA Turfgrass Golf Tournament
Fox Chapel Golf Club
Pittsburgh, PA
Contact: (814) 863-3475

October 5, 1999
Joseph M. Duich Turfgrass Endowment Tournament
Saucon Valley Country Club
Bethlehem, PA
Contact: Beverly at (610) 758-7170

October 6, 1999
Trade Show & Field Day
Washington Association of Landscape Professionals
Western Washington Fairgrounds
Puyallup, WA
Contact: (800) 833-2186

October 6, 1999
Pruning Urban Trees
Univ. of California, Riverside Extension
Contact: (909) 787-5804.
Email: sciences@ucx.ucr.edu
Web: www.unex.ucr.edu/ag/ag.html

October 6-7, 1999
Ornamental Plant Materials Conference
Oklahoma State University
Stillwater, OK
Contact: Mike Schnelle (405) 744-7361

October 7, 1999
Electrical Hazards for Arborists Workshop
Michigan Forestry and Park Association
Energy Service Ctr, Saginaw, MI
Contact: Ann Ashby (517) 482-5530

October 7-8, 1999
Dr. Alex Shigo
Modern Arboriculture, by the Book
Portsmouth, NH
Contact: (603) 436-4804

October 8-9, 1999
ALCA Masters in Management
Sheraton Bradley International Airport
Windsor Locks (Hartford), CT
Contact: (703) 736-9666

October 10-11, 1999
IPAA Convention
Sunriver Resort, Oregon
Contact: Debbie Ego (503) 363-7205

October 14, 1999
Perennial Plant Workshop:
Ornamental Grasses
The Scott Arboretum
Swarthmore, PA
Contact: (610) 328-8025

October 14, 1999
Hazardous Tree Workshop
Michigan Forestry and Park Association
Union Building; MSU
Contact: Ann Ashby (517) 482-5530

October 14-15, 1999
Nebraska Arborists Association
Climbing and Pruning School
Lincoln, NE
Contact: (402) 476-3852

October 15, 1999
California Arborists Assn.
Equipment Maintenance Workshop
San Mateo, CA
Contact: (707) 254-8862

October 16, 1999
Maryland Arborist Association’s Annual Maryland Arborist Day Project
Mount Clare Mansion
Baltimore, MD
Contact: (888) 638-7337

October 16, 1999
Fall Tree ID Workshop
Michigan Forestry and Park Association
Detroit Zoo Gardens, Royal Oak, MI
Contact: Ann Ashby (517) 482-5530

October 18, 1999
23rd Annual Joseph Valentine Memorial Golf Tournament
Gulph Mills Golf Club
King of Prussia, PA
Contact: John Chassard (610) 967-4643

October 21, 1999
Tree Evaluation Workshop
Michigan Forestry and Park Association
Contact: Ann Ashby (517) 482-5530

... continued on page 60
Y2K Partners: Teamed for Success

The Mid-Am Trade Show, where horticultural professionals can find their every need, congratulates the American Nursery & Landscape Association on its 125th anniversary. Mid-Am is proud to partner with ANLA and be the principal benefactor of the ANLA Gala to be held Thursday, January 20, 2000. Call ANLA at 202/789-2900 or Mid-Am at 847/526-2010 for details on how you can participate.

Navy Pier, Chicago • January 19-21, 2000
October 29-31, 1999
74th Annual Meeting and Tree Expo
NJ Shade Tree Federation
Cherry Hill, NJ
Contact: Bill Porter (732) 246-3210

November 4-6, 1999
TCI EXPO '99
Indiana Convention Center & RCA Dome
Indianapolis, Indiana
Contact: Carol Crossland (800) 733-2622

November 5-6, 1999
Dealy Plaza Tree-Newal
Texas Chapter ISA
Dealy Plaza, Dallas, TX
Contact: Kevin Bassett, (972) 442-1524

November 9-11, 1999
Penn State Golf Turf Conference
State College, PA
Contact: Peter Landschoot (814) 863-1017

November 13-17, 1998
PLCAA
19th Annual Lawn & Landscape Conference/Green Industry Expo
Nashville, TN
Contact: PLCAA (800) 458-3466

November 16, 1999
Small Engine Troubleshooting
Cook College-Office of Continuing Professional Education
New Brunswick, NJ
Contact: Kurt Martens (732) 932-8451

November 17-18, 1999
Small Engine Repair
Cook College-Office of Continuing Professional Education
New Brunswick, NJ
Contact: Kurt Martens (732) 932-8451

November 18, 1999
Plant Health Care Workshop
Michigan Forestry and Park Association
Union Building; MSU
Contact: Ann Ashby (517) 482-5530

December 7-9, 1999
Nebraska Arborists Association Arborist School
Omaha, NE
Contact: (402) 476-3852

December 9-10, 1999
Dr. Alex Shigo
Tree Chemistry: Chemistry of Fertilizer and Pesticide Applications
Portsmouth, NH
Contact: (603) 436-4804

January 11-13
Eastern PA Turf Conference & Trade Show
Valley Forge Convention Center
King of Prussia, PA
Contact: Michael Smith (610) 328-8025

January 16-18, 2000
Empire State Tree Conference
The Sheraton Civic Center Hotel
Poughkeepsie, NY
Contact: (518) 453-6461

January 19-21, 2000
Mid-Am Trade Show
Wauconda, IL
Contact: (847) 526-2010

January 20, 2000
Maryland Arborist Association's 20th Annual Recertification Seminar
Turf Valley Hotel & Country Club
Ellicott City, MD
Contact: (888) 638-7337

January 23-24, 2000
Joint Nebraska Arborists Association and NNLA Winter Conference
Omaha, NE
Contact: (402) 476-3852

January 25-26, 2000
Integrated Pest Management
Cook College-Office of Continuing Professional Education
New Brunswick, NJ
Contact: Kurt Martens (732) 932-8451

January 25 - 27, 2000
40th VA Turf and Landscape Conference & Trade Show
Richmond, VA
Contact: Susan Floyd (540) 942-8873 or Dr. David Chalmers at (540) 231-9738

January 26-28, 2000
2000 Utah Green Industry Conference & Trade Show
Dixie Center, St. George, Utah
Utah Nursery & Landscape Association
Contact: (801) 484-4426

January 27, 2000
Northeastern PA Turf School & Trade Show
The Woodlands Inn & Resort
Contact: Andrew McNitt (814) 863-1368

January 28, 2000
Woody Plant Workshop: Hollies
The Scott Arboretum
Swathmore, PA
Contact: (610) 328-8025

February 15-20, 2000
National Arborist Association Winter Management Conference
Southampton Princess
Southampton, Bermuda
Contact: Carol Crossland (603) 673-3311

Send information on your event to:
Tree Care Industry
PO Box 1094
Amherst, NH 03031-1094.
Fax: 603-672-2613;
E-mail: Garvin@natlorb.com
FORESTRY EQUIPMENT

Forestry Equipment of Sheby, NC
704.487.7245 Day - 704.481.3194 Evenings - 704.482.4685 Fax

60' Working Height
ALTEC LR 111-55
1992 GMC Topkick
366 Fuel Injected Engine with Kubota Pony Engine.

TOUGH TRUCKS FOR TOUGH JOBS!

55' Working Height
Aerial Lift of Conn AL-50
1991 GMC Topkick
CAT 3116 Diesel
Automatic Transmission

1992 Ford F700 12' Chip Body with Tool Boxes and ManCab; 6.6 Diesel

55' Working Height
Asplundh LR-50 1991
Ford F700 429 Gas with 3 Cyl. Kubota Pony Engine
5 Speed Transmission

60' Working Height
Altec LR II-55
1999 International
4700 DT-466 Diesel

55' Working Height
Aerial Lift of Conn AL-50
1992 Ford F700 6.6 Diesel
6 Speed Transmission

60' Working Height
Hi-Ranger XT-55
1999 International 4700 DT-466; Air Brakes

Used and Rebuilt Drum Chippers Available

FOREXTRY EQUIPMENT

 FOREST EQUIPMENT

Forestry Equipment of Sheby, NC
704.487.7245 Day - 704.481.3194 Evenings - 704.482.4685 Fax

60' Working Height
ALTEC LR 111-55
1992 GMC Topkick
366 Fuel Injected Engine with Kubota Pony Engine.

TOUGH TRUCKS FOR TOUGH JOBS!

55' Working Height
Aerial Lift of Conn AL-50
1991 GMC Topkick
CAT 3116 Diesel
Automatic Transmission

1992 Ford F700 12' Chip Body with Tool Boxes and ManCab; 6.6 Diesel

55' Working Height
Asplundh LR-50 1991
Ford F700 429 Gas with 3 Cyl. Kubota Pony Engine
5 Speed Transmission

60' Working Height
Altec LR II-55
1999 International
4700 DT-466 Diesel

55' Working Height
Aerial Lift of Conn AL-50
1992 Ford F700 6.6 Diesel
6 Speed Transmission

60' Working Height
Hi-Ranger XT-55
1999 International 4700 DT-466; Air Brakes

Used and Rebuilt Drum Chippers Available

Please circle 26 on Reader Service Card
NAA salutes the recipients of the 1999 President's Award

Swingle Tree Company
Tom Tolkacz

Forest City Tree Protection Company, Inc.
Will, Bill & Lauren Lanphear

Long-term partnership with the National Arborist Association has been a key to their success.

H. A. Morrison, Arborist
Thomas A. Morrison

Neville Landscape & Tree Service.
Tom Kistner (fifth from left)

Alpine the Care of Trees, Inc.
Robert Mulhane

K. P. Soergel & Associates, Inc.
Ken Soergel

Ira Wickes / Arborists
John W. Wickes

For membership information, call 1-800-733-2622

www.natiarb.com

See us at TCI EXPO '99!

Please circle 37 on Reader Service Card
Please tell these advertisers where you saw their ad.
They appreciate your patronage.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Accu-Fell</td>
<td>45</td>
<td>33. Lewis Utility Truck Sales, Inc.</td>
<td>56</td>
</tr>
<tr>
<td>2. Aerial Equipment Inc</td>
<td>24</td>
<td>34. Mid-Am Trade Show</td>
<td>59</td>
</tr>
<tr>
<td>3. Altec Industries, Inc</td>
<td>57</td>
<td>35. Miller Machine Works</td>
<td>42</td>
</tr>
<tr>
<td>4. American Arborist Supplies, Inc</td>
<td>18</td>
<td>36. NAA - Basic Training for Tree Climbing</td>
<td>53</td>
</tr>
<tr>
<td>5. Arbor Care, Inc</td>
<td>50</td>
<td>37. NAA - Membership</td>
<td>62</td>
</tr>
<tr>
<td>6. Arbor Direct LLC</td>
<td>28</td>
<td>38. Natural Path Forestry Consultants, Inc.</td>
<td>45</td>
</tr>
<tr>
<td>8. Bandit Industries, Inc</td>
<td>19</td>
<td>40. OBL Financial Services Inc.</td>
<td>27</td>
</tr>
<tr>
<td>11. Bishop Company</td>
<td>29</td>
<td>43. Pete Mainka Enterprises, Inc.</td>
<td>50</td>
</tr>
<tr>
<td>12. Bishop Company</td>
<td>39</td>
<td>44. Polecut Industries, Inc.</td>
<td>58</td>
</tr>
<tr>
<td>14. CAG, Inc.</td>
<td>48</td>
<td>46. Rayco Manufacturing, Inc.</td>
<td>43</td>
</tr>
<tr>
<td>15. J.P. Carlton Company, Div. DAF, Inc</td>
<td>49</td>
<td>47. Royal Truck &amp; Equipment Inc.</td>
<td>15</td>
</tr>
<tr>
<td>16. Concept Engineering Group, Inc. (CEG)</td>
<td>63</td>
<td>48. Sabre Saw Chain</td>
<td>51</td>
</tr>
<tr>
<td>17. Cummins Michigan, Inc. Inside Front Cover</td>
<td>.........</td>
<td>49. SavATree</td>
<td>46</td>
</tr>
<tr>
<td>19. DeAngelo Brothers</td>
<td>47</td>
<td>51. Sherrill, Inc</td>
<td>14</td>
</tr>
<tr>
<td>20. Deere Power Systems - N. America</td>
<td>5</td>
<td>52. Shindaiwa, Inc. Inside Back Cover</td>
<td>.........</td>
</tr>
<tr>
<td>21. The Doggett Corporation</td>
<td>38</td>
<td>53. Southco Industries</td>
<td>1</td>
</tr>
<tr>
<td>22. Doscocil Industries Inc.</td>
<td>54</td>
<td>54. Southeastern Equipment Company</td>
<td>35</td>
</tr>
<tr>
<td>23. Fanno Saw Works</td>
<td>60</td>
<td>55. Tamarack Clearing Inc.</td>
<td>17</td>
</tr>
<tr>
<td>24. FCJ/Racine</td>
<td>13</td>
<td>56. Tamarack Clearing Inc.</td>
<td>55</td>
</tr>
<tr>
<td>25. First Sierra Financial Inc. Back Cover</td>
<td>.........</td>
<td>57. Terex Telelect Inc.</td>
<td>3</td>
</tr>
<tr>
<td>26. Forestry Equipment of Shelby, Inc</td>
<td>61</td>
<td>58. Timberwolf Manufacturing Corp.</td>
<td>46</td>
</tr>
<tr>
<td>27. G &amp; A Equipment Inc</td>
<td>51</td>
<td>59. Tree Tech Microinjection Systems</td>
<td>37</td>
</tr>
<tr>
<td>28. The Hartford</td>
<td>7</td>
<td>60. Trueco, Inc.</td>
<td>41</td>
</tr>
<tr>
<td>29. IML - Instrument Mechanic Labor, Inc.</td>
<td>41</td>
<td>61. Western Tree Equipment &amp; Rentals</td>
<td>44</td>
</tr>
<tr>
<td>30. Independent Protection Company</td>
<td>14</td>
<td>62. Yale Cordage Inc.</td>
<td>10</td>
</tr>
<tr>
<td>31. Jameson Corporation</td>
<td>42</td>
<td>63. Zenith Cutter Company</td>
<td>21</td>
</tr>
<tr>
<td>32. Leonardi Teeth/Simonds Industries</td>
<td>32</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Please circle this number on the Reader Service Card for more information.
I scratched my head and thought, "Boy, this is going to be challenging."

It was the second time in three days that I had stopped by to review my plan of attack on this peculiar job. A week earlier I had received a phone call from a private high school asking if I could give an estimate on removing three trees from the school grounds. They wanted the work done on the upcoming Friday and Saturday because it was the school's homecoming and the students would be out of the building. I agreed that people swinging from trees with chain saws roaring could be very distracting from the educational process.

The next day I stopped by the school to give the estimate. I was not informed over the phone that the three mature trees were in the school's courtyard, which was only accessible through a 29-inch door. Adding to the difficulty was the fact that the three trees—a 50-foot, 16-inch DBH magnolia; a 75-foot, 30-inch DBH silver maple; and a 65-foot, 24-inch DBH river birch—all had a slight lean over the school's roof. I realized that the noise factor was only the minor reason why they wanted the work done while the students were absent. The primary reason was that every bit of those three trees had to be dragged and carried out the 29-inch door, across a hallway, and out two double doors to the parking lot where I had my truck and chipper.

I could clearly see the problem of fighting through the typical crowded high school hallway while dragging a load of brush and carrying loads of wood. The work had to be done in two days with my crew off the grounds by 4:30 each afternoon. (Homecoming activities began at 5:00 p.m. each day.)

I calculated how I would bring each tree down and determined how many men I would need to get the job done safely and quickly. I submitted my proposal and was given the job. Incredibly, the job went very smoothly. The extra planning time we put in before starting paid off, as everything went according to schedule. My crew and I relished a job well done as the last bit of debris was thrown in the truck at 1:00 p.m. on the second day.

This private high school has been one of my best clients ever since. I hope to renew them as a client when I return to tree work. You see, while I love this type of work because it is challenging both mentally and physically, there is another side of my life which is even more challenging—I am a member of the U.S. National Wrestling Team.

I gave up tree work temporarily in August 1998 and moved to Russia to train full time. I spent a year there, primarily training with local wrestling clubs and going to international tournaments. I have put my career in the tree care industry on hold until after the Olympics in 2000. I made sure to refer my customers to a good, local tree service before I left.

I have been involved in the tree care industry for the past seven years. I have owned my own company, Freedom Tree Service, since June 1996. I trained and worked in the trees for the last several years. But at this level, to achieve my goal of first making the Olympic Team and then being a gold medalist, I decided to train full time. Training and competition have been going well, so far, and I hope to represent the tree care family proudly in 2000. If you would like to follow my progress by receiving my newsletter, e-mail me at frdmtree@aol.com.

Johnny Curtis is an arborist in Manassas, Va.
First Sierra Financial stands tall in the forest of financial companies. We rise above the rest when it comes to competitive rates, outstanding customer service, and going beyond the expectations to achieve the needs of your business. We are committed to the arbor industry and have the professionals to help you with all of your financial needs. We finance transactions ranging from $2,000 to $1,500,000. Call today for a free quote or visit us on the web at www.firstsierra.com

We specialize in financing the equipment you need to grow your business.
You select the new or used equipment.
First Sierra provides the financing – leases or loans.

**Keep your cash**
**Easy application form**
**Affordable payment plans**
**Flexible or seasonal plans**
**Up to $75,000 – App Only**
**Fast approval**
**Preserve your bank lines**
**One call does it all**

**FIRST SIERRA FINANCIAL, INC.**

Sacramento, CA
800-729-5327
Vic Johnson

Cleveland, OH
800-366-4228
George Ziegler

Hatfield, PA
800-933-7101
Bill Stauder
David McDonald

Atlanta, GA
800-443-8301
Eileen Gresens

See us at TCI EXPO '90!

Please circle 23 on Reader Service Card
IT WORKS FOR SMALLER JOBS TOO.

Presenting perhaps the most powerful cleanup tool in tool history: PowerBroom™. See your dealer for a full demonstration of its impressive capabilities. (Within reason, of course.) To learn more, call 1-800-521-7733.
SUCCESS...

- Student Career Fair
- Seminars & Networking
- World's Largest Arborist Trade Show

- It's worth the effort

TCI'99 EXPO
November 4-6

Indiana
Convention Center & RCA Dome
The sky is the limit with what you’ll learn from this year’s exciting program. Over 150 exhibitors under one roof, bringing you cutting-edge tree care equipment, technology, supplies and services.

New this year ... Arborist Skills Areas!

Live demonstrations with plenty of hands-on instruction. This is a chance for you to sharpen your skills with some of the leading names in the arborist industry.

Stop by any of the three arborist skills areas located on the trade show floor to learn and try state-of-the-art industry techniques.

The SMART MANAGER and EXPERT PRACTITIONER seminar series allow you to customize your educational experience to fit your needs - with several sessions offering pesticide applicator re-certification credits and ISA continuing education units.

Registration IS REQUIRED to obtain your admission badge. Register before the Early Bird deadline of October 8 to receive discounts on trade show admission and educational seminars.

SAVE, SAVE, SAVE ... Take advantage of the educational seminars ... BUY GOLD!

Indiana Convention Center
& RCA Dome November 4-6

Please Note: We encourage you to bring all of your employees to TCI EXPO ’99. TCI EXPO is a valuable educational experience.
The National Arborist Association is pleased to offer a special workshop in conjunction with TCI EXPO '99. TCI attendees are invited to participate in this full-day workshop on Wednesday, November 3, 1999 at the Indiana Convention Center & RCA Dome in Indianapolis, Indiana.

This two-part workshop will address key business issues and will be taught in a small classroom format to encourage participant interaction.

The morning session will address motivation as one of the most important skills of a manager or supervisor. The afternoon session will address leadership and team building and how each separately and collectively is critical to the success of any business.

"He is real. He is experienced. He is motivated"

**Understanding Motivation**

Motivation is one of the most important skills of a manager or supervisor. This seminar will help you understand the behavior process - why people do the things they do; the motivation process - what happens in motivation; motivation theories; and burn out/peak-out - why it happens, who is responsible and how to prevent it.

**Leadership and Team Building**

Understanding leadership and building a team is critical to the success of any business. This seminar will help you understand the relationships and characteristics of a team; the phases of team building; leadership theories; and situational leadership and management.

**Workshop Schedule**

8:30 am  Registration opens (complimentary coffee)
9:00 am  Understanding Motivation
12:00 noon  Lunch not included
1:00 pm  Leadership and Team Building
4:00 pm  Workshop Adjourns

**Limited Enrollment. Early registration is encouraged.**

Please use TCI EXPO registration form to indicate attendance at this program.
The products and services you need to achieve success with your tree care company are all under one roof. Attend TCI EXPO '99 and make a difference in your future!

<table>
<thead>
<tr>
<th>Exhibitors</th>
<th>Over 150 at this year's EXPO!</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACRT, Inc.</td>
<td></td>
</tr>
<tr>
<td>ADI Pruning Tools</td>
<td></td>
</tr>
<tr>
<td>Aerial Equipment, Inc.</td>
<td></td>
</tr>
<tr>
<td>Aerial Lift, Inc.</td>
<td></td>
</tr>
<tr>
<td>Agape Designs</td>
<td></td>
</tr>
<tr>
<td>Alliance Equipment Company, Inc.</td>
<td></td>
</tr>
<tr>
<td>Altex Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>American Arborist Supplies, Inc.</td>
<td></td>
</tr>
<tr>
<td>The American Group - Samson Div.</td>
<td></td>
</tr>
<tr>
<td>American Safety Utility Corp.</td>
<td></td>
</tr>
<tr>
<td>AmeriQuip/MTI</td>
<td></td>
</tr>
<tr>
<td>AMVAV Chemical</td>
<td></td>
</tr>
<tr>
<td>Arbor Direct LLC</td>
<td></td>
</tr>
<tr>
<td>ArborSystems, LLC</td>
<td></td>
</tr>
<tr>
<td>Arbortech</td>
<td></td>
</tr>
<tr>
<td>Arborwear Inc.</td>
<td></td>
</tr>
<tr>
<td>Asplundh Tree Expert Company</td>
<td></td>
</tr>
<tr>
<td>B &amp; G Equipment</td>
<td></td>
</tr>
<tr>
<td>Bailey's</td>
<td></td>
</tr>
<tr>
<td>Bandit Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Bartlett Manufacturing Company</td>
<td></td>
</tr>
<tr>
<td>Bartlett Tree Expert Company</td>
<td></td>
</tr>
<tr>
<td>Bashlin Industries Inc.</td>
<td></td>
</tr>
<tr>
<td>Bayer Corporation</td>
<td></td>
</tr>
<tr>
<td>John Bean Sprayers</td>
<td></td>
</tr>
<tr>
<td>Ben Meadows Company</td>
<td></td>
</tr>
<tr>
<td>Bishop Company</td>
<td></td>
</tr>
<tr>
<td>Blue Ridge Arborist Supply</td>
<td></td>
</tr>
<tr>
<td>John Brown &amp; Sons Inc.</td>
<td></td>
</tr>
<tr>
<td>Buccaneer Rope Company</td>
<td></td>
</tr>
<tr>
<td>Buckingham Mfg. Company, Inc.</td>
<td></td>
</tr>
<tr>
<td>CAG, Inc.</td>
<td></td>
</tr>
<tr>
<td>CNA Commercial Insurance</td>
<td></td>
</tr>
<tr>
<td>J.P. Carlton Company</td>
<td></td>
</tr>
<tr>
<td>Climax Axe, Ltd.</td>
<td></td>
</tr>
<tr>
<td>Columbian Rope Company</td>
<td></td>
</tr>
<tr>
<td>Corona Clipper</td>
<td></td>
</tr>
<tr>
<td>Creative Automation Solutions</td>
<td></td>
</tr>
<tr>
<td>Creative Sales, Inc. (CSI)</td>
<td></td>
</tr>
<tr>
<td>Data Transmission Network - Weather Center</td>
<td></td>
</tr>
<tr>
<td>The Davey Tree Expert Company</td>
<td></td>
</tr>
<tr>
<td>Deutz Corporation</td>
<td></td>
</tr>
<tr>
<td>The Doggett Corporation</td>
<td></td>
</tr>
<tr>
<td>Doskocil Industries Inc.</td>
<td></td>
</tr>
<tr>
<td>ECHO - Midwest Equipment &amp; Supply Inc.</td>
<td></td>
</tr>
<tr>
<td>EnginAire</td>
<td></td>
</tr>
<tr>
<td>Engine Center Inc.</td>
<td></td>
</tr>
<tr>
<td>Engine Distributors, Inc.</td>
<td></td>
</tr>
<tr>
<td>Excalibur DMM</td>
<td></td>
</tr>
<tr>
<td>Excel Industries Inc.</td>
<td></td>
</tr>
<tr>
<td>FCI/Racine</td>
<td></td>
</tr>
<tr>
<td>FMC Corporation-APG Specialty Products</td>
<td></td>
</tr>
<tr>
<td>Fanno Saw Works</td>
<td></td>
</tr>
<tr>
<td>Fecon Resource Recovery Equipment</td>
<td></td>
</tr>
<tr>
<td>First Sierra Financial, Inc.</td>
<td></td>
</tr>
<tr>
<td>Forestry Equipment of Shelby, Inc.</td>
<td></td>
</tr>
<tr>
<td>Forestry Suppliers, Inc.</td>
<td></td>
</tr>
<tr>
<td>J. F. Fuller, Inc.</td>
<td></td>
</tr>
<tr>
<td>G &amp; A Equipment Inc.</td>
<td></td>
</tr>
<tr>
<td>GNC Industries</td>
<td></td>
</tr>
<tr>
<td>Good Tree Care Company</td>
<td></td>
</tr>
<tr>
<td>Green Manufacturing</td>
<td></td>
</tr>
<tr>
<td>GreenPro Services</td>
<td></td>
</tr>
<tr>
<td>Grow Gun Corporation</td>
<td></td>
</tr>
<tr>
<td>Growtech, Inc.</td>
<td></td>
</tr>
<tr>
<td>Growth Products, Ltd.</td>
<td></td>
</tr>
<tr>
<td>Gyro-Trac, Inc.</td>
<td></td>
</tr>
<tr>
<td>The Hartford</td>
<td></td>
</tr>
<tr>
<td>Hollie Wood Enterprises</td>
<td></td>
</tr>
<tr>
<td>Husqvarna Forest &amp; Garden Company</td>
<td></td>
</tr>
<tr>
<td>IML - Instrument Mechanic Labor, Inc.</td>
<td></td>
</tr>
<tr>
<td>ImpleMax Equipment Company Inc.</td>
<td></td>
</tr>
<tr>
<td>Independent Protection Company, Inc.</td>
<td></td>
</tr>
<tr>
<td>Indiana Arborist Association</td>
<td></td>
</tr>
<tr>
<td>International Society of Arboriculture</td>
<td></td>
</tr>
<tr>
<td>Jameson Corporation</td>
<td></td>
</tr>
<tr>
<td>Kramer Equipment Company, Inc.</td>
<td></td>
</tr>
<tr>
<td>Karl Kuenenmer, Inc.</td>
<td></td>
</tr>
<tr>
<td>Leonardi Manufacturing</td>
<td></td>
</tr>
<tr>
<td>Lund Tech, Inc.</td>
<td></td>
</tr>
<tr>
<td>Fred Marvin Associates</td>
<td></td>
</tr>
<tr>
<td>MAT-3, Inc.</td>
<td></td>
</tr>
<tr>
<td>J.J. Mauger Company</td>
<td></td>
</tr>
<tr>
<td>Midwest Arborist Supplies</td>
<td></td>
</tr>
<tr>
<td>Miller Machine Works</td>
<td></td>
</tr>
<tr>
<td>Minnesota Wanner Company</td>
<td></td>
</tr>
<tr>
<td>MIRK, Inc.</td>
<td></td>
</tr>
<tr>
<td>Monterey Lawn &amp; Garden Products, Inc.</td>
<td></td>
</tr>
<tr>
<td>Morbark E-Z Beever Company</td>
<td></td>
</tr>
<tr>
<td>MTI Insulated Products</td>
<td></td>
</tr>
<tr>
<td>National Arborist Association (NAA)</td>
<td></td>
</tr>
<tr>
<td>National Arborist Foundation (NAF)</td>
<td></td>
</tr>
<tr>
<td>New England Ropes, Inc.</td>
<td></td>
</tr>
<tr>
<td>Niemeyer Corporation</td>
<td></td>
</tr>
<tr>
<td>Northeastern Associates</td>
<td></td>
</tr>
<tr>
<td>Nu-Arbor Tree &amp; Shrub Care Products, Inc.</td>
<td></td>
</tr>
<tr>
<td>Oregon Cutting Systems, Div. of Blount, Inc.</td>
<td></td>
</tr>
<tr>
<td>The Peavey Manufacturing Company</td>
<td></td>
</tr>
<tr>
<td>Perico Printing</td>
<td></td>
</tr>
<tr>
<td>Pigeon Mountain Industries Inc. (PMI)</td>
<td></td>
</tr>
<tr>
<td>Plant Health Care Inc.</td>
<td></td>
</tr>
<tr>
<td>Plastic Composites Corporation</td>
<td></td>
</tr>
<tr>
<td>Polecat Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Power Great Lakes Inc.</td>
<td></td>
</tr>
<tr>
<td>Practical Solutions, Inc.</td>
<td></td>
</tr>
<tr>
<td>Preformed Line Products</td>
<td></td>
</tr>
<tr>
<td>Progress Leasing/Quaker State Leasing Co.</td>
<td></td>
</tr>
<tr>
<td>Purdue University</td>
<td></td>
</tr>
<tr>
<td>Rainbow Treecare - Scientific Advancements</td>
<td></td>
</tr>
<tr>
<td>RAM Posiquip</td>
<td></td>
</tr>
<tr>
<td>Rayco Manufacturing, Inc.</td>
<td></td>
</tr>
<tr>
<td>Rear's Manufacturing Company</td>
<td></td>
</tr>
<tr>
<td>Remke Enterprises, Inc.</td>
<td></td>
</tr>
<tr>
<td>Roots, Inc.</td>
<td></td>
</tr>
<tr>
<td>Rootwell, Inc.</td>
<td></td>
</tr>
<tr>
<td>Royal Truck &amp; Equipment, Inc.</td>
<td></td>
</tr>
<tr>
<td>Safety Test &amp; Equipment Company</td>
<td></td>
</tr>
<tr>
<td>Salesco Inc.</td>
<td></td>
</tr>
<tr>
<td>Schodorf Truck Body &amp; Equipment Co.</td>
<td></td>
</tr>
<tr>
<td>Service Communications Software</td>
<td></td>
</tr>
<tr>
<td>Shelter Tree, Inc.</td>
<td></td>
</tr>
<tr>
<td>Sherrill Arborist Equipment &amp; Supply</td>
<td></td>
</tr>
<tr>
<td>Sierra Moreno Mercantile Company</td>
<td></td>
</tr>
<tr>
<td>Simon's Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Southco Industries, Inc.</td>
<td></td>
</tr>
<tr>
<td>Southeastern Equipment Company</td>
<td></td>
</tr>
<tr>
<td>Stihl Incorporated</td>
<td></td>
</tr>
<tr>
<td>Sunrise Concepts, Inc.</td>
<td></td>
</tr>
<tr>
<td>Tamrack Clearing, Inc.</td>
<td></td>
</tr>
<tr>
<td>Tanaka</td>
<td></td>
</tr>
<tr>
<td>Terex Telelect Inc.</td>
<td></td>
</tr>
<tr>
<td>Tilton Equipment Company</td>
<td></td>
</tr>
<tr>
<td>Timberwolf Manufacturing Corporation</td>
<td></td>
</tr>
<tr>
<td>Tree &amp; Landscape Equipment Trader</td>
<td></td>
</tr>
<tr>
<td>Tree Line Supply Company</td>
<td></td>
</tr>
<tr>
<td>Tree Management Systems, Inc.</td>
<td></td>
</tr>
<tr>
<td>Tree Tech Microinjection Systems</td>
<td></td>
</tr>
<tr>
<td>TreePro Direct™</td>
<td></td>
</tr>
<tr>
<td>V. A. Wolf, Inc.</td>
<td></td>
</tr>
<tr>
<td>Vermeer Manufacturing Company</td>
<td></td>
</tr>
<tr>
<td>Versallit, Time Manufacturing Co.</td>
<td></td>
</tr>
<tr>
<td>Weaver Leather, Inc.</td>
<td></td>
</tr>
<tr>
<td>Wis-Con Total Power Corporation</td>
<td></td>
</tr>
<tr>
<td>Wood/Chuck Chipper Corporation</td>
<td></td>
</tr>
<tr>
<td>Wood-Mizer Products, Inc.</td>
<td></td>
</tr>
<tr>
<td>Woodsman</td>
<td></td>
</tr>
<tr>
<td>Yale Cordage, Inc.</td>
<td></td>
</tr>
<tr>
<td>Zenith Cutter Company</td>
<td></td>
</tr>
</tbody>
</table>

---

*Photo of trade show floor with people and booths.*
WIN ARBORBUCKS!
There will be two drawings each day for at least $250 in ARBORBUCKS on the Trade Show floor. Drawings will be held on Thursday and Friday at 12:00 noon and 2:00 pm and Saturday at 11:00 am and 1:00 pm.

$250 ArborBucks Cash
ARBORBUCKS can be used the same as cash to make purchases from participating vendors at the show. There is no cost to enter the drawing, and the chances of winning are fantastic!

Arborbucks Drawing Schedule

<table>
<thead>
<tr>
<th>Thursday</th>
<th>Friday</th>
<th>Saturday</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 4</td>
<td>November 5</td>
<td>November 6</td>
</tr>
<tr>
<td>12:00 noon</td>
<td>12:00 noon</td>
<td>11:00 am</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>2:00 pm</td>
<td>1:00 pm</td>
</tr>
</tbody>
</table>

Winners must be present in order to receive Arborbucks cash!

Visit any of three Arborist Skills Areas located on the trade show floor and sign up to receive hands-on instruction. Upon completion, ISA Certified Arborists will become eligible to receive ISA recertification credits.

All of this and more ... for only the price of admission to TCI EXPO '99

Be sure to look for the following ARBORBUCKS participants:

Aerial Equipment, Inc.
Aerial Lift, Inc. of Connecticut
Alliance Equipment Co., Inc.
American Arborist Supplies
ArborSystems, LLC
Bandit Industries, Inc.
Bartlett Manufacturing Co.
Blue Ridge Arborist Supply
Buckingham Mfg. Co., Inc.
Creative Automation Solutions
Doskocil Industries, Inc.
Growtech, Inc.
Husqvarna
Jameson Corporation
Karl Kuemmerling, Inc.
Peavey Manufacturing Co.
Pigeon Mountain Industries, Inc.
Rayco Mfg., Inc.
Weaver Leather, Inc.
Zenith Cutter Co.
## Schedule of Events

### Thursday, November 4, 1999

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30</td>
<td>REGISTRATION OPENS - <strong>Complimentary coffee available</strong></td>
<td></td>
</tr>
<tr>
<td>8:30-9:45</td>
<td><strong>KEYNOTE ADDRESS:</strong> STAFFING: KEY TO SUCCESS NOW AND IN THE COMING YEARS - Wayne Outlaw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No longer can we rely on traditional methods in today's tight labor market and competitive environment. Innovative and creative techniques must be eagerly sought out to get the quality and quantity of employees needed to make the tree care company successful. It requires a capable and talented staff to serve customers. The cost of turnover and open positions will be examined, as well as the approaches to solving the most perplexing staffing problems. It will assist owners and managers in discovering how to identify and hire top people. It will look at the strategies that organizations, both in and out of the tree care industry, have used to ensure their organization is fully staffed with top people.</td>
<td></td>
</tr>
<tr>
<td>9:57</td>
<td>TRADE SHOW OPENS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don't miss a single booth! Wear your walking shoes, because with over 150 exhibitors, there will be a lot of ground to cover. TCI EXPO is the largest tree care trade show in the nation. If it will make your business more efficient, competitive, productive or profitable, you'll find it here.</td>
<td></td>
</tr>
<tr>
<td>12:00</td>
<td>ARBORBUCKS DRAWING - <strong>Demonstration Area 1</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Be sure to fill out your entry form and you could be the winner of ARBORBUCKS currency. ARBORBUCKS can be used as cash at a value of $1.50 each.</td>
<td></td>
</tr>
<tr>
<td>2:00</td>
<td>ARBORBUCKS DRAWING - <strong>Demonstration Area 1</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>It's not too late to enter the drawing. You could be the winner!</td>
<td></td>
</tr>
<tr>
<td>4:00</td>
<td>TRADE SHOW CLOSES</td>
<td></td>
</tr>
<tr>
<td>4:00-5:00</td>
<td><strong>DEVELOPING PRUNING SPECIFICATIONS USING A300</strong> - Ed Gilman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If you are asked to bid on a pruning job and there are no pruning specifications other than vague inferences, how can you possibly know what the client wants done to the trees. The answer is, you cannot know. The client probably doesn't know either. This is why specifications are so vital to the future of our industry, for without them we can't move our profession forward.</td>
<td></td>
</tr>
<tr>
<td>4:00-5:00</td>
<td><strong>KEEPING YOUR EMPLOYEES</strong> - Wayne Outlaw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drawn from a survey, the strategies and techniques that work best to keep employees in the tree care company will be shared. This in-depth look will show how to increase retention of these key assets. It will provide information on the benefits, compensation, and other things required to stabilize and keep top employees. This seminar will also provide tips and tools to create a motivational environment for all levels of employees.</td>
<td></td>
</tr>
<tr>
<td>6:00-7:00</td>
<td><strong>WELCOME RECEPTION FOR ALL ATTENDEES AND EXHIBITORS</strong> - Union Station; Crowne Plaza at Union Station</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Complimentary hors d'oeuvres. Visit with old friends, make new ones, and enjoy an evening of fun with fellow tree care professionals.</td>
<td></td>
</tr>
</tbody>
</table>

### Friday, November 5, 1999

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Venue</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30</td>
<td>REGISTRATION OPENS</td>
<td></td>
</tr>
<tr>
<td>8:00-9:00</td>
<td>**TOP INSECT PESTS &amp; <strong>GREAT TIPS</strong> - John Lloyd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This presentation will focus on new strategies for scale control as well as some of the new</td>
<td></td>
</tr>
<tr>
<td>8:00-9:00</td>
<td><strong>ACCOUNTING: TALKING HEADS</strong> - John Lloyd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When you’re dealing with accounting matters, you need to understand the language of accountants, Creditors, bankers, etc.</td>
<td></td>
</tr>
<tr>
<td>9:00</td>
<td>TRADE SHOW OPENS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plan on an information-packed day of demonstrations, browsing the latest in tree care products. Plus, we’ve arranged for live demonstrations and plenty of hands-on opportunities with some of the leading names in the arborist industry. Check your show program for times and locations. To keep up with the industry, you won’t want to miss a single demo.</td>
<td></td>
</tr>
<tr>
<td>9:30-10:30</td>
<td><strong>BEYOND DEADWOOD</strong> - Wayne Outlaw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>This seminar will help you become more efficient at pruning trees, and will provide you with a method for evaluating trees and for evaluating good tree work. You will learn which branches and stems to remove from trees in order to make them structurally sound.</td>
<td></td>
</tr>
<tr>
<td>9:30-10:30</td>
<td><strong>BASIC OFFICE COMPUTER</strong> - Wayne Outlaw</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Its ability to organize and streamline work processes is amazing. Your 12 year old is probably proficient with it. So how come you’re not putting your work on the computer?</td>
<td></td>
</tr>
<tr>
<td>12:00</td>
<td>ARBORBUCKS DRAWING - <strong>Demonstration Area 1</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Be sure to fill out your entry form and you could be the winner of ARBORBUCKS currency. ARBORBUCKS can be used as cash at a value of $1.50 each.</td>
<td></td>
</tr>
<tr>
<td>2:00</td>
<td>ARBORBUCKS DRAWING - <strong>Demonstration Area 1</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>It's not too late to enter the drawing. You could be the winner!</td>
<td></td>
</tr>
<tr>
<td>4:00</td>
<td>TRADE SHOW CLOSES</td>
<td></td>
</tr>
<tr>
<td>4:00-5:00</td>
<td>**MYCORRHIZAL FUNGI &amp;<strong>HABITAT</strong> - John Lloyd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mycorrhizal fungi can increase the tolerance of their plant hosts to drought, extremes of soil pH, low fertility, certain root diseases and other stresses. Rhizobacteria can promote plant growth and improve your plants' health.</td>
<td></td>
</tr>
<tr>
<td>4:00-5:00</td>
<td><strong>BASIC OFFICE COMPUTER</strong> - John Lloyd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(This program is repeated from Friday at 9:30 am. See above)</td>
<td></td>
</tr>
<tr>
<td>5:15-6:15</td>
<td><strong>USING THE INTERNET TO EDUCATE</strong> - John Lloyd</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Although access to the Internet has become a necessity in today's homes and businesses, the potential for its use as a learning tool has been limited. This session will provide tips and tools to help you make the most of the Internet as a teaching tool.</td>
<td></td>
</tr>
</tbody>
</table>
November 5, 1999

Complimentary coffee available

CONTROL STRATEGIES - Cliff Sadof
alternatives to foliar sprays, and how they might fit into an arborist’s program.

TALK - Mary McVicker
accountants, shareholders, but especially you, want financial information about your business. Unfortunately, that information can be encoded in accounting vocabulary and practices - the only way to get it is to, "Talk the talk."

the newest equipment, technologies and services, and exchanging ideas with your peers. There’s no show like TCI EXPO.

- Ed Gilman
sound. You will learn how to prevent structural problems from occurring in trees. Review how trees work and how this impacts your daily pruning practices and bottom line. This program will teach you the only known method of preventing decay in trees. You will leave the seminar for your next day’s work looking at trees in a whole new way and with new techniques to incorporate into your business.

ORIZATION - Jack Mattingly
your computer to its fullest use in your tree business? Jack Mattingly, green industry consultant with 23 years of experience, will explore the basic business applications for the PC using off-the-shelf software that can help take your business to the next level!

- Demonstration Area 2
ARBORBUCKS currency. ARBORBUCKS can be used as cash at any of the participating vendor booths.

- Demonstration Area 2
drawing. You could be the winner!

OTHER MICROORGANISMS - Don Marx
growth. Dr. Marx studied mycorrhizae and rhizobacteria extensively during his 37-year career with the Forest Service. He’ll demonstrate how trees and shrubs can become more resistant to the stresses in urban landscapes by the introduction of these beneficial microorganisms.

IZATION - Jack Mattingly
for program description.)

HANCE YOUR CUSTOMER SERVICE
business and client service tool is just beginning to be realized. This session will focus on the immediate opportunities provided by the Internet and its subsidiary applications to enhance customer service and increase employee efficiency.

Saturday, November 6, 1999

7:30 REGISTRATION OPENS - Complimentary coffee available

8:00-9:00 MYCORRHIZAL FUNGI AND OTHER MICROORGANISMS
Don Marx
This presentation will focus on the pathological problems of Pecknold's personal list of “the 10 best/10 worst” shade and ornamental trees in the Midwest. He'll cover anthracnoses, apple scab, blister leaf of oak, verticillium wilt, aggressive canker diseases and more.

9:00 TRADE SHOW OPENS
This is your last day to see and learn about everything you need to keep your business moving. Be sure to take advantage of all TCI EXPO '99 has to offer!

9:30-10:30 CABLING & BRACING/APPLICATIONS FOR THE COBRA SYSTEM - John Ball
With almost all technological advances, there are advantages and disadvantages. Ball, a former commercial arborist and researcher at South Dakota State University, will be sharing some preliminary research results on the Cobra System, discussing when and where it can be used successfully, as well as informing the audience what questions he has regarding the system and how they are being addressed.

9:30-10:30 GENERATIONAL WARFARE & EMPLOYEE RELATIONS
John Curtis
Don’t let the proverbial generation gap have a powerful influence on every aspect of our society. Listen to this dynamic presentation from John Curtis with Integrated Organizational Development, Inc., a business consulting firm in Maitland, Florida specializing in Organizational Assessment, Strategic Planning, and Human Skills Development.

11:00 ARBORBUCKS DRAWING - Demonstration Area 3
It’s not too late too enter the drawing. You could be the winner!

12.30 ISA Certification Exam Check-in

1:00 ARBORBUCKS DRAWING - Demonstration Area 3
This is your last chance to win! See you in the demo area.

1:00 ISA Certification Exam
To sit for the exam, you must call ISA to preregister at 1-217-355-9411. Application and registration fee must be received at ISA 12 working days prior to exam date.

3:00 TCI EXPO '99 REGISTRATION AND TRADE SHOW CLOSE!
**DRIVING IS EASY**

**FROM: THE NORTH - Chicago - Route I-65S**
Take I-65 South to Exit 114. Go South on Dr. Martin Luther King, Jr. Drive/ West Street to Maryland Street. Take a left onto Maryland Street. The Indiana Convention Center will be on the right.

**FROM: THE SOUTH - Louisville - Route I-65N**
Take I-65 North to I-70 West to Exit 79A. Go North on West Street/Missouri Street. Take a right onto Maryland Street. The Indiana Convention Center will be on the right.

**FROM: THE EAST - Ohio - Route I-70W**
Take I-70 West to I-65 North Exit 114. Go South on Martin Luther King, Jr. Drive/ West Street to Maryland Street. Take a left onto Maryland Street. The Indiana Convention Center will be on the right.

**FROM: THE WEST - Illinois - Route I-70E**
Take I-70 East to Exit 79A. Go North on West Street/Missouri Street to Maryland Street. Take a right onto Maryland Street. The Indiana Convention Center will be on the right.

**FROM: THE NORTHEAST - Ft. Wayne, Detroit - I-69S**
Take I-69 South to I-465 South to I-70 West to I-65 North to Exit 114. Go South on Martin Luther King, Jr. Drive/ West Street to Maryland Street. Take a left onto Maryland Street. The Indiana Convention Center will be on the right.

**FROM: THE SOUTHEAST - Cincinnati - I-74W**
Take I-74 West to I-465 South to I-65 North to I-70 West to Exit 79A. Go North on West Street/Missouri Street. Take a right onto Maryland Street. The Indiana Convention Center will be on the right.

**TRAIN**
AMTRAK's Indianapolis Station is located next door to historic Union Station, just two blocks from the Convention Center. Check AMTRAK reservations for train schedules at 1-800-872-7245.

**FLYING**
US Airways
US Airways has been selected as the primary airline for TCI EXPO '99. It is offering special discounted fares to TCI EXPO meeting attendees. To make your reservation, call US Airways Meeting and Convention Reservation Center at 1-800-334-8644 and reference the National Arborist Association's Gold File #19611030.

Northwest/KLM Airlines
Northwest/KLM Airlines has been selected as the alternate air carrier. Special discounts have been arranged on your air transportation. To take advantage of this special offer, please call Meeting Services Reservation Desk at 1-800-328-1111 and refer to WorldFile #NMMB7. Following these instructions will ensure you receive the best possible price on your ticket.

For those arriving by air, the Indianapolis International Airport is 12 minutes from downtown Indy. Arrangements have been made with INDY CONNECTIONS shuttle service for transportation to downtown hotels. Look for coupons in your registration confirmation packages. This coupon will entitle you to a conference rate of $7.00 per person, one way.

Once in the airport, please go downstairs to the baggage area and claim your luggage. Proceed out the terminal exit doors and follow the signs directing you to the “Ground Transportation Center.” The Center is located directly across the street from the terminal on the ground level of the parking garage.

Go inside the Ground Transportation Center to the first counter marked INDY CONNECTIONS and let the representative know you have arrived. You must present your coupon to the representative at this time to receive the reduced rate.
Finding A Hotel Room

A map for your convenience.
<table>
<thead>
<tr>
<th><strong>Thursday, November 4</strong></th>
<th><strong>Friday, November 5</strong></th>
<th><strong>Saturday, November 6</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 Registration Opens</td>
<td>7:30 Registration Opens</td>
<td>7:30 Registration Opens</td>
</tr>
<tr>
<td>8:30 - 9:45 Keynote Address</td>
<td>8:00 - 9:00 Top Insect Pests &amp; Control Strategies Cliff Sadof</td>
<td>8:00 - 9:00 Mycorrhizal Fungi and Other Microorganisms Don Marx</td>
</tr>
<tr>
<td>9:57 Trade Show Opens</td>
<td>8:00 - 9:00 Accounting: Talking the Talk - Mary McVicker</td>
<td>8:00 - 9:00 Top Diseases &amp; Control Strategies Paul Pecknold</td>
</tr>
<tr>
<td>12:00 Arborbucks Drawing</td>
<td>9:00 Trade Show Opens</td>
<td>9:00 Trade Show Opens</td>
</tr>
<tr>
<td>2:00 Arborbucks Drawing</td>
<td>9:30 - 10:30 Beyond Deadwooding Ed Gilman</td>
<td>9:30 - 10:30 Cabling &amp; Bracing/ Applications for the Cobra System John Ball</td>
</tr>
<tr>
<td>4:00 Trade Show Closes</td>
<td>9:30 - 10:30 Basic Office Computerization Jack Mattingly</td>
<td>9:30 - 10:30 Generational Warfare &amp; Employee Relations John Curtis</td>
</tr>
<tr>
<td>4:00 - 5:00 Developing Pruning Specifications Using A300 Ed Gilman</td>
<td>12:00 Arborbucks Drawing</td>
<td>12:30 ISA Certification Exam Check-In</td>
</tr>
<tr>
<td>4:00 - 5:00 Keeping Your Employees Wayne Outlaw</td>
<td>4:00 Trade Show Closes</td>
<td>1:00 Arborbucks Drawing</td>
</tr>
<tr>
<td>6:00 - 7:00 Welcome Reception for all Attendees and Exhibitors</td>
<td>4:00 - 5:00 Mycorrhizal Fungi and Other Microorganisms Don Marx</td>
<td>1:00 ISA Certification Exam</td>
</tr>
<tr>
<td></td>
<td>4:00 - 5:00 Basic Office Computerization Jack Mattingly</td>
<td>3:00 TCI EXPO '99 Registration and Trade Show Close</td>
</tr>
<tr>
<td></td>
<td>5:15 - 6:15 Using the Internet to Enhance Your Customer Service John Lloyd</td>
<td></td>
</tr>
</tbody>
</table>

**Don't want to wait?**

Indicate on your registration form that you would like your badge mailed in advance. When you arrive at the show, go to the the "Badge Holder Pickup" desk to get your badge holder and pocket program. That's all you need to do to ...

**Avoid long lines!**

Early Bird registrations must be received by October 8, 1999. Registrations received after October 8, 1999, not complying with the appropriate fees, will be billed accordingly. Registration IS REQUIRED to obtain your admission badge. Everyone is required to wear a badge issued by the National Arborist Association to enter the exhibit hall and all seminars.

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

If you are attending 5 or more seminars, BUY GOLD! To purchase the GOLD CARD, which will give you unlimited access to all educational sessions and the Trade Show, check the appropriate box on the registration form and enter the correct amount in the TOTAL COST line.

All registration cancellations must be received in writing at the National Arborist Association office. Cancellations received on or before October 22, 1999, will receive a full refund less a $25 administrative fee. Fees cannot be refunded after October 22, 1999, however you are welcome to send a replacement. No telephone cancellations will be accepted.
1. Registration Form

Name ____________________________
Title ______________________________
Company __________________________
Address ____________________________
City __________________ State ______ Zip ______
Phone __________________ Fax ____________
Signature __________________ Date ______

2. Seminar Selections

THURSDAY, NOVEMBER 4
- #1 - 8:30am Staffing: Key to Success Now and in the Coming Years .......... 1 Hour
- #2 - 4:00pm Developing Pruning Specifications Using A300 ...................... 1 Hour
- #3 - 4:00pm Keeping Your Employees ................................................ 1 Hour

FRIDAY, NOVEMBER 5
- #4 - 8:00am Top Insect Pests & Control Strategies .................................. 0 Hour
- #5 - 8:00am Accounting: Talking the Talk .............................................. 1 Hour
- #6 - 9:30am Beyond Deadwooding ....................................................... 1 Hour
- #7 - 9:30am Basic Office Computerization ............................................ 1 Hour
- #8 - 4:00pm Mycorrhizal Fungi and Other Microorganisms ....................... 1 Hour
- #9 - 4:00pm Basic Office Computerization ............................................ 1 Hour
- #10 - 5:15pm Using the Internet to Enhance Your Customer Service .......... 1 Hour

SATURDAY, NOVEMBER 6
- #11 - 8:00am Mycorrhizal Fungi and Other Microorganisms ....................... 1 Hour
- #12 - 8:00am Top Diseases & Control Strategies .................................... 0 Hour
- #13 - 9:30am Cabling & Bracing/Applications for the Cobra System ............ 1 Hour
- #14 - 9:30am Generational Warfare & Employee Relations ....................... 1 Hour

TOTAL SEMINAR HOURS ___

3. Badge Request

☐ Please check here if you would like your badge mailed in advance.

4. Registration Options

- Gold Card - Includes any 8 seminar selections and admission to trade show (Wednesday Business Managers' Workshop is not included in Gold Card option)

<table>
<thead>
<tr>
<th>BEFORE OCT. 8, 1999</th>
<th>AFTER OCT. 8, 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>$195</td>
<td>$240</td>
</tr>
</tbody>
</table>

- Individual Seminars multiply cost by number of seminar hours _____ X

- Trade Show Entrance Only - Free with paid seminars

- Business Managers' Workshop (lunch not included) - Wednesday, Nov. 3, 1999

<table>
<thead>
<tr>
<th>BEFORE OCT. 8, 1999</th>
<th>AFTER OCT. 8, 1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>$95</td>
<td>$95</td>
</tr>
</tbody>
</table>

TOTAL $____

5. Payment Method

☐ Check Enclosed ☐ MasterCard/Visa AMOUNT $ __________

CARD NO. _______________ EXP. DATE _______________
NAME _______________ SIGNATURE _______________

(as it appears on your card)

6. NAA Membership & TCI Magazine Information

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

You must complete all of the information below to receive your subscription:

4. Business/Industry: (Please check one that applies) ☐ Tree Service ☐ Landscape Contractor ☐ Governmental Entity
   ☐ Property Mgmt. ☐ Consulting Firm ☐ Utility ☐ School/University ☐ Other: _______________

5. Purchasing Authority: (please check one that applies) ☐ Approve ☐ Recommend
Charlotte, North Carolina

TCI EXPO 2000

November 9-11

Success is in your hands ...

Make a difference in your future!

National Arborist Association, Inc.
PO Box 1094
The Meeting Place Mall, Route 101
Amherst, NH 03031-1094