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Holding On……

As 2002 closes down, I’m wondering how many of us feel like we’ve been holding on this year. Holding on to see how long the drought is going to last. Holding on to see whether or not our sales are going to match last year’s numbers. Holding our breath to see if terrorists are going to strike again. Holding on to our families and friends a little bit tighter after making a real values check this year. Holding on to employees as the recruitment pool remains tight. Holding on to see if we can afford the new equipment at the beginning of next year that we didn’t buy this year. Holding on to see if our portfolios are going to keep going down or start a magical march skyward again.

Rep. J.C. Watts Jr. (R-Okla.) once said, “It doesn’t take a lot of strength to hang on. It takes a lot of strength to let go.” If you read the list of things we could have been holding onto this year, there isn’t a one of them that we can control. I wonder how much energy we have wasted as businesses this year trying to control variables that are not within our sphere of influence, much less predictable.

Instead of trying to ride it out, I wonder what would happen if we continued to focus on the possibilities. “What if’s” don’t all have to be bad. However, if we’re always focused on the negative ones, we certainly aren’t going to achieve the positive outcomes. Being prepared is one thing. Being conservative and realistic is prudent. Being scared is paralyzing.

If we let go of our fears and crossed through into our dreams, with careful planning, we can make them come true. You see, “Stress is an ignorant state,” according to Natalie Goldberg in Wild Mind. “It believes that everything is an emergency.” We can either look at what is transpiring in this economy and the new set of variables that we are all living under as unusual, stressful and trying, or we can move through anger and denial about what is occurring and accept that we are in a new normal. The opportunities are still there to be sought. They may just look a little different.

There is no harm in altering plans. After all, that’s all they are – plans. Changing the course to accommodate new information is part of being a good leader. The outcome may be different; the path a little more bumpy; but it does not mean that one can’t go forward.

Think about it. What do we need leaders for – to stroll us through the good times – or to guide us through the rough ones?

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Problem

With repeated observation of any part or process of a system, facts emerge that must be included in the concept of that system. Consider the cell theory, germ theory, DNA, antibiotics, and even the branch collar. In all cases, new facts made it necessary to expand our concepts for these systems.

Almost all of the studies on trees have been done on seedlings, or on aboveground parts in summer. Few studies have been done on mature trees outside. Deadwood anatomy has been and still is confused with living tree anatomy. An understanding of anatomy must precede any understanding of physiology.

Even fewer studies have been done on belowground parts of trees in winter in temperate climates.

Solution

This article discusses results of observations on belowground parts of trees in winter from 1992 to present, in New Hampshire, United States. Some philosophy is given as a plea for Modern Arboriculture. An expanded concept of a tree is given. Trees are viewed as opportunistic multiple systems. Abiotic and biotic factors are discussed as initiators of processes.

Dormancy

Trees have five major phenological stages: Start, leaves, growth, storing and rest.

Reproduction is a sub-pattern that usually starts near stage two. It is impossible to generalize these patterns because there are almost as many variations as there are species. However, every tree system must start again from a quiet period. Every tree must produce new leaves or needles for photosynthesis. Every tree must increase in mass; this is growth. Every tree must store ingredients essential for survival. Every system must rest. Most trees also have reproductive cycles. Some are extremely complex in their patterns.

Dormancy is usually thought of as a period of rest where processes essential for life function at a minimal rate. Dormancy does not mean stopping! Stopping is death.

The second law of thermodynamics states that no system will survive unless it receives a continuous supply of energy to maintain order. In order to survive, trees must also have a supply of water and elements. These points must be remembered as the discussions go on.

Trees as business conglomerates

Trees are often referred to as living systems. Many of the problems with understanding phenological stages could be clarified if a tree was viewed not as a single system, but rather as a cluster of systems connected in highly ordered ways. Maybe a tree is more like a business conglomerate. If the business conglomerate analogy could be accepted, then many different parts of a tree could be in different phenological stages at the same time. Many aboveground stages are different from those belowground. In the sense of natural dualities, the business conglomerate analogy is a better way to view a tree.
Physiology

If a tree is a cluster of systems, and all systems require a continuous supply of energy to maintain order, then it appears that the different systems would require energy that came from storage. It is difficult to accept that energy from photosynthesis could supply all systems at the same time. Some timing or allocations for timing must be there, and also, a supply of energy in a stored state.

This we know is true because trees first form ATP, which is used to form glucose which then forms cellulose, starch and a great number of other substances. Still, glucose is the fuel that makes it possible for the tree to survive. Trees do have ways of storing energy reserves and for regulating the use of the energy for processes to survive.

Water is another essential for life. We think of water, mostly, in its liquid form. Water molecules enzymatically removed or inserted are essential for many processes and products, from cellulose to starch and back to glucose. Trees store water as bound water on the hydroxyls on cellulose. The water is bonded to the cellulose by very weak, but significant, hydrogen bonds. When any force greater than hydrogen bonds is exerted, the bound water then moves to liquid water again.

Water can also exist as a gas or as a solid. As temperatures decrease, the constantly changing positions of the water molecules slow, and if temperature continues to decrease, all possible positions for hydrogen bonding will be occupied and molecular motion stops – ice formation.

Energy flow

Water and energy flow downhill, or from high concentrations to lower concentrations. When ice forms in the spaces between cell walls and even in cell walls, liquid water flows out of the cell and death from dehydration usually follows in plants that are not cold hardy. But if ice does not form, then dehydration may not occur. When temperatures decrease below 0 degrees Celsius, and the water is pure and quiet, ice may not form. This is called supercooling of water. When nucleators are present, the ice will form as crystals about each one.

Element storage

It seems that if energy and water are stored, and that elements are also essential for life, then there must be some way the tree stores elements. It is difficult to conceive that growth and other element-requiring processes receive elements at the time they are required. There must be a storage process for elements.
Elements in molecules often precipitate when pH increases. This we know for iron, manganese and other elements. We know also that some elements such as potassium can be bonded in many chelated-like forms. Potassium is an element that is absorbed in its pure form. When potassium is in high concentrations, the electrical resistivity (as measured by a Shigometer) of the wood is very low. In summer during the growing season, electrical resistivity in k-Ohms is low. As winter approaches, the electrical measurements increase greatly. Summer could be in the 8 k-Ohm or 10 k-Ohm range while winter could be in the range of a hundred, or even higher. If potassium is a factor in electrical resistivity, then it must be bonded in ways that prevent its action as an electrolyte.

Elements must be stored and I believe that much of the absorption of elements occurs in cold soil in temperate climates.

Photos in books

Results showed many active mycorrhizae and root hairs in soil under cold water covered by ice. Ectomycorrhizae and endomycorrhizae from cold soil are shown in color in my book, Tree Anatomy. On the cover of another book, 100 Tree Myths, I have a color photo of ectomycorrhizae and root hairs from a Pinus strobus. There are other color photos of mycorrhizae from cold winter soil in Tree Pithy Points.

Life in cold soil

The mycorrhizae are not only in non-frozen soil under frozen soil, but from soil under water that was covered by ice. Further, many of the mycorrhizae and root hairs at 1,000X with a phase microscope showed abundance of hyphae inside the non-woody roots. The nucleus in a root hair is at the tip of the cell. Nuclei in all shapes were viewed. Active nuclei are round and as they age and die, they become spindle-shaped.

I had other people excavate roots and view them under my dissecting and phase microscopes. The mycorrhizae were always there. My neighbor who teaches a biology course at the University of New Hampshire routinely got samples of mycorrhizae for his class from soil under water and ice from my pond.

Survival

Trees are clusters of highly ordered systems; a conglomerate. Each system requires time, optimum conditions, and a ready supply of energy, water and elements. Each process takes time. In temperate climates there is just not enough time during warm periods to have every process of every system conduct its activities.

Survival in living natural systems depends on the rate of adjustment and adaptation to abiotic systems beyond the control of the biotic systems. Abiotic systems provide space, temperatures, elements, water and energy. The positions on Earth where these factors exist are very different, yet life forms have developed in almost every conceivable place, including ocean vents, to boiling springs, to cavities within deep ice.

It is not difficult to expect processes of some long-term systems optimizing places and conditions considered not the best for life. Absorption of elements developed or adjusted to low temperatures. This then extended the time for a larger cluster of systems to survive. Trees have always been and still are the most massive, tallest, longest living organisms on Earth. To be such superior survivors without the benefits of movement, the tree systems adapted and adjusted to every possible condition present over a period of one solar year.

Absorption

Mycorrhizae are organs made up of fungus and tree tissues. The organs facilitate the absorption of water and elements essential for healthy growth. Trees have many redundancies, some for short-term conditions and some for long-term conditions. Root hairs are finger-like extensions of single epidermal cells that contain very little lignin in their walls. The cell walls of the epidermis do have cellulose, which is not the best of boundaries or membranes for absorption of water and elements. Root hairs are usually ephemeral. They grow as new roots grow and they go or die as woody roots begin to form a bark that contains suberin. Their numbers are usually so great that even if they are poor absorbing structures, they still absorb some water and elements.

Mycorrhizae present a system of synergy. The fungi receive more and the tree receives more with this association. Mycorrhizae live for long periods; a year or more. (Note forms that bud.) A mycorrhiza starts when a hypha from a germinating spore infects a newly forming non-woody root. When some fungi
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**Respiration**

What determines what stays in and what comes in? And what drives this process of absorption? No system can start itself.

Respiration starts the absorption process and once started, concentration...
gradients and the Le Chatelier principle keep it going.

Trees are multiple systems operating in states of dynamic equilibrium. There is the appearance of balance or the static state while many processes are moving at equal rates in opposite directions.

Many tree processes can be explained by the Le Chatelier principle. Natural processes move toward a state of balance, but when they do reach balance, they die.

Yet, as one part decreases or leaves the equation, the process moves in that direction, again in an "attempt" to establish balance.

An understanding of dynamic equilibrium and the Le Chatelier principle are essential to an understanding of not only absorption, but many other tree processes. Remember, balance means no movement; death!

Connections

Nitrogen is essential for growth. What pathway operates for entrance of nitrogen through a membrane into tree roots? And, how does all of this relate to mycorrhizae being abundant in cold winter soil? Here are some additional thoughts based on points of chemistry and results of observations that repeated.

Chemistry behind absorption of nitrogen

Compounds of carbon, oxygen, hydrogen, nitrogen, sulfur and phosphorus make up about 98 percent of the mass of trees. Carbon, oxygen and hydrogen come from water and carbon dioxide; but where do the others come from and how do they get in?

The elements are absorbed as ions. Ions are molecules, or elements, that have a positive or negative charge. Like charges repel, and unlike charges attract. Ions move.

Nitrogen enters as nitrate anion or as ammonium cation. Phosphorus and sulfur enter as molecules bonded with oxygen as anions. Each element enters in its pure state. Ions of sulfur, phosphorus and oxygen are big and heavy. In ways I do not understand, the fungi with chitin in their hyphal walls facilitate the absorption of these ions. The absorption of phosphorus by mycorrhizae is one of their most important functions.

Nitrate ion has a molecular weight of 62. Ammonium ion weighs 18. Now back to respiration. Energy from glucose from stored starch in living root parenchyma cells is made available for tree processes...
by respiration. Respiration is an energy-releasing process. Products of the process are carbon dioxide and water. When some carbon dioxide dissolves in water, carbonic acid forms. The acid dissociates to form hydrogen ions that bond with water to form hydronium cations and bicarbonate anions. Hydronium weighs 19 and bicarbonate weighs 61. When you add 19 and 61, 80 is the sum. When you add the weights of nitrate and ammonium, you also get 80! On the tree side of the rhizoplane, the two ions weigh 80, and on the rhizosphere soil side, the ammonium of 18 and nitrate of 62 again weigh 80. Coincidence? I wonder.

Back to cold soil and cold water under ice. First, water. Cold water contains more oxygen than warm water. Oxygen is a requirement for respiration!

In soil below 0 degrees Celsius, clusters of ice crystals form in minute cavities. In a sense, soil does not freeze, but the water in soil freezes. That is not as important as the fact that cold soil will have many ice clusters. I believe the ice clusters in soil act in a way similar to the sheets of ice over water.

Plants that are not cold hardy die from dehydration because water moves out of the cell, because water moves from high concentrations to lower concentrations. As ice forms in soil, liquid water moves toward the ice clusters. The abiotic cold factor then acts as a trigger for molecules to move. It is fascinating to know that light heat from the sun triggers processes that make life possible – photosynthesis. And, low temperatures also trigger life processes.

As water moves toward ice clusters, air with oxygen fills the cavities. Many living organisms – bacteria, fungi, mites, thrips, nematodes, enchytride worms, amoebae – live in the oxygen-rich cavities. And, roots live there also. Abiotic factors trigger biotic processes!

The rhizoplane is the boundary between soil and living roots and hyphae. The mycorrhizae serve both tree and fungus. In roots in soil under water, I believe the endomycorrhizae benefit from the ready supply of carbon from the tree. In ectomycorrhizae, I believe the fungi and tree benefit from absorption through a chitin-rich boundary. I believe also that hyphae that grow out from mycorrhizae obtain some carbon from decomposing wood and leaves.

Trees, as all living things, pay taxes. Taxes are paid in the sense of exudates that contain carbon. Many soil organisms benefit from the “taxes” and in return the organisms make elements available for the trees. The words of Galileo come to mind as he was faced by his inquisitors. Galileo said God wrote two books – Nature and Scriptures. The problem, he said, was that few people have ever read or know about the book of Nature, and until Book 1 is understood, Book 2 will never be understood. They did not understand what he said. They issued his sentence! (I am now working on Book 1.)

Natural systems have developed in ways that benefit high-quality survival. Systems
in tropical climates are different from systems in temperate climates.

Back to rhizoplanes and the 80, 80 idea. Respiration and the Le Chatelier principle work to keep the processes moving. The natural "attempt" for balance keeps getting disrupted as one part of a two-part system keeps moving to a decreasing state. For example, to move or be absorbed into a root, the molecule must be in a soluble ionic state. This state is soluble in water also, and as water moves in soil, the ions move along with the water away from the target living system. To say it another way, the same ions essential for life also move "downstream" to the groundwater or on to the ocean, where new and different life forms exist. Indeed, the natural systems function to maintain life and non-life, and these processes go on, and will go on, without the intervention of humans. This is what Book One is all about.

**Philosophy**

"Always" is what I believe in. Where does a circle start? I believe that philosophy is a mental trip around a circle. Always.

Life forms and abiotic forms move toward balance. When balance is reached, the nature of the form changes; death. When abiotic forms become so highly ordered, we call the resulting form "living." When living forms become balanced, we call the resulting form "dead."

So long as movement is ordered, life goes on. Dynamic equilibrium gives nonmoving forms, such as trees, the appearance of balance, while actually many systems are moving.

Nature is a super, multiple system made up of what we call living and nonliving forms. Forces external to Earth – the sun – initiate processes of life and death.

When these powerful forces begin to be recognized, then many parts will come together.

In the end Modern Arboriculture will come, albeit slowly, mainly because old arboriculture is accepted by many people and organizations as it assures economic gains. A new train is coming. It is filled with students who have different ideas and values for life. This train includes the quest for solutions that can only come from biology and Book 1, chemistry.

The train is called Modern Arboriculture. It runs on the energy of connections. The lack of knowledge of tree biology has been, and still is, the major problem for trees and tree workers worldwide! Learn about trees. Connect with nature. Touch trees.

Dr. Alex L. Shigo is the owner of Shigo & Trees, Associates in Durham, N.H. The images for this article were taken from a new CD that features more than 5,000 items taken from Shigo's research and travels worldwide over a 40-year period. The CD has more than 100 chapters with more than 4,000 color photos. To order, call 1-800-733-2622 or online at www.natlarb.com.
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Every tree care and landscape maintenance business owner should recognize the need for - and the benefits that can be derived from - tax planning. The objective of tax planning is to defer or reduce taxes whenever possible. Unfortunately, tax planning is often complicated when state and local business taxes are brought into the equation.

One of the most difficult (and often overlooked) aspects of tax planning involves the your operation’s liability for state and local taxes. All too often, planning to take advantage of a legitimate “loophole” in the federal tax laws end up reducing or even eliminating the benefits that transaction generates on the state tax return.

At its most basic, tax planning is an ongoing event. Every company owner should be on the lookout for ways to reduce the operation’s federal and state tax liability. Many businesses have a lot of ups and downs from one year to the next. Sizeable profits in one year reduced by a big tax bill often leaves your business without the reserves necessary to tide it over when sales might not be so good.

Business tax planning

Effective tax planning for any tree care business involves a number of steps, including:

- The owner, shareholder or partner’s personal tax situation should be assessed;
- Tax-reducing strategies should be developed and implemented on an ongoing basis;
- The form of doing business, such as sole proprietorship, partnership, limited liability company, S corporation, regular “C” corporation or even multiple entities should be reviewed;
- Also reviewed should be your accounting period and accounting method;
- The business’s tax strategy should be coordinated with that of the owners;
- State and local taxes should be minimized; and
- Tax law changes should be factored into the ongoing tax planning process.

It is obvious that recent tax law changes have significantly increased both the complexity and the rewards for tax planning. Remember, however, law changes do not affect only the federal tax bill.

2002 federal tax law changes

The Job Creation and Worker Assistance Act of 2002, signed into law by President Bush on March 9, 2002, made a number of significant changes to our basic tax law. Designed to stimulate the economy, many tree care professionals have already benefited from those changes, several of which were retroactive to the 2001 tax year. Unfortunately, the tax authorities in many states have been “cool” to the federal stimulus efforts. Since most states use the Internal Revenue Code (the federal tax law) as the base for their state income taxes, the federal cuts threatened to reduce state revenues. Many state legislatures have forestalled that possibility, thus reducing the amount of savings that many your operations might have otherwise enjoyed as a result of the economic stimulus package and other tax legislation passed in 2002.

With states limiting or taking away the benefits of JCWA, how can any owner hope to fully stimulate the economy of their tree care business? The answer lies in the systems – both federal and state.

Federal tax breaks – 2002 style

Businesses received the lion’s share of the tax breaks under the JCWA. That stimulus bill included a provision that provides businesses with a “bonus” 30 percent depreciation deduction on capital equipment purchased between Sept. 11, 2001, and September 11, 2004, and a second deduction that extends the time period for using net operating losses to offset taxes – in essence, creating refunds of previously paid taxes for many troubled tree care operations.

As passed, the federal stimulus package was much smaller than the one proposed by the Bush administration. However, its implications for state budgets were reportedly still too large for many state legislatures to go along with. Through legislative action or inaction, a majority of states have declined to adopt the depreciation “bonus” and the NOL provisions.

The result will be more tax dollars flowing into state treasuries while many tree care businesses will face increased complexity as they account for their income and assets differently for state and federal purposes.

Bonus depreciation = more bookkeeping

The depreciation “bonus” of the JCWA allows tree care operations an additional first-year depreciation deduction equal to 30 percent of the adjusted basis of qualified property such as equipment, software and even improvements made to leased business property. On your operation’s federal tax returns, the 30 percent “bonus” depreciation is allowed for both regular
and alternative minimum tax (AMT) purposes for the tax year in which the property is placed in service.

Naturally, the basis of the property and the depreciation allowance in the year of purchase as well as in later years must be adjusted to reflect the additional first-year depreciation deduction. In other words, any “bonus” depreciation claimed on the tax return will reduce the book value of the underlying asset and the amount of depreciation deductions that can be claimed in later years.

Only 13 states have laws that conform to the new federal provisions on “bonus” depreciation. Twenty-four states plus the District of Columbia have not conformed. Of the remaining nine states with personal income taxes, corporate income taxes or other business taxes that are substantially similar to corporate income taxes, most require taxpayers to add back a portion of the federal depreciation “bonus” when figuring their state tax but then allow for the remainder of the “bonus” to be taken in later years.

Of the remaining jurisdictions, 40 states have adopted the basic NOL provision but limited the amounts that can be carried back. Of the remaining jurisdictions, 40 states and the District of Columbia have not adopted the NOL provisions thus far, while Nevada, Washington and Wyoming don’t impose corporate or personal income taxes.

Factoring it into planning

Faced with budget shortfalls, many states are balking at adopting tax breaks included in the federal economic stimulus package and other federal tax-related legislation. The quandary for the states is this: Should they go along with the tax breaks and suffer another revenue hit, or refuse, thereby denying business taxpayers some benefit and complicating an already complex tax code?

Regardless of whether the states decide to accept or reject tax benefits created on the federal level, you can claim a legitimate federal tax deduction for all state, local and foreign taxes paid or accrued within the tax year - at least to the extent that they are directly attributable to the business (or to the production of income). In fact, even advance payments of estimated state income taxes made by a cash-basis tree care business under state law are tax deductible in the year paid.

The fact that a state is out of conformity with the JCWA and other federal tax breaks now doesn’t mean that it will necessarily remain so. A number of states normally synchronize their law to the federal provisions as of Jan. 1 of each year.

Remember, however, that tax law changes - whether on the federal or state levels - are not the only reasons for business tax planning. The changing economic climate, competition, your personal circumstances and, of course, the goal of both the business and its owners are constantly changing. Tax planning should reflect those changes.

Tax planning is - or should be - a year-round endeavor. An owner or manager should know what deductions are available to the operation and keep the records necessary to support and document every business transaction. In this manner, the resulting tax savings can be used to successfully operate and grow your tree care business. Naturally, that tax planning should incorporate the tax rules of the state or states where the business operates.

Mark E. Battersby is a tax and financial advisor, freelance writer and columnist. His syndicated weekly column on topical small business tax matters is carried by more than 60 newspapers.

Few states like NOLs

Under our federal tax rules, net operating losses (NOLs) can be carried back two years. The new law temporarily extends that general carryback period from two to five years. In addition, certain NOLs that are usually carried back for three years, such as casualty losses, can also be carried back five years under the JCWA.

This enhanced federal carryback applies only to losses that arise in tax years ending in 2001 and 2002. Every tree care professional is given one opportunity to "elect out of" or reject this treatment - and the choice is final. The new law also allows a taxpayer’s NOL deduction to reduce its alternative minimum taxable income (AMTI) up to 100 percent.

Unfortunately, only seven states have adopted the NOL provision and only four of those - Alaska, North Dakota, Oklahoma and Vermont - have adopted the provision as written in the federal law.
Changes Afoot on Capitol Hill

As the proverb goes, there is nothing permanent except change. There have been a few changes recently which are worthy of note in this column.

On election day, Republicans gained control of the Senate and increased their majority in the House. This shift of power will undoubtedly produce a ripple effect through the various Senate and House Committees that impact small business.

When the 108th Congress is sworn in, Republicans will have 51 Senators and Democrats 47, plus Independent James Jeffords (VT) who caucuses with the Democrats. The Louisiana Senate race between incumbent Mary Landrieu (D) and election commissioner Suzanne Haik Terrell (R) will be decided in a runoff election on Dec. 7.

In the House, Republicans picked up a few seats, giving them a 227-206 edge over Democrats. Like the Senate, the House contains one Independent and has one race still undecided.

Congress returns in late November for a "lame duck" session to complete work on the fiscal 2003 appropriations bills. Republicans will be in charge during the lame duck session, since Minnesota Governor Jesse Ventura appointed an Independent to fill the seat of the late Senator Paul Wellstone (D) and former Congressman Jim Talent (R-MO) will be sworn in to replace Senator Jean Carnahan (D-MO). Carnahan was appointed to the position to take the place of her late husband Mel Carnahan, who was elected posthumously in 2000.

The shift of power in Congress has a trickle down effect that is likely to favor employers. For instance, with the Republicans gaining the majority in the Senate, Sen. Michael Enzi (R-Wyo.) will be the likely chair of the Senate Health, Education, Labor, and Pensions Subcommittee on Employment, Safety, and Training. Enzi is the ranking Republican member of the subcommittee and was chairman before Sen. James Jeffords (I-Vt.) left the Republican Party in 2001. During his tenure as chairman, Enzi pushed for legislation to revamp the Occupational Safety and Health Administration. His Safety Advancement for Employees Act (S. 385) would have given employers a one-year exemption from OSHA inspection penalties if they had their work sites thoroughly reviewed by a safety consultant. Enzi’s proposals passed the Labor Committee twice - in 1997 and 1999 - but never reached the Senate floor because of opposition from the AFL-CIO and Senate Democrats.

The Republican takeover of the Senate pretty much leaves the so-called Breaux bill dead. The bill (S. 2184) would have forced the Labor Department to complete a federal ergonomics standard.

Another recent turn of events will undoubtedly have more of a direct impact on arboriculture.

Just before Election Day, Secretary of Agriculture Charles M. Kuperus announced that the Asian longhorned beetle - which attacks and kills maples and other hardwood trees - had been detected for the first time in New Jersey. Based on an initial survey, it appears that approximately 100 trees are affected within a 9-acre area just north of the Newport Parkway and just east of Washington Boulevard. The source of the infestation is unknown.

Employers Beware!

How would you like to be sued by someone who never worked for you but claims your actions cost him wages? It could happen after a three-judge panel of the 9th U.S. Circuit Court of Appeals ruled that workers who claim they lost jobs or wages because employers knowingly hired illegal immigrants could sue those employers. With millions of illegal aliens in this country - many working in the green industry with false papers - employers could find themselves in court. The word "knowingly" will undoubtedly prove crucial. Did the employer hire workers without papers? Were the false papers of such poor quality that the employer should have known they were false?

Even more ominous, those claiming lost wages or jobs can sue under the RICO (Racketeering Influenced and Corrupt Organization) statute, a law originally targeted at ongoing, organized crime. RICO laws allow for triple damages in civil suits. Private groups plan to use RICO to go after employers. The head of the Federation for American Immigration Reform (FAIR), Dan Stein, recently said, “Nothing has been able to motivate the American government to enforce its immigration laws – not overwhelming public support for tighter controls, not even the reality and continued threat of international terrorism. After decades of pleading for government action to curtail illegal immigration, the public’s recourse may come down to the most American of all solutions: Sue the bastards!”

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For more information on the Asian longhorned beetle, including photos, visit the USDA’s Animal and Plant Health Inspection Service web site at www.aphis.usda.gov. Under Hot Issues, click on the Asian longhorned beetle.

Peter Gerstenberger is vice president of business management, safety and education for the National Arborist Association.
The Care of Trees Acquires Calif. Co.

The Care of Trees has acquired Safe & Beautiful Trees & Landscape of Palo Alto, Calif., adding to its divisions in metropolitan Chicago; New York; Washington, D.C.; and Philadelphia.

“When we launched the business in the Chicago area more than 25 years ago, becoming a national company was only a glimmer in our eyes,” said John Hendricksen, chairman and CEO. “But we steadily gained momentum over the years, opening offices and acquiring businesses throughout the Northeast and Mid-Atlantic. We have long targeted the San Francisco area as one of the most dynamic and high-potential tree care markets in the U.S.”

The Care of Trees specializes in tree preservation and restoration for commercial, residential and municipal properties, recently formalizing its expertise by launching its Tree Preservation and Land Restoration division.

A residential tree-care firm, Safe & Beautiful has revenues of approximately $3.5 million and 35 employees. Over time, The Care of Trees will expand the range of services currently offered by Safe & Beautiful, whose former owners will remain involved with the business as consultants during the transition.

The acquisition of Safe & Beautiful comes on the heels of the launch of a consolidation of all of The Care of Trees divisions under one name and logo.

Stihl Low-Emissions Engines Made in U.S.

Domestic manufacturing of STIHL’s outdoor power equipment recently began using the company’s next generation, low-emission engine: the STIHL 4-MIX. With this new technology, STIHL will meet the Environmental Protection Agency (EPA) Phase 2 emission standards taking effect in 2005 and the current regulations set forth by the California Air Resources Board (CARB).

Husqvarna a Sponsor of Capitol Holiday Tree

Husqvarna will serve as an official sponsor of the 2002 Capitol Holiday Tree, which will adorn Capitol Hill in Washington, D.C., for this year’s holiday season. For the third consecutive year, Husqvarna will be providing two professional-grade chain saws for the tree cutting ceremony as well as head-to-toe safety gear for the personnel performing the tree felling.

This year’s Capitol Holiday Tree will be cut in the Umpqua National Forest near Roseburg, Ore. The tree will then be carried cross-country via truck to Washington, D.C., for an official lighting ceremony, scheduled for Dec. 11. More information on the 2002 Capitol Holiday Tree is available at www.capitolholidaytree2002.com.

“The Capitol Holiday Tree is a wonderful symbol of a festive, joyous time for our nation,” said David Zerfoss, president of Husqvarna. “We are pleased to continue our involvement in this outstanding program.”

SavATree Moves into Northern Virginia

SavATree, an NAA member since 1986, recently purchased Atlantic Tree and Arboricultural Enterprises, LTD. (AEL) of Manassas, Va. Both the Atlantic Tree and AEL operations were merged with a new SavATree office also located in Manassas.

The new office is being supervised by District Manager James Herth, who had been serving as branch manager in SavATree’s Southampton, N.Y., office.

New Manager for Deutz Energy Business Division

Mr. Wilhelm Boyemann has taken over the management of Deutz Energy, the Business Division of Deutz AG that produces power generation equipment at the Mannheim, Germany, location. Mr. Boyemann is thus responsible for the worldwide sales of power generation equipment using the environmentally friendly DEUTZ gas engines.

He graduated as an engineer specializing in mechanical engineering, and now has many years’ experience in the energy sector and the gas engines industry. He served at a senior level in Deutz.
AG from 1994 to 2001; for the first five of these years, he was in charge of the sales office of the former Deutz subsidiary MWM Diesel- und Gastechnik GmbH in Hanover, Germany, and after that became Sales Manager for Northern, Central, and Eastern Europe with Deutz Energy GmbH, based at the Mannheim location.

After a period as sales manager with E.ON Engineering in the Technology Centre in Gelsenkirchen, Germany, Mr. Boyemann is now with DEUTZ AG and heading up the DEUTZ ENERGY Business Division.

TIME Mfg. Conducts Product Education

In October, several TIME Manufacturing head executives held regional distributor meetings at dealerships in Kingspark, N.Y.; Springfield, Ill.; and Salt Lake City, Utah. The primary purpose of these meetings was to teach all Versalift distributor sales representatives how to fully utilize the newly redesigned VXD Digger Derrick.

The eight exclusive VXD features focused on at the meeting included: fail-safe, electronically controlled zone rating; electronically controlled overload protection; the microprocessor-based remote control; digger on the third boom stage; 15,000 lb. winch on the third boom stage; automatic hydraulic leveling and rotating buckets; automatic hydraulic leveling pole claws and buckets.

A competitive rodeo was held that afternoon to see who could employ these features most effectively to win cash awards and recognition as the region’s top VXD operator/salesman.

The top honors for the East region went to Dave Blocker of North American Equipment Uphitters; for the Central region, the winner was Dave Hatfield of ABM Equipment & Supply; and the West regional winner was Jack Jeffrey of VERSALIFT Southwest.
Log Stomper FX
The Log Stomper FX from Primex features a 23-degree bar angle, an increased bar width and special shoulder buttresses, for longer wear. The Log Stomper FX is available in 35.5-32, 30.5-32 and 28L-26 sizes, with a 24.5-32 version hitting the market by the end of the year. Log Stomper tires offer full sidewall protection. For more information, contact Primex Tire at (416) 740-5055.

Ogura Industrial Corp. introduces its V Series of electromagnetic clutches that includes a “silent” armature option. The unit incorporates a noise-dampening plastic disk in both the armature and the rotor. The disks dampen out the high-frequency noise and also reduce the time of the noise wave by approximately two-thirds. This reduced-noise version was developed to satisfy applications in which clutch or brake engagement noise would be objectionable. The V Series is currently available in 4 modules from 3 to 43 pound feet in torque and is available with either 4 volt or 90 volt coils. For more information, contact Ogura Industrial Corporation, Somerset N.J. 08875; phone (732) 271-7361; or visit www.ogura-clutch.com.

Heavy-Duty Hardscaping Tools
Brickstop recently introduced several new hardscaping tools to the marketplace, complementing the company’s existing line of aluminum and plastic-edge restraints, paver tools and stone-hauling equipment. Brickstop’s aluminum landscape rake weighs in at 5½ pounds for the 3-foot model and is available in five sizes, ranging from 24 to 48 inches. The tool features extra-thick tines and an extended striking edge that increases versatility and eliminates dirt buildup. The rake features a 66-inch powder-coated aluminum alloy handle and solid wrap-around aluminum bracing for extra strength. For more information, visit www.brickstop.com.

New Hopper Spreader Line-Up
Western’s new line of V-box spreaders is designed for ice control on driveways, roads and parking lots. The spreaders mount on pickup, dump or platform trucks. They are available in 7-foot, 8-foot and 10-foot body lengths, in powder-coated steel or stainless steel, and with a choice of 10HP I/C Tecumseh, 11 HP I/C Honda or hydraulic motor. The spreaders have an offset drop chute, direct-drive system coupled to gear case input; and poly spinner and poly chute deflectors. For more information, contact Western Products, P.O. Box 245038, Milwaukee WI 53224-9538; call (414) 354-2310; fax (414) 354-8448; or e-mail info@westernplows.com.
Built-Rite 18SCP-HP
Built-Rite has taken its small wood processor Model 18SCP and improved it, resulting in the Model 18SCP-HP. The new model has several improvements over the original model, including 24 HP Honda motor, long-lasting single-stage hydraulic pump, auto-cycle splitter valve, larger hydraulic and gas tank, and a torque axle for smoother towing. For more information, contact Built-Rite at 1-800-757-2520.

Self-Propelled Stump Grinder
The new Hawk Self-Propelled Stump Grinder is designed to offer a portable, user-friendly alternative to full-sized stump grinders. The Hawk is capable of grinding any diameter stump from a height of 24 inches to 16 inches below grade. The Hawk offers several built-in safeguards, including a weatherproof Manual Pack mounted on the handle bar and attached with a steel tether to ensure the operator's manual stays in one place. In addition, the angled frame and extended rear frame position the operator away from the grinding. For more information, contact Hawk Equipment Corp., 14118 Fairgate Blvd., Newbury OH 44065; call 1-877-591-5855; visit www.hawkstumpgrinder.com or e-mail info@hawkstumpgrinder.com.

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How you price your work dictates how you run the rest of your company. There is a difference between estimating and bidding, and it is very important to understand why.

Estimating is the science of arriving at what a job will cost based on what you pay for material, what equipment you will use, and how quickly your people perform the work. I like to call estimating "reverse job costing." Estimating means asking the following question before you take down a tree: If I could see all the checks that I will write to do this job, what will those checks total?

Bidding, which is a proposal to the owner, is something entirely different. Bidding is turning in a proposal or a price that says, "I’ll do your job for $2,313." If you don’t keep estimating and bidding very separate in your mind, you are going to fall victim to the conspiracy worked out against the arborist contractors of the world. That conspiracy can be summed up in two words: competitive bids. If the homeowner tells you that he or she is going to get a few bids, arborists immediately come in low to win that bid. You may end up as the lowest bidder – but what good is earning the business if you lose money on a project? You must not lose sight of the fact that estimating is the science of arriving at what a job will cost your company. To those costs, you add certain factors and come up with a bid.

First, I will give an overview of a system for contractors of all kinds on how to create estimates. Your own system will be a little different in reference to hourly rates, but I want to outline the dynamics of the principles that drive a pricing system. Then, I
will show you how you can use that system to do your job costing and have a financial statement that locks in with the way you price your job.

The system for pricing work (estimating)

When I bid a job, I start with what I call, “produce the product.” When a homeowner needs some trees taken down and other trimmed, in her mind you will be producing a product for her. Thus, the first question that you want to ask is simply, “What is it going to cost us to produce the product as the owner sees it?”

You need to include the cost of materials, equipment, labor, overhead and markups. The cost of labor is based on production hours times an average wage. The cost of equipment is based on production hours (or days) multiplied by the cost of that equipment. The cost of markups depends on taxes as well as “labor burden.” These costs get complicated, however, and I want to explain them here:

1. The cost of equipment

The minute you own equipment, you have gone into another business. You are no longer just an arborist – you are in the equipment rental business as well. Treat your equipment like a rental. Equipment is never ever a part of your overhead – it is a cost to each and every job.

When I come up with the cost of a piece of equipment, there are three different areas in which I figure that cost: Purchase price; lifetime usage; and maintenance-plus-insurance-plus-license.

Purchase price

Let’s find the cost of a generic field pickup truck with no radio or air conditioning. The price of that pickup brand new is $26,000, plus interest, which would bring the total to around $32,500. Even if you can afford to pay cash for your trucks, you still need to include interest into your figure based on the purchase price so that you will get interest back on the money that you spent for it.

Next, subtract salvage value, which is the value of equipment at the end of five years. This value can vary based on how tough employees are on your equipment. Employees generally don’t really think much about these vehicles because they are just work vehicles. Let’s say the salvage value is $4,500, leaving you with a total working cost for that pickup of $28,000.

Lifetime usage

This term answers this question: “Over a five-year period, how many times will this truck go to somebody’s property and bring back money?” You need to build in to the cost of the job, or basically “rent” it to be used for that job.
Assume that your crews work 40 weeks out of the year, and the other 12 weeks it is raining or snowing or the piece of equipment is sitting in the shop getting fixed. If that truck is going to go out and bring in revenue 200 days a year times five years, it will bring in revenue for 1,000 days. Divide 1,000 days into the $28,000 and you will see you need $28 per day to cover the cost of the truck. Every day that truck leaves the shop, it had better come back with $28.

2. The cost of labor

You know what you pay your employees in wages. To arrive at an accurate estimate, you will need to know two other numbers: the actual number of hours employees are working and bringing in money, which is very different form the number of hours you are paying them, and the additional costs of what I call the labor burden. When considering the cost of labor, look first at production hours. Ask yourself: How many production hours will it take to do this job?

The labor burden is the aggregate cost of all labor costs incidental to operations beyond normal salary or hourly pay. Labor burden is expressed as a percentage multiplied against labor dollars to come up with labor burden dollars. Labor burden covers all labor taxes (such as FICA and Social Security), labor insurances (workers' compensation, liability), and labor benefits (holiday pay, vacation pay, and health insurance). Labor burden - depending on your workers' compensation - can be anywhere from 30 percent to 60 percent of every labor dollar.

3. The cost of overhead

Overhead includes the kinds of things that cost you money in order to do the job, including insurance, rent, phones, computers, etc. This category includes several things that are not a part of producing the product but must be included in your price.

Overhead also includes two things called supervision and mobilization. Supervision doesn't refer to running around checking on crews; it refers to the foreman who isn't up in the tree trimming but is simply dealing with the homeowner and supervising the job.

Mobilization includes the costs of getting to and from the job, preparation time, and cleanup time. If you run your companies like I don't want you running your companies, then every morning employees show up at the shop for "morning circus." At 7 a.m., 20 people show up and punch in. For 15 minutes, they sit around drinking coffee while the boss is in his office figuring out who is going where - which he can't figure out until he sees who shows up. At 7:15, the boss takes command and directs everybody where to go. It is 7:45 before the last truck leaves, heading for a Dunkin' Donuts. It is 8:30 before they are even at the first job site and you have been paying them for an hour and a half.

Mobilization costs can add up. I once showed up for an arborist client's morning circus to estimate what it cost him. At the end of the day, I sat down
and figured out his circus was setting him back $155,000 per year. He hit the roof and we went on a morning circus campaign. He hired a teenager to come in at night to take care of everything. The employees would pull in at night, park the trucks and punch out. From 4:30 to 8:30 at night, the teen employee unloaded all of the equipment and took care of it. He hired another person to come in early in the morning to fill up all the vehicles at the gas station. A third person would come in an hour early and load each vehicle with what was needed that day. As a result, at 7 a.m. when the employees showed up, they could punch in and go straight to the first job. Everybody was gone by 7:20. We got his morning circus all straightened out and saved about $50,000 per year.

As you plan your budget for 2003, inflation must be incorporated. As you use the facts from the previous year in what you spent on overhead, prepare a futuristic budget by asking yourself three questions:

1. Is the cost of this item going to go up or down because of inflation?
2. Is the cost of this item going to go up or down because I am going to do more or less volume?
3. Is the cost of this item something that my accountant has in overhead somewhere else in my estimated system?

Putting it all together

Let’s put this all together: If you have six employees going out on the job, you have to come up with their average wage, put on the labor burden, and come up with a combined figure for the entire cost of that crew. Add in overhead and your profit to arrive at a total crew cost. Divide that total crew cost by the number of crew workers and then by the number of hours the job will take. This will give you an hourly price for each worker.

If I go out on the job and figure it will be a two day job, I calculate 16 crews hours per day (eight hours, crew of two, including load up and travel time), multiplied by this hourly rate, plus the cost of any material and/or subs. This is similar to how we come up with the cost of equipment.

Here is another example:

Let’s say that my average wage is about $16 per hour, and I have a labor burden of 40 percent, which is $6.40, giving me a total of $22.40.

I assign a crew of six people, which makes that crew $144.40 just at a raw cost per hour. They have with them a chipper that is $25 per hour. They have a two-ton truck that is worth $12 per hour and a pickup worth $8 an hour. Miscellaneous equipment is at $45 per hour. I am at $90 an hour for my equipment; $90 plus $144.40 equals $224.40 per hour.

Let’s say that I need $12 per man hour for overhead for a six-man crew; that adds up to $72.60 for overhead. Take $297.00 divided by a six-man crew and I will need $50 per man-hour for my men, equipment and overhead. Now, add 15 percent to 30 percent profit and you are done.

What is job costing?

Job costing compares estimated costs to real costs. It has only one purpose – to see if you have an estimating problem or a field problem.

Job costing takes the actual cost to do a job – the actual amount of material that you bought, the actual amount of labor you had, the actual amount of hours you used your equipment – and compares it to what you estimated the cost to be.

If you have a salesperson bidding jobs and actual job costs always overrun his estimated costs, no matter which crew does the work, you should have a problem with that salesperson. On the other hand, if you have a salesperson bidding jobs for four crews and three of those crews come very close to the estimate time after time but one crew always seems to overrun the estimate, you should have a problem with the crew.

Job costing allows you to compare estimated costs to real costs so that you can deal with any problems.

Overhead recovery

Too often, when a contractor knows what a job will cost, he can’t help him-
self and just adds overhead to the cost. Then, he comes up with a new total and subtracts it from the income to see if he made a profit. This is not job costing. This is running a financial statement on a job-by-job basis and doing a profit-loss statement on each and every job. It is what I call a snapshot, but it is not job costing, because you are not dealing at the level of cost.

Too many arborists think that if they make money on every job they must be making money as a company. It just isn't true. You know what your company is? It is a mural made up of all the snapshots. You might take all of those nice snapshots which look profitable to you, but when you put them up on the mural, the mural doesn't look good. The mural doesn't look good because there aren't enough pictures up there. There are holes of unrecovered overhead. We have to recover your overhead. There are holes

though you looked at your jobs and they looked good, you didn't do enough of them to recover your overhead.

Or you could have done something worse. You didn't discipline your overhead and you spent more than you recovered. By looking at overhead not as something you charge for but rather as something that you recover, you can make sure you recover it, and then discipline yourself so that you don't spend more than you recovered.

You can make money on every job that you do, but it will not guarantee you a profit until you first recover all of your overhead.

Make your estimations concur with accounting numbers

Last but not least, you need to ensure your costing practices concur with your accountants. Ask yourself, “Is this item that my accountant has in overhead somewhere else in my estimated system?” If the answer is “Yes,” then you need to restructure how you allocate overhead.

For example, if your accountant put all the depreciation on your equipment in overhead and you depreciated that pickup truck from $24,000 down to the sales price of $4,500 in the cost of the equipment, then you have it listed twice. Likewise, most accountants put all the interest payments on your equipment loans into overhead when they lump together all the interest on equipment loans, interest on your charge card, etc.

Where do we put the interest payments on that equipment? On the cost of that equipment. Where do most accountants put all the repairs and maintenance on your equipment? Overhead.

If you go through that financial statement of your accountant and you prepare your overhead and the accountant prepares what he or she calls overhead, then you may very well be putting costs into your pricing system twice. You will not get away with it. Go through that overhead budget with a fine-tooth comb. Make sure there are not things that are in the accountants’ overhead that you have put somewhere else in the system.

Summary

If you focus on just two things, you will be profitable: control your labor, and control your overhead. Labor is the greatest risk in this business. Trees don’t get drunk on Thursday night and not show up for work on Friday. People do, and that makes them the greatest risk to profits.

I guarantee that if you run your businesses with a complete and total focus on controlling labor and overhead, then you will make money. Most people put their focus on getting more work and growing. They want to buy more and more equipment. They should focus instead on labor and overhead.

As a private consultant, Charles Vander Kooi has helped more than 1,200 companies. He speaks to an average of 90 associations, trade shows and conventions each year and is a member of the National Speakers Association. This article was excerpted and adapted from a seminar at TCI EXPO 2001 in Columbus, Ohio.
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Overcoming Nature and Civilization

By Rick Howland

Though not simple, the job was simple enough. At first.

The once majestic and now-dead 130-year old oak behind
the Zanesville, Ohio home (50 miles east of Columbus) would
be a “cut-and-leave-lay” job.

Then, things changed. The homeowner decided it would be
t better to order a complete removal. The only problems were
that the houses in the neighborhood were closely spaced on
both sides, and the tree was perched 6 feet from the edge of a
wide, 75-foot deep ravine with power lines running through it.

The original plan to employ a crane that would “cherry-pick”
the pieces and lay them on the ground had to be abandoned in
favor of a more complicated one. The new plan involved re-
moving the tree in sections, lifting it over the rooftops and
depositing it on the street for reduction and removal.

Wess McCullough of McCullough’s Tree Service had been
called in to do the job. The family-run company, serving the
Muskingum County in southeastern Ohio, was founded by
Wess’ dad about 25 years ago. Wess, a graduate of Ohio State
University, took over in 1997.

The company’s specialty is tree care and small lot clearing,
according to Randy Ruggles, the company’s sales-service con-

sultant. “We specialize in removal and pruning and follow ANSI
standards for pruning as well as for removals like this,” he says.

Depending on the season, McCullough employs 10 workers
including those in the office. Equipment includes a 70-foot
bucket truck, two chip trucks, two chippers, a log loader, a track-
propelled stump grinder for residential uses and a Ford 450 dump truck.

"We're probably the largest in the business around here," Ruggles relates. "We take removal and pruning seriously – we are into tree care, not just tearing them down and chipping them up. Ours is a holistic approach."

As Randy describes the situation, "The residential client called us with a large dead oak 25 feet behind his home. With prevailing west to east winds around here, the tree presented a pretty good threat to that home as well as other houses in the neighborhood if it went over."

The "last man standing" in what probably was once a larger forest of oaks bordering the area, this venerable tree had been deteriorating for two years, according to the homeowner. The end was near. Though still structurally sound, the tree was beginning to suffer with the decay of 2 to 4-inch caliper limbs.

The tree sat on a level shelf in the back yard and overspread the ravine with power lines running through. Because houses on either side were only 5 to 6 feet away, the only access was on foot.

It is with that thought that McCullough and his crew approached the job. "Because the project would involve homes and other obstructions, including power lines and trees, tree sections would have to be lifted straight up and over the houses to the street," Ruggles explains.

As written, the work order would be to "safely and efficiently remove a dead and hazardous red oak from behind the client's private home." The secondary part would include the "complete removal with zero damage to the client's home, two homes close to the tree, other trees in the vicinity, and all hardscapes."

Those "other trees" included interesting species which needed to be protected – red elm, white oak and wild black cherry (all of which now enjoy a greater share of sunlight).

"These goals were centered around ensuring the safety of all crewmembers, residents and passersby," confirms Ruggles.

After the city selected the removal date, one of the first calls was to subcontract with Baker's Crane Rental to secure an 80-ton crane, a Grove TM800, large enough to be placed in the street, long enough to reach over the houses at a height sufficient to pluck tree
parts, and — with correct calculations — strong enough to make the lifts safely.

In planning for the project, McCullough and his crew would have to anticipate a variety of challenges for two climbers, including planning and rigging each cut, estimating the weight of each piece and what it was likely to do when cut away, coordinating and communicating with the crane operator who often would be out of their direct line of sight, assessing crane weight limitations, directing on-ground safety and, of course, keeping an eye on winds and weather.

The company favored using a larger crane because of the variables involved with a project like this. Ruggles explains, “As much as you plan, you can never be exactly sure what will happen when a piece cuts loose, so you want to be conservative in estimating equipment capabilities.”

Crane service owner Jeff Baker recounts that the decision to opt for the 80-ton — one of seven in his fleet — was simple. “Select one big enough to work safely and efficiently,” he suggests. His ’74 Grove, mounted on a self-propelled carrier, would take one hour to set up.

The straps have been cinched and the lower climber has moved to a safe area.

The crane’s on-board computer would monitor boom length, radius, boom angle, weight on the boom, the maximum bearing capacity for the crane in virtually any position.

The Grove was selected, Baker explains, “because the size was sufficient, it was the right price, and it was available.” Delivery price included the crane, one operator and one oiler. “I went as an observer,” says Baker. “Any time there’s a critical pick, I like to be there. I’ve worked with McCullough maybe 10 times a year for the last three years, so I was pretty confident.”

Two climbers, McCullough and Todd Hammers, and a four-person ground crew would coordinate with the crane operator via hand signals. Plans were made with the city of Zanesville to close off the light to medium-traveled road for a 6-hour period. Nearby occupants were instructed leave their premises for the duration of the procedure, and a safety perimeter was established for the inevitable audience that would gather.

For each section to be removed, two
6,000-pound-capacity straps were set in place by Hammers, who then would move to a safe position. Each piece would be rigged not to flip or roll once it was lifted. McCullough would make the cut, then communicate with hand signals to the crane operator.

Climber’s ropes would be half-inch, 16-strand lines rated at 8,100 pounds tensile strength. Safety equipment included personal protection, such as hard hats, face shields, safety glasses, saw caps, and sturdy protective work boots.

The crane operator determined the safe work load of the system to be between 2,800 and 6,000 pounds depending on crane position. Once the safe work load was determined, climbers estimated the weight of each piece according to the Green Log Weight Chart (Annex E of the ANSI Z133.1 standard). In its written report on the project, the company emphasized that the entire project was performed in compliance with that standard.

Company-wide, McCullough makes it a practice to follow the safety training guidelines set forth by the National Arborist Association. Weekly safety meetings are held to discuss potential safety issues on the week’s job sites and to cover general safety items. Twice a year, entire days are set aside for safety sessions and to review company’s safety policy.

Safely positioned groundsmen (including one positioned on a house rooftop) would relay signals from the climbers to the crane operator when eye contact was not possible.

The crane operator’s job would be to lift each section away from the climbers, obstacles, up and over rooftops and place them in the road. There, logs were staged for hauling and brush was chipped.

The day broke sunny and nearly still with winds. A perfect environment for the job. Since McCullough has its own weather-tracking system, they had known it would likely stay a good day.

One unexpected situation occurred when the crane operator found the crane was unable to sustain the weights as originally projected during the initial site inspection and job assessment.

According to Ruggles, the crane’s computer gave the warning, indicating that the first piece of main trunk was too heavy for the planned setup. The original estimate of a 5,000-pound capacity lift had to be scaled back to only 2,800 pounds due to the results of the angle/height equation.

“The smaller pieces of the upper canopy came out nicely, just as we had planned,” Ruggles explains.

But when the first main trunk piece presented a problem, according to the readouts, the plan to keep each lift at under 60 percent of load capacity meant the McCullough crew would have to make some changes – smaller pieces and more lifts. From there on, the project returned to the precision clockwork movement as planned.

From his station at the front of the house “It was pretty impressive” Ruggles recalls, “watching each piece coming over the house.”

“It was one of the slickest jobs we’ve ever done.”
Making Personal Protective Equipment Work for You

By Phillip Meeks

Do you know why a fairy tale knight dons his armor so willingly? Because he's seen the dragons. Along the same vein, many tree care companies with good personal protective equipment (PPE) track records are led by arborists who have seen glimpses of unhappy endings.

"After about five months on the job," recalls John Hushagen of Seattle Tree Preservation, "a worker went into the drop zone just at the time the climber called ‘headache’ and threw out a branch stub. The stub hit the worker on the head, on his hard hat. It knocked him down and broke a couple of teeth, but he could easily have been killed or severely injured had he not been wearing a hard hat."

In another incident, a worker tried to remove debris that had jammed a chipper, and as he freed the drum, it turned and sliced his finger. "He was wearing gloves and required a few stitches," says Hushagen, "but had he not been wearing gloves, it would have been much worse."

The question of why some companies are successful at getting their crews to gear up while others aren’t isn’t an easy one, but success is often a factor of a leader’s experience. If a CEO has seen – or has heard and taken to heart – scenarios that stem from carelessness, that executive will more fully appreciate PPE. When tragedy strikes, the importance of this gear is driven home, but it’s too late by then.

The profession of arboriculture enjoys a love/hate relationship with PPE. Obviously, its use is synonymous with reduced injuries, which can reduce liability for the employer and extend lifespans for employees. But on the downside, it can prove to be an uphill battle convincing workers – especially the “seasoned” ones resistant to new products – that the weight and discomfort of chaps and earmuffs is worth the protection.
Putting a foot down

This is the new millennium, and we all like to feel good about ourselves, and as much as most company leaders would like to give their employees an incentive for wearing PPE, the fact is that an ultimatum seems to be a more effective solution for many.

Kurt Schneider, vice president of Schneider Tree Care in Taylor, S.C., explains that his company has an unwritten “three strikes” policy. Getting caught three times without the proper PPE is grounds for dismissal. However, he emphasizes that some situations warrant a heavier hand than others. If someone raking debris is working without PPE – but there’s nobody in the tree or the bucket truck, for example – that employee’s “strike” won’t be as severe as in other cases. It will be a strike, though.

In the case of Seattle Tree Preservation, Hushagen says, “Our PPE program is pretty strict. Everyone is required to wear hard hats at all times on the job site. Chaps are worn in the tree and on the ground. Even ground people must wear chaps all the time. Safety glasses are provided, and we make a big issue of wearing them. All hands must also wear gloves at all times. ... There are no real incentives, although everyone is told from Day 1 that, if you intend to keep working here, you will comply with all safety rules and PPE requirements.”

Schneider concurs: “We’ve tried convincing them that it’s better for you this and better for you that, but when it comes right down to it, if you put your foot down and make it mandatory, then once they get used to it, they feel naked when they don’t have it.”

Having said this, incentives have a way of coming onto the scene with or without your input. The first time a wood chip dings a worker’s safety glasses, or a mis-handled piece of equipment ricochets off a hard hat, affection for PPE tends to grow.

The naked among us

More than one reason might be given for leaving PPE behind the truck seat, but a common complaint is that it’s awkward or uncomfortable, interfering with productivity. If this is an argument that you or your employees have made, it would be advisable to take a new look at what’s on the market. Science is our friend. It brings gear that’s lighter – but just as effective – as its bulkier counterparts. Choices are vast. Thumbing through one supplier’s catalog, for example, eight styles of safety glasses, six models of hard hats and at least a dozen options for hearing protection are offered.

In the same catalog, one can find chain saw leggings that weigh in at under four pounds.

According to Schneider, new product developments mean that blessings outnum-ber curses. In the case of eyewear, for instance, “The safety glasses have advanced by leaps and bounds. They used to have goggles with ventilation holes in the
outside. Now, they’re making them like sunglasses. They work much better because they’re form fitting, so you get much less dust in your eyes. And because they’re tinted, that means less eye strain during the day when you’re working in the sun.”

Manufacturing multiple protection into a single piece of headgear has been another useful development. Such a Swiss Army-esque piece of equipment marries two of the most often neglected safety items – ear and face protection – to the hard hat. (However, take note that safety glasses are still required when operating a chainsaw, even if a face shield is in place.)

In addition, manufacturers have carried protection beyond the minimum requirements, creating shirts, boots and other apparel that have special defensive features. It’s entirely up to you whether or not you wish to carry PPE beyond what OSHA requires, but it’s nice to know you have that option.

If, while driving through town, you notice an improperly geared crew, chances are pretty good that the owner of the company doesn’t take PPE seriously either. Especially with smaller companies, the challenge of chasing the elusive profit can overshadow the safety mentality to the point that PPE becomes a footnote. A commitment to protective gear must come from the top down if it’s to stick. And if it’s a preoccupation with the bottom line that stands in the way, just think of the legal and economic implications of injuries. From a marketing standpoint, PPE has become a hallmark of professionalism. Correct use of this gear may carry more weight with prospective clients than you expect.

Selling a philosophy

Regularly scheduled training should always play into any company’s safety program, and “regularly scheduled training” shouldn’t be translated as “distributing handouts every Monday as crews exit the office.” Printed materials are useful, but a human element and interaction must back them up. And
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Phillip Meeks is a freelance writer whose articles have appeared in more than 30 green industry publications.

ANSI Z133.1-2000

4.2.8 Chain saw-resistant leg protection shall be worn while operating a chain saw during ground operations.

training doesn’t need to eat up a lot of your workday to be effective.

“Having bi-weekly, documented safety meetings is a big help,” agrees Hushagen. (He adds, “ISA allows 0.5 CEUs for a 30-minute, documented safety meeting, if minutes are kept and then the hours and attendees turned in.”)

Rules and regulations aside, crews need to come to embrace the philosophy behind PPE, and this is a difficult task through dry paperwork. Workers should understand the risks they face and understand the usage of the PPE — and a few good or bad examples tossed into the mix wouldn’t hurt a thing. Your safety training should be structured. Using newspaper clippings in your training sessions will illustrate the tragedy that can result when personal protection is neglected. (Unfortunately, such examples aren’t terribly hard to find.) Show them the dragons.

Schneider Tree Care uses the NAA’s Tailgate Safety Program as the primary foundation on which to build a companywide safety philosophy. Tailgate Safety is a comprehensive system with 70 sessions and tests. If you’ve ever wondered what types of PPE should be matched with specific chores, the Tailgate Safety handouts illustrate the requirements.

“We do that religiously,” reports Schneider, “and whatever comes up out of the newspaper, we’ll use that as an example. We’re very safety conscious. In this industry, it’s dangerous enough that we don’t need to be throwing those other variables in.”

The grand vision is that, if you can convey the personal protection philosophy across the board, your employees will carry it beyond basic PPE, which is just one piece of a safety program. Hopefully, crews will begin to look at safety in a new light, even outside the realm of power equipment. (Smaller tools like lopping shears and pruning saws aren’t innocent bystanders.)

Ultimately, as the company owner you are responsible for instilling safety sense in your crews and ensuring their effective use of PPE. If you leave the hard hat in the truck when you’re doing a pruning demonstration, your employees will follow suit. If you shake your head and dismiss ear protection as one more burden from the feds, your crews may miss the point. If, on the other hand, you preach what you practice and practice what you preach and include the why’s along with the how’s, you may find that getting your crews to wear their PPE isn’t as difficult as you once believed.
Tree Roots and Hazard Tree Evaluation

By Brian Kane & H. Dennis P. Ryan

When we think of Hazard Trees (HT), in most cases the training and inspection process concentrates on decay, deadwood and weak crotches. This is understandable because when a large tree in an urban area fails, it can be very dramatic and often results in property damage or personal injury.

An area that is often overlooked when inspecting trees for hazards is the root zone. Research has shown that tree roots can travel a distance away from the trunk that is over 2½ times the height of the tree. Other studies have shown that more than 85 percent of root growth occurs within 18 inches of the soil surface. Trees often grow roots that may interfere with adjacent infrastructure, presenting a hazard in community settings when planted too close to sidewalks and curbs. Roots searching for oxygen, water and nutrients (i.e., good growing conditions) will upset concrete sidewalk slabs quite easily. This is especially obvious when trees are planted in the utility strip, where soil conditions are frequently poor.

In search of better growing conditions, roots travel under the sidewalk to nearby residential lawns. Over time, the roots grow in diameter and lift up the sidewalk, creating a hazard. Given our culture’s current fondness for litigation, such a hazard has the potential to grow into a large lawsuit.

Ultimately responsible for a tree’s structural stability, the root system also provides the tree with water and dissolved minerals from the ground. Large, woody roots offer support and anchor the tree; tiny root hairs and mycorrhizae absorb nutrients and water in the soil. Root damage or loss accounts for a large percentage of tree failures. The majority of hazard trees in recreation sites in British Columbia, Canada, were likely caused by root and butt defects (Wallis, G., D. Morrison, and D. Ross). Up to 75 percent of tree failures may be root related, and although most trees fail when winds exceed 50 mph, weak roots can fail under less severe loads (Smiley, E.T. and B.R. Fraedrich).

Through a variety of injuries caused by the construction of buildings, streets, irrigation systems (or improper drainage) and soil compaction, roots can sustain extensive damage. Often, covering root injuries with grass, fill, or concrete successfully hides the extent of the damage. This creates an especially dangerous situation, since a casual examination can easily overlook the root system.

Root damage symptoms are manifested in the crown by poor growth, thinning, chlorosis of the foliage, and general decline. At recreation sites where forest trees must be inspected for hazards, trees on the periphery of root rot circles can appear healthy but be dangerously unstable because of root decay (Wallis, G., D. Morrison, and D. Ross). Alternatively, crown symptoms do not necessarily mean that the root system has been compromised structurally; it could be that only feeder roots have been affected or that the tree may have another problem with its vascular system.

Still, crown symptoms – especially if associated with the visible signs – warrant a root crown inspection (Matheny, N.P. and Clark, J.R.). Visible signs of root damage include bleeding wounds on the trunk; loose, peeling bark around the stem buttress; sunken areas around the lower stem buttress; girdling roots and adventitious roots growing above the root flare; and cracks extending into the stem from the soil line. Actual damage to roots comes in many forms. Generally, healthy roots have intact bark and are whitish when the bark is removed. Rotting roots are usually black or brown and have loose, peeling bark. Most arborists agree that trees that have lost more than 50 percent of their root

Typical construction site: When the job is finished, the root damage will be well hidden.

A young beech tree with a thin crown that is dying back from the top, typical symptoms of root injury.

Checklist for inspecting the root collar & root zone

- Presence/absence of root flare
- Construction damage to roots
- Soil compaction
- Trenching
- Underground irrigation systems
- Size of crown in reference to roots
- Limited root space – curbs, walks and planters
- Saturated or high-water table soils
- Sandy soils
- Exposed or windy sites
- Leaning tree – especially with soil mounding and cracks in soil
- Roots causing soil or pavement upheaval
- Root disease and decay
- Fungal fruiting bodies – on trunk, roots or growing in the soil
- Dead or loose bark
- Cracks in the soil near root flares
systems should be considered hazardous.

When wind loads a tree, the force is transmitted through the leaves and branches through the stem, and, ultimately, to the roots and soil. If the forces are strong enough, the tree can blow over. Two fundamental failure modes occur when trees are blown over:

1. The roots themselves fail because of a structural defect such as decay, or because the wood is simply not strong enough to endure the internal stresses caused by the force of the wind.

2. The force of the wind overcomes the shear strength of the soil. In this instance, the roots do not break, but either pull out of the soil or the soil itself breaks apart. Shallow-rooted trees can be particularly troublesome in this type of failure. Sandy or wet soils, which have weaker cohesive forces between soil particles, thus facilitate the latter type of windthrow.

Since the weight of a tree helps keep it in the ground, when the weight is reduced by pruning only one side of the canopy, the frictional force will be decreased. If the tree leans from vertical, greater shear stresses will occur on one side of the root plate. Both of the aforementioned occurrences can facilitate windthrow. Soil signs frequently highlight root problems; soil heaving or mounding behind a leaning tree foreshadows imminent failure, as the tree has begun to fall over. Similarly, cracks in the soil or broken roots protruding through the soil also indicate that the tree is no longer stable.

Any time an arboricultural inspector notices recent landscaping, irrigation system installation, or paving near a tree, he should check the root system for damage. Lack of a basal root flare illustrates that fill has been added around the tree base. This could hint at root damage and the fill should be removed to inspect the root flare. Inspectors should learn to recognize fruiting bodies of root decay fungi genera (e.g., Armillaria, Annothus, and Ganoderma). These grow in soil around the root flare, or extend directly from the buttress roots (especially in between buttress roots). Such fungi can severely decay tree roots, under-
mellea signal extensive root decay. On conifers, cracks in the stem that extend into the ground indicate root rot.

While tree roots compartmentalize decay very well (Shigo, A.), decay sometimes extends from the buttress roots into the trunk. Decay can be measured in roots with the same tools used to measure decay in stems. The most practical tools are penetrometers, such as the Resistograph or battery-powered drills. To inspect for decay in the lower trunk and buttress areas, one should drill in between buttress roots (Smiley, E.T. and B.R. Fraedrich, Matheny, N.P. and Clark, J.R.). Since tree roots generally grow with an elliptical shape, one must drill into the root more than the width of the root. It is important to realize that tree roots generally decay from the root tips back to the buttress roots. So, buttress roots revealing decay imply that the root as it extends outward from the buttress is not viable. Furthermore, roots generally decay from the bottom of the root upwards; if decay is detected, it is safe to assume that the remainder of the root is compromised below where the decay was found (Matheny, N.P. and Clark, J.R.).

The proper inspection of trees for hazards should take place at regular, scheduled intervals. In most urban, suburban and park-like settings, tree inspections should be an annual event. The inspector should be trained in the process of inspecting the whole tree, from roots to crown, for hazards that could cause a problem. Failure on the part of the agency or company to do the job properly could lead to major liability issues.

Brian Kane is assistant professor of arboriculture/urban forestry at Virginia Polytechnic Institute. H. Dennis P. Ryan is professor of arboriculture/community forestry at the University of Massachusetts, Amherst.

References:


Environmental mitigation has become a big industry, but it also has taken some unusual twists and turns. That's how a riparian planting in Pasadena, Calif., came from the expansion of a landfill in a canyon in Sylmar, some 25 miles away.

It began in 1996. Browning-Ferris Industries (BFI), the second largest waste management company in North America, with headquarters in Scottsdale, Ariz., wanted to expand its landfill in Sunshine Canyon. In order to do so, state and federal law required them to restore a habitat similar to the wetland they would be destroying.

At the same time, the city of Pasadena was looking for a way to restore a wetland habitat that had been destroyed some 60 years earlier. The Arroyo Seco, a tributary of the Los Angeles River, was no longer the tree-lined stream it had once been.

Thus the mitigation project: It covers 22 acres of the lower arroyo in Pasadena, not far downstream from the Jet Propulsion Laboratory and the Rose Bowl. It cost BFI $5 million to build, and another $100,000 per year to maintain and monitor over its five-year term.

"The BFI project was the first step in stream restoration in the arroyo," says Rosa Laveaga, Arroyo Seco Park Supervisor, Parks and Natural Resources Division. She was the project manager for the city, taking it from the planning stages through construction. "The Pasadena master plan suggests extending the project."

The Arroyo Seco was once filled with native trees and shrubs. During the rainy season, water would pour down from the San Gabriel Mountains, through Pasadena and some other cities, and spread across a broad floodplain. In the 1930s, the Army Corps of Engineers built a flood control dam and encased the lower arroyo in a concrete channel. Without the water from the periodic flooding, all but a few of the trees died out.

BFI brought in Ralph Osterling, of Ralph Osterling Consultants, Inc., in San Mateo, Calif., to design the project.

"Basically, it was a dry wasteland before we planted it," notes Osterling, whose company specializes in tree restorations. Osterling based his design on old photos of the area, and on what was still growing in the upper part of the arroyo, which had been left as a natural stream. He also used species from a list furnished by the Department of Fish and Game.

"That was my goal," he explains, "to mimic what was there." His design included sycamores, Englemann oaks, arroyo willows, coast live oaks, alders and cottonwoods, as well as shrubs such as elderberry, mule fat and wild rose. Osterling placed riparian species near the stream. Mesic species, which are adapted to drier conditions, were planted farther away from the water.

A biologist was employed to make sure Osterling’s list included the right species. The biologist makes an annual report to the Department of Fish and Game,
the city of Pasadena and the Department of Public Works. In 1997, the city of Pasadena approved the design, and the project began.

Larry Cubit, a horticulturist with BFI, has been its wetlands mitigation manager throughout the five-year project. He trained under Osterling and built an oak tree nursery for BFI in 1989, when an EIR had required the company to have an on-site nursery before the Sunshine Canyon landfill went in.

"There was lots of earth moving," recalls Cubit. Landscape contractor RCB & Sons in Pomona was chosen to install the irrigation, plant the trees and create a new stream. The area was graded and tons of rock were removed to improve the flow of the stream and build the streambed.

Non-native trees such as eucalyptus were removed, as were some sycamores and other natives in the way of the stream; the natives were replaced.

A rubberized liner was buried under 2 feet of soil under the streambed and beyond. This liner keeps the water level high when tree roots are small, but allows them to penetrate it as they grow deeper.

"The water, by capillary action, 'walks' up the liner," says Osterling, so trees beyond the stream area also receive extra water.

A pipe in the header wall of the dam upstream diverts some of the water of the upper Arroyo Seco to the new stream. A valve controls the flow through the pipe. It provides enough water for a small stream about half a mile long paralleling the concrete channel. The stream water is supplemented by drip irrigation, which supplies trees planted away from the stream. The contractors placed 1-inch PVC pipe 1½ to 2 feet underground, and then attached half-inch poly drip tubing off risers. The drip lines lie above ground. The irrigation water comes from a well on the property.

Some of the 35 species of trees and shrubs planted in the arroyo came from seeds that BFI collected there and were grown by Coneflower Nursery. Many were grown in the four-acre nursery that Cubit had built in Sunshine Canyon. (Today, there are 6,000 to 7,000 plants in the BFI nursery, growing at different stages, for use in other projects.)

"We germinate the seeds to see which ones are viable," Cubit says. He has a 99 percent success rate growing oak seeds in his nursery. He plants them in paper liners 2 inches by 2 inches around and 12 inches deep, filled with soil. When the seedlings are 6 to 12 inches high, he transplants them — paper and all — into pots.

"Some of the seedlings planted in the arroyo came from three-gallon pots and some from 15-gallon ones," Cubit says. He likes to use the larger pots because the seedlings have deeper roots and don't need to be staked.

BFI planted 2,400 trees in the lower Arroyo Seco. They include white alder (Alnus rhombifolia), California black walnut (Juglans californica), California sycamore (Platanus racemosa), cotton-
wood (Populus trichocarpa), coast live oak (Quercus agrifolia), Englemann oak (Quercus engelmannii) and California bay (Umbellularia californica). Shrubs, in general, were planted from 4-inch liners because they don’t need deep roots. These understory plants include: toyon (Heteromeles arbutifolia), golden current (Ribes aureum), gooseberry (Ribes speciosum), California wild rose (Rosa californica), California blackberry (Rubus ursinus), elderberry (Sambucus mexicana), California buckwheat (Eriogonum fasciculatum), California coffee berry (Rhamnus californica), laurel sumac (Rhus laurina) and California blackberry (Rubus ursinus).

The vast majority of the plantings came from cuttings that Cubit and his crew planted themselves. There were 1,500 red willow (Salix laevigata) cuttings, and 1,752 of arroyo willow (Salix lasiopileps). In addition, hundreds of mule fat (Baccharis glutinosa) and mugwort (Artemisia douglasiana) were planted this way.

“We went upstream and just lopped off twigs,” Cubit says. They cut branches that were about half an inch in diameter and 18 to 24 inches long. They marked the length on a bar, which they hammered into the soil to the correct depth. Then they put the twigs in the holes and tamped down the soil around them.

According to the agreement, a tree doesn’t count as part of the mitigation project until it becomes a “count tree” – that is, it measures 1 inch in diameter at 1 foot above the ground.

“If a tree dies before it becomes it becomes a count tree, it has to be replaced,” Cubit explains.

Some people have complained that the trees were planted too close together, Laveaga admits, but this was done for two reasons: First, because it is a riparian area, it was planted to encourage wildlife to come back to the arroyo. Second, no one could be sure which seedlings would do well and which would not.

“In any project – and in nature – things will die and things will replace themselves,” says Cubit. Natural selection and succession are part of the mitigation plan. The species that are thriving are willows, cottonwoods and sycamores. There are also some “self-starter” – volunteers that someday may outnumber the planted trees. The oaks aren’t doing as well because the soil is too sandy and rocky for them in the bottom of the arroyo.

After the planting was finished, Cubit hired O’Connell Landscaping to maintain it for the rest of the five-year period, which ends late in 2002. That’s when the project becomes the responsibility of the city of Pasadena.

Maintenance includes irrigating the plants, which the maintenance staff began to taper off during the third year. Irrigation will end completely when the project is over, and only adaptive and well-established trees will survive. Other maintenance includes removing the silt that builds up behind the dam, repairing vandalism and pruning the trees that are already growing abundantly into the paths and roads. A weed abatement contractor pulls out invasive (non-native) trees and grasses.

“Residents are already reporting sightings of fox and bobcats in the arroyo,” reports Cubit, and according to the Audubon Society, the bird population is thriving.

All in all, the project has become what everyone hopes an environmental mitigation project will be: A restoration of a beautiful area – even if it is in an area not close to the place damaged by the original landfill.

“Some people complain that it’s too native here,” Cubit smiles. “This isn’t Disneyland. It’s the native wildlife that makes it that much more beautiful. Coming out and seeing students and younger children here makes it even better. I wish we could do some more.”
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Please circle 64 on Reader Service Card
By Brian Urbanski

How can you take the essence of your business and transform it into an electronic presence that will move your business forward? What are the most important keys you need to get started on the Internet?

Building a Web site and getting involved with the Internet can be very confusing. The so-called dot-com bust over the past couple years has taught us that the Internet as a communication tool and a marketing strategy is not what we thought it was. A Web site involves more than "build it and they will come." In fact, creating a successful Web site is almost like trying to herd cats.

Without too much techno-babble, I want to give you ideas and tips and tricks that you can use in your business immediately.

As a business owner, you want a return on your investment in a Web site. You want your Internet presence to pay off for your business. To make sure that happens, you need to understand the Internet is ... a communication tool.

Don't let the technology cloud your thinking about the Internet. The Web allows us to communicate to customers and potential customers. Using pictures, graphics, text and search engines, it gives us the ability to communicate powerfully and effectively with the people we do business with -- including vendors and potential employees.

Your Web site is a living, breathing communication tool for your business. It isn't like a Yellow Pages ad that you publish and forget about. It is something that you want to continually improve, build and grow on.

The good news is if you don't get your Web site right the first time, or if you don't like it, you can always change it. You aren't stuck with it for a year.

... a marketing tool.

There is no reason to be passive about communicating on the Internet. Why wait for people to come to you when you can use e-mail to reach them? I don't mean "spam," or junk e-mail, but rather informative, friendly monthly or quarterly e-mail newsletters to your clients.

When potential customers are looking for an arborist, they are probably going to first look in the Yellow Pages, which is where you probably get most of your business. If you have a Web site, do yourself a favor and put your Web address on your Yellow Pages ad and include some incentive such as, "Visit our Web site for a free report on tree care tips!" When you offer something of value -- an incentive -- people will be more likely to visit your site.

In addition, make sure your look at your Web site from the perspective of your customer. If you were a customer wanting to do business with your company, does the information available online help you do that? Are you providing information of value, such as free reports and tips? Customers want information. If they want to do something themselves, they will still do that, but if you are providing information, you are still creating a relationship with them and setting yourself apart from the competition. You are providing something of value without asking for anything in return. That is one of the best ways to use what we call "customer relationship management."

Offer whatever you can for free on your Web site. "Free" is the most powerful four-letter word in the English language when it comes to marketing. If you can give anything away, do so.
... an employee recruitment and training tool.

One thing that is on all our minds these days is how to get good people on board. With a Web site, you can reach prospective job seekers, particularly younger job seekers who are in high school or college and are Internet savvy. This gives you an opportunity to communicate to them, and can save you a lot of time and money by making your job listings available online.

If you don’t have a Web site, you can still reach potential employees via online job boards, such as the Job Bank at www.natlarb.com. There are a number of such job boards you can use.

After you find employees, the Internet can be a valuable tool in training them. There are more and more programs and certifications becoming available online that employees can access either at the office or at home. “E-learning,” or “distance learning,” as it is also called, can also be done using programs available on CD-ROM.

... a research tool.

For your own purposes of research and knowledge gathering, the Internet is about the single-best tool you have. If you want to check up on your competitors, it is as easy as going to the Internet and doing a search from one of the many search engines available, such as www.google.com.

Take a look at what your competitors are doing in the industry. How have they set up their Web pages? Are their sites attractive and user-friendly? Surf the Internet to get an idea of what type of Web site will work for your business. You certainly don’t want to plagiarize another company’s site, but you can get ideas of layout, design and content from what others are doing online.

Even if you already have your first or second generation Web site up, it isn’t a bad idea to go out every six months or so and check out other companies’ sites.

Creating your Web site

The Internet can be an intimidating place. There is a lot of hype out there, and the Internet doesn’t have a long history. We can’t look back at companies that have been successfully using the Internet for 10 to 20 years and follow their model. We are creating new territory right now. You need to be willing to embrace it, although it may seem challenging, intimidating and fearful, and as if nobody is making money at it.

When you take the plunge and stake your claim in cyberspace with a Web site, there are several steps you can take to help ensure success.

Step 1. Get an Internet coach

What is an Internet coach? An Internet coach is somebody who can sit down with you from an outsider’s point of view and help you determine what you should be doing on the Web. A coach can look at your budgets and figure out what your goals are and help you determine your objectives and what you want to get across.

Step 2. Get your Web addresses

In the real world, we have our company name and a logo that is a very important to us. Over years, our name and logo create what is called branding. On the Internet, you also have branding but it is more in the form of a URL, which is a technical term for your Web address (for example, “www.natlarb.com” is a URL) and stands for Uniform Resource Locator.

I recommend having two Web addresses for your business. (Both addresses will lead to the same Web site, so you don’t need to create two separate Web sites!) One Web address should be your company name. The second address should be a catchy marketing message. An example for a hotel would be www.sleepcheap.com, which is the Web address for Red Roof Inn. When you have a catchy slogan or phrase, it enables you to tie your company into a benefit that you are selling or marketing. (When you decide what Web addresses you want to use, your Internet coach can guide you on registering the names, providing they have not already been taken.)

Step 3. Create a game plan

I call this a strategic Internet plan; basically, it is a blueprint for your Web site. Before you spend a penny on Web page development, you should know from your Internet coach or just from talking to your staff internally what you are trying to accomplish. What is the No. 1 objective? Are you trying to generate money or revenue, or are you looking at just having a competitive edge? Is the main focus sales or recruiting or customer service? What type of a Web site will you have and how many different areas are you going to have?

When you are establishing your Web site, you will also need to figure out how you want the Web to add value to your business. If you only have three or four people on staff, your needs are going to be much different than the needs of a com-
pany that has eight or 10 crews. Look at this in perspective and see what reasonable expectations and goals can be set.

Let's look at how the Web can add value. Employee recruitment and increasing sales are two of the biggest challenges you are likely facing. Figure out what the challenges are that you want to address and see how other sites are dealing with them. Also, talk to your current customers and see what they are looking for in a Web site. Your staff will also likely have ideas.

When you set your expectations and goals, be reasonable. The mixture of time and money is the biggest challenge that any of us has for just about anything we do in business. Time and money are always an issue, and if we don't allocate resources correctly, we can actually do more harm than good.

Understand that there might not be an immediate return that you can see right away. It's not like the Yellow Pages, where, when somebody calls in and tells you they got your number from the Yellow Pages, you get an idea of how that ad is working. The Internet is a little different from that. You can certainly keep track of how many people are visiting your site, but it is a lot harder to determine how that will add value to your business.

When you build your game plan and write your strategy, you want to make sure you focus on what is most important first. If recruiting people is most important, that is what you want to focus on. Keep in mind that your Web site grows. It is a living, expanding resource for you. Your site will change and trends will change. You will have to spend some amount of time, effort and possibly even money promoting your Web site.

Step 4. Build a team

Obviously if everything to do with the Internet was free, we would all have spectacular Web sites. Web sites don't require just a monetary investment; they require time as well. Consider the time that you and your staff have to invest to figure out exactly what you want to do. Sit down with your Internet coach to put the strategic plan together. Then make the decision as to whether or not this is something you can do yourself as a company or is something you need to outsource.

When it comes to creating your team, you want to identify any in-house talent that you have. Unless you are a larger company, chances are you don't have your own in-house brochure or graphic designer. If you do, there is a good chance you could leverage some of his or her time into building and/or maintaining your site.

When you create any kind of Web team, you have to make sure everybody knows who is in charge of what. Even if you bring in an outside company, you need to know who in your company is in charge of getting content information to them. Who will gather photographs and logos or other artwork that you may have? Assign responsibilities and let everybody know what they are supposed to do. This sounds very elementary, but it amazes me how many companies simply are inefficient due to lack of planning.

The person or people gathering the information and developing the content are going to be key in making sure that the information you need out there gets out there in a timely fashion. If you have a marketing department, those employees will probably be the ones you want working with the Web site designers. For those of you who don't have a marketing department, the least expensive route to take in the long run is most likely to outsource your site. When you consider what you need as far as computers, equipment, software and expertise and how much time maintaining a Web site is going to take away from other tasks and responsibilities, it usually turns out that outsourcing is the less expensive option.

Step 5. Understand what is great about a site

If you hire outside consultants, chances are they will have a good idea of what the best Web site design for your company is. Nevertheless, this is your company's Web site and, at the end of the day, the Web site will reflect on you and your company. Knowing the basics of great Web design can help you whether you create the site in-house or via outsourced consultants. Having said that, there are several issues you want when creating your site:

... excellent content

The No. 1 thing for a great Web site is not pretty flashy graphics; it is content. Content is king on the Web. Simplicity is a key to being successful. You do not have a half hour or hour of your prospect's time; you have seconds. Your Web page has to load quickly and have useful content. That means small-sized graphics and fewer than six links on each page. You have to make sure that you are keeping things simple, easy and value-added to your customer - and potential customers!

... fast-loading Web pages

This sounds like it should go without saying, but many companies get talked into creating sites with sophisticated animation and heavy graphics that are just not necessary. Basic is better. Stay simple because it will keep your costs down and will keep your customers (and prospects) from getting confused.

You can have pictures, logos and graphics on your Web site, but make sure they are set up and designed to download quickly. This is where your graphic designer earns his keep. There are ways you can reformat and resize images and photographs so they are smaller in size and can load quickly, but still appear high-quality on your visitors' computer monitors. Use this technology to your advantage!

... clean and efficient design

This deals with the clutter, animation and graphics and general layout of the pages on your site.

The best background color that you can use is white. White goes with everything. Colors affect everybody differently, so it is safest to stick with white.

Frequent updates are also key. I don't mean changing the colors every other week or moving your graphics around; I am talking about adding and revising valuable content. You don't need to rewrite your promotional information, but you might want to add new tips every couple of weeks. Include information that makes sense to your visitors and keep it current so they keep returning to see what is new.

... user-friendly setup

Another extremely important point, which seems obvious but often is not followed, is to make the Web site easy to use. Your surfer doesn't have time to figure out buzz words and follow mislabeled links.
If you have 20 links on a page, that will just add to the confusion. Make links clear and make sure they work.

No Web site is better than a bad Web site. A bad Web site - such as a site that takes too long to load or doesn't give the information that people are looking for, or maybe is just a glorified brochure - is going to turn people off. Don't worry about having the biggest, brightest Web site. Start small with six pages and six or seven areas that you think are valuable to your customer. You can always build up from there.

**Step 6. Launch your site**

As you prepare to go live with your Web site, watch out for one other pitfall: the "under construction" label on several sections of your site. You are better off waiting to build and promote your finished Web site than to launch a half-finished site that constantly reminds visitors you haven't finished what your started. The only thing worse than the "under construction" label is to put your Web address on all your stationery, and market and promote it, and then have the site not be there!

If you want to avoid the "under construction" signs and don't have the time and resources to launch your dream Web site before a marketing deadline, then create a smaller Web site that is as complete as possible for its size. Build onto it as time and resources permit.

Even if you have 20 links on a page, that will just add to the confusion. Make links clear and make sure they work.

No Web site is better than a bad Web site. A bad Web site - such as a site that takes too long to load or doesn't give the information that people are looking for, or maybe is just a glorified brochure - is going to turn people off. Don't worry about having the biggest, brightest Web site. Start small with six pages and six or seven areas that you think are valuable to your customer. You can always build up from there.

**Step 7. Submit to search engines**

Some of you may be familiar with search engines. The biggest ones include Google, Alta Vista and Lycos, among others. You want to make sure your Web site gets listed among all these sites! For optimal recognition on these search engines, you will want to have your Internet coach or another professional handle this part.

If you want to handle this yourself, it isn't terribly difficult. All you have to do is visit the Web site and submit your Web address to the search engine itself. You will be listed in their catalog, but there is no guarantee if your Web site will come up as the third or three-hundredth when someone does a search; if you're listed 2,367 on the list, your chances of being seen are not too high. To address that issue, there is software available that you can use to can position yourself as high as possible in the search engine's database. The software that I recommend is called Web Position Gold. You can check out the software at www.Webposition.com.

There are also companies that will do this for you for a fee. If you go to www.websitetermplates.com or www.Linkdirectories.com, you will find a great starting point for looking at companies that will register your Web site at several search engines.

**Step 8. Track visitors at your site**

Finally, you will want tracking software to see who is visiting you, how often, and for how long. I recommend software called Web Trends, which you can check out at www.Webtrends.com.

**Step 9. Stay on top of your game**

Make sure that you and your staff are learning and staying abreast of what is going on in the industry. There are a lot of great resources online to ensure that you stay on top of the industry. Use them. Avoid the head-in-the-sand approach. I know there are at least some people who wish the Internet would just go away, but it won't. Although it isn’t a life or death situation today whether or not you have your Web site up next week, the reality is that the Internet is growing in popularity. This is where we are going and we have to look at ways to leverage this type of technology with our businesses.

**Conclusion**

As illustrated by the dot-com bomb and the technology crash of the past two years, your Web site is not going to make you a millionaire overnight. The Internet is a way to build your image and your branding. You can generate sales from that, but consider the Internet as part of your advertising and marketing budget and strategy. You have to be online today, and if you are not online today, you need to make that jump as soon as you can because your competitors are.

Brian Urbanski is president of Internet Magic, Inc., an Internet consulting and training firm. This article was excerpted and adapted from a seminar at TCI EXPO 2001 in Columbus, Ohio. TCI
2002 Robert Felix Scholarship Recipients

The TREE Fund is proud to announce the 2002 recipients of the Robert Felix memorial scholarships. Each $4,000 scholarship will be used to further their collegiate educations in arboriculture. The winners are Jonathan Butcher, of Columbus, Ohio, a junior at The Ohio State University; Adam Esten, of Shrewsbury, Mass., a junior at the University of Massachusetts at Stockbridge; and Christopher Marshall of Lynbrook, N.Y., a senior at Cornell University.

The Robert Felix scholarship program was established to honor Robert Felix and his commitment to the advancement of arboriculture through education. The first executive vice president of the National Arborist Association, he was instrumental in the formation of the National Arborist Foundation and Student Career Days. These recipients were selected from 20 candidates for their commitment to excellence and dedication to arboriculture.

Christopher Marshall

Chris never expected to develop a passion for arboriculture when he first began working in the horticultural field, but his current objective is to learn as much about trees as possible and to become a Certified Arborist. He has had extensive work experience, as a field/laboratory research assistant, a lawn and tree care company foreman, and most recently a Plant Health Care technician with the Davey Tree Expert Company in West Babylon, N.Y. Chris has been active in Alpha Zeta Agricultural Honor Fraternity, serving as its chancellor (president) and receiving the Alpha Zeta Spirit Award. According to his adviser at Cornell, Nina Bassuk, Chris has a seriousness of purpose that stands out above other students, and he will be successful in his career. Chris also received the Kent Wells Memorial Scholarship.

Jonathan Butcher

According to Jon, his reasons for pursuing a career in commercial arboriculture include the physical and mental challenges of tree work and his love of trees. Jon has been involved with arboriculture since an early age and has worked since he was able to hold a chain saw about age 12. He has chosen to combine his extensive practical knowledge with a university education. He received (and continues to receive) his practical education from working in the family business, Madison Tree Service. He has been characterized as a “can do” individual by his advisers and was the winner of the ALCA Arboricultural Techniques competition in 2002. He is a Donald Mayhew Scholar, which combines research experience directed by a faculty mentor, Daniel Struve, with hands-on activities in the OSU Chadwick Arboretum.

Adam Esten

Adam is pursuing a career in arboriculture and urban forestry because of his desire to promote the development of a better tomorrow for the children of today through the protection and preservation of trees through arboriculture. Adam has had practical arboricultural experience working for a landscaping company on Martha’s Vineyard and was promoted to foreman of crews. He has passed the Massachusetts Certified Arborist exam and has completed arboricultural tasks in a safe and effective manner. He graduated from the Stockbridge School of Agriculture and has transferred over to the bachelor’s degree program in urban forestry. His adviser, Dennis Ryan, feels that Adam is an excellent candidate and recommended him without reservation. He is a two-time recipient of the Massachusetts Tree Warden Scholarship.

Applications for the 2003 Robert Felix scholarship program are available online at www.treefund.org, or from the TREE Fund office, P.O. BOX 3188, Champaign, IL 61826-3188, Phone: (217) 337-5020. Applicants must be a student member of NAA or ISA and be entering the second year of a two-year program, or the third or fourth year of a four year program. They are required to have a 3.0 G.P.A. and complete an application, and provide a letter from their academic advisor, two letters of reference, and a personal letter of intent. Applications are due by May 1, 2003.
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Please circle 37 on Reader Service Card
The Common Lilac (*Syringa vulgaris*)

By Bill Warren

This clump of lilacs (*Syringa vulgaris*) was transplanted to our front yard from another clump 17 years ago. Besides offering a showy display and wonderfully scented flowers, the lilac clump offers many other benefits. I get some protection from the noise and lights of the street and the sidewalk. The corner of the drive and sidewalk is less severe aesthetically and we get some privacy. Birds and other animals are invited into our property.

Rejuvenation is possible, but it is a multiyear process. New growth comes from suckers and water sprouts hastened by pruning. Where once there were numerous values from an established clump, we now have a sparse renewal. By the spring of second year, flowering has begun. Had I cared for my lilacs annually by removing all but the healthiest two or three suckers and water sprouts, as well as a timely pruning to encourage flowering, the clump would still be as it was. Had I removed the dead vegetation at the base of the clump, I could have discouraged borers. Unfortunately, I neglected caring for them, which cost us our original established clump of lilacs.

Lilac borers seek out old canes and lay their eggs in the bark. When the larvae hatch, they feed on the old wood and exit the canes, leaving small holes. In their feeding habits, the borers produce enzymes that hasten wood rot. Photo courtesy Bruce Neill, Agriculture and Agri-Food Canada, www.forestryimages.org.

*Syringa vulgaris* - commonly called the lilac - likes full sun and a neutral pH (6.5-7.5). Lilacs grow to a height of 12 to 15 feet as a single shrub or as clumps. There are hundreds of varieties and many colors available, with purple and white the most popular.

With older, established lilacs, drastic rejuvenation may be done in January and February (dormant season) in a single season or over a period of years. The cuts should be parallel to the ground at a height of about 15 to 18 inches. Removal of some upper branches may help stop splitting of main stems during pruning.

The common lilac needs very little assistance to help promote flowering, but timing is an issue. The buds for next year’s flowers are set this year in July and August. Therefore, to coerce Mother Nature to turn as many buds as possible into flowers instead of leaves, the old flower “skeletons” need be cut off (to the next pair of opposite buds) shortly following the pedal drop period.

Hand pruners (secateurs) are the best type of tools for pruning for flowers; curved or hooked blades are more versatile than anvil types. Long-handled shears (loppers) are used for limbs that are too big for secateurs and too small for pruning saws.
A pair of hand pruners, a pair of loppers, and a pruning saw are the bare necessities for adequate pruning maintenance.

Basics of pruning lilacs

There are some basic rules for pruning. Bear in mind that no more than one-third of the total shrub should be removed in any one year unless drastic renovation has been required for rejuvenation.

1. Only one person should be in charge of pruning any one shrub.
2. The person in charge should make a note of how the shrub looks before pruning and what is expected from pruning.
3. Then, remove all dead, broken, diseased and rubbing limbs. All cuts should be clean and smooth, with the bark at the edge of the cut firmly attached to the wood. Sharp pruning tools are a must. Remove the old vegetation from the ground that surrounds the trunks.
4. Reassess pruning needs after Step 3. New growth wood (water sprouts and suckers) may be needed to fill in places where Step 3 wood was removed.

Beware of the adult female lilac borer (Podosesia syringae)

The adult female lilac borer (Podosesia syringae) will kill lilacs. Failure to prune old wood and clean up dead vegetation around the stems helps the larvae of this moth-type insect start a process that causes the slow, almost unseen, death in established lilacs. As with most borers, the damage is severe. From a small entry hole into the bark, an egg will hatch and its larva will eat its way out, going through the wood and leaving in the process an enzyme that initiates and hastens wood rot.
By Phillip M. Perry

You’ve heard the new chestnut: Give your tree care employees power, and your profits will flower. Once you give your employees the authority to act, of course, they will think of creative ways to satisfy customers, solve business problems, and get everything done more efficiently. (You hope).

“If you do not empower your employees, you will soon be out of business,” warns Ken Blanchard, business consultant and author of The One-Minute Manager.

Why? Customers want their demands met on the spot by employees. If your employee in the field can’t do anything but spout policy, or has to fumble around for a supervisor with the authority to solve a problem, the customer will go to a competing business. Says Blanchard: “If you don’t take care of your customers, someone else will.”

Employee empowerment sounds great. But watch out: When done wrong, it can backfire. And making bloopers is easy: Top consultants say employers often make serious errors when shifting decision-making to the front line. Don’t you make the same mistakes at your tree care company. Let’s see how you can avoid them.

Mistake No. 1:
Moving too fast

You can’t change your workplace environment overnight. Employees will resist any attempt to institute a program that calls upon them to suddenly shoulder a scary amount of risk and responsibility.

“Whatever you do, don’t make a big announcement that you are empowering people,” warns Larry Senn, chairman of Senn-Delaney Leadership Consulting Group, Long Beach, Calif. “It will backfire when employees resist, or try to do too much and get shot down.”

Suppose an employee comes up with an idea, but management decides it cannot be budgeted, poses Senn. The employee will feel victimized, because the promised empowerment did not materialize.

Here’s a better course: Take small steps.
“Give employees a small area of empowerment and let them be successful,” says Dr. William C. Byham, president of Development Dimensions International, Pittsburgh, Pa. “Then they can move on to bigger areas.”

Encourage employees to use their initiative in the following areas:
- How can customer complaints be addressed?
- How can the business make customers happier?
- How can a job be done more efficiently?
- How can the business save money in your department?
- How can the business increase sales or profits?

Notice that the above questions deal with workplace activities. That’s the best place to start.

“You can empower people in two basic areas: job-related responsibilities and governance,” says Byham. “It’s much easier to deal with job-related things. It’s nice and neutral, whereas governance impacts one person over another.”

By starting small, you can get an early record of success and stimulate self-confidence. You need to get involved, but not so far that people get in over their heads.

Mistake No. 2:

Not defining parameters

If you don’t define the boundaries of empowerment, employees may be tempted to go too far. Or, they may feel confused and not do anything.

“Empowerment doesn’t mean people can do anything they want,” says Blanchard. “Empowerment is not abdication to bad ideas.”

Blanchard likens the situation to a football game, where players have to stay within bounds. “People have to know what the boundaries are, and then play the game within them.”

Without boundaries, employees whose activities are shot down by management can lose their enthusiasm quickly.

“The worst outcome is when an employee takes action on behalf of a customer, and ends up in trouble,” says John C. Doyle, senior consultant, Universal Training, Northbrook, Ill.

How to avoid this? Doyle suggests writing down a clear set of performance standards for each position, including exact definitions of the boundaries beyond which employees cannot go.

Employees need to know:
- What business policies can be broken when it seems right?
- To what extent can each policy be broken?

“One purpose of empowerment is to help employees understand the spirit as well as the letter of the law,” explains Doyle. “In some cases, it makes sense to break company policy to please a customer.”

In such cases, the business may want to set dollar limits on when an employee can break the company rule.

“Identify the financial ramifications for employees,” says Doyle. “The employee needs to see things from the organizational point of view. If the customer can be made happy for 25 cents, that should be a no-brainer. But if a customer doesn’t want to pay for a $100 charge, then the matter needs to go to the next higher level.”

It’s also a good idea to institute reporting procedures so that any violation of rules is registered right away.

Concludes Doyle: “You don’t want to give people unlimited rope, because they will hang themselves.”

Avoid These Mistakes

1. Moving too quickly.
2. Not defining parameters.
3. Letting fears go unaddressed.
5. Giving “Lone Rangers” free reign.
6. Letting activities go unmonitored.
7. Forgetting feedback.

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One Way to Stimulate Ideas

People on the front lines know best. But they won’t volunteer ideas unless you encourage them.

"Set up a requirement that everyone contribute two ideas every week," suggests Ken Glickman, coordinator of educational services at Greenwich Institute for American Education, Greenwich, Conn. "Make it easy for people by emphasizing that little ideas are terrific."

Ideas can be in the areas of how to satisfy customers, save a few minutes of unnecessary labor, or improve a service. Glickman suggests scheduling weekly meetings where these ideas are handed in on slips of paper. Don’t evaluate the ideas at the meetings. Make the meetings a lot of fun for a festive atmosphere. Evaluate the ideas later and prepare responses.

"Always get back to people," says Glickman. "You must follow through or the whole program collapses."

How to Handle a Bad Idea

What do you do with a well-intentioned employee presents a really bad idea?

"The tendency is to listen, say something nice like you worked hard... and then give six things the person did wrong," says Dr. William C. Byham, president of Development Dimensions International, Pittsburgh, Pa.

The result is deflation: the person doesn’t work on the problem anymore. "Usually the employee has discovered a good problem, but the solution is poor," says Byham. "You want the person to develop another solution."

The answer is to maintain the person’s self-esteem by responding with empathy. "Ask questions about the topic until the person finds the flaw in his own solution," says Byham. "The employee will eventually say something like, ‘I should have checked with this other department.’"

At that point, you can spur the employee on with a statement such as, “You could not have thought of everything. You discovered a good issue — now go get that information and let’s talk again next week.”

Mistake No. 3:
Letting fears go unaddressed

Two fears haunt the employee new to the empowerment game: the fear of being laughed at for speaking up and the fear of being punished for making a "really dumb" business decision.

Let’s take the first one.

"The peer pressure fear can be heavy," says Brian Kathenes, president of Progressive Business Concepts, Hope, N.J. "This is especially true for those employees who have been with the company a while. They may be afraid of being accused of apple polishing."

And more. Kathenes points out that for many businesses, an open-door policy has been more delusion than reality. "Employees who took advantage of management’s open-door policy in the past, and were shot down, are going to be gun-shy about some new empowerment program."

"So take a look at your present habits and behaviors. Do they encourage people to speak up, or don’t they? If the latter, you are going to have to proceed gingerly with empowerment."

Instead of announcing a formal business program, give employees an "easy entry" into empowerment by posing the mission in an open-ended way at an employee brainstorming session, suggests Kathenes. State something like, "Let’s get some ideas on the table — what do you have...?"

That’s a lot better than asking, "Who has some good ideas?" That’s a threatening proposition. Many employees will think, "I have this idea but I don’t know if it’s any good. I’ll wait and see what other people have."

While a brainstorming session is great for generating lots of ideas, don’t give the impression that everything is going to be pursued. "Ask for specific input, then show employees that you are taking action," says Ian Jacobsen, president of HR Link, Sunnyvale, Calif. "Do this one idea at a time. Demonstrate that you mean business."

When the employees see that some ideas are being instituted, they will become more bold about presenting ideas.

To avoid giving the impression that all ideas will be instituted, Jacobsen suggests using language such as: "I can’t promise that it will make a difference, but this is your opportunity to generate ideas."

As for the fear of being punished for making a bad business decision, consultants advise that some of this can be alleviated by the clear definitions of boundaries, as mentioned earlier.

But there’s another vital part of the solution: Management must recognize that employees will make mistakes, and that is a cost of doing business.

"Making mistakes is part of the growth process," says Jacobsen. "If people are not making mistakes they are not pushing the limits."

This may be a tough nut for management to swallow. "Freedom to make well-intentioned mistakes is one of the hardest things to change in a business culture," says Jacobsen.

When a mistake is made, turn it into a positive situation. "You need to place things in the larger perspective of a learning experience," says Jacobsen. "What did we learn, and how will it change what we do next time?"

Mistake No. 4:
Hiding information

In the recipe of a good business decision, information is the principal ingredient.

"You have to share business information with everybody if you expect to empower employees," says Blanchard. "That’s the area that most managers back
off on. They want to keep information secret.”

Yet employees empowered with information will better understand the tree care business and their role in it. The employee who believes net profit is 40 percent of revenues will feel exploited by management. The employee who understands that it is in the single digits will better see the role to be played by staff members in enhancing the strength of the business.

If informed of business results on a regular basis, employees will see immediately the results of their decisions. That forces them to think in terms of the organization as well as the individual.

Blanchard puts it this way: “People without information cannot be empowered. People with information have no choice.”

**Mistake No. 5:**

Allowing “Lone Rangers” free reign

Employees must realize that teamwork and cooperation are part of empowerment. Few decisions are really made by a single individual, without coordination with others. And all teams at a business must work together.

“Everything today is teamwork, even if a person thinks he is working alone,” says Kathenes. “Nothing is individual anymore. So stress the teamwork idea to all employees.”

Empowerment should open up lines of communication between departments.

At some point in the empowerment process, management can start assigning business problems to teams, or task forces, for solutions. People will stop complaining about problems and start working to solve them.

“When employees have accepted responsibility for solving problems, management can put its feet up and plan for the future, while clearing the way politically so people down line can talk to each other,” says Kathenes.

**Mistake No. 6:**

Letting activities go unmonitored

“The manager’s job is to tell what the business will do and why,” stresses Norman Bodek, president of Productivity, Inc., Norwalk, Conn. “Then leave the ‘how’ to the workforce.”

The three distinctions are important. Management needs to set certain stakes in the ground to guide the workforce in decision making. One of the most important stakes is setting goals. But it should not try to micromanage how work is done. What irks people the most is to be told how to do something. Allowing people to determine the most efficient work techniques is the essence of empowerment.

Even so, management needs to monitor workplace activity and correct employees when the “how” goes wrong.

“Leaders still need to lead,” says Senn. “You can’t run organizations as democracies based on voting. After all, it’s almost impossible to get total consensus on anything.”

**Mistake No. 7:**

Forgetting feedback

“Don’t set up a suggestion box unless you acknowledge everyone and get back to them,” argues Kathenes. This is true whether the box is physical or a metaphor for company policy.

“Just as a football player knows what the score is at any moment, everyone at the business must be kept informed as to what is happening at any moment,” says Bodek.

Here are categories that can be reported:

- How many ideas were presented by employees?
- How did productivity go up?
- What is the safety record?
- What is the rate of customer complaints?
- What is the level of business sales and profits?

“We recommend data be posted in highly visible places in clear forms,” says Les Landes, president of Landes Communications in St. Louis, Mo.

These forms might be charts or a blackboard in the employee lounge. They can also take the form of semi-annual meetings that discuss current operations, and financial information with profit targets, and how employees can bring the targets about.

Businesses that don’t face up to empowerment now have a limited life expectancy. With things as competitive as they are, you have to hire the whole person. That means someone who is empowered to take initiative.

For More Information: A catalog of books on empowerment from is available from Development Dimensions International, 1225 Washington Pike, Bridgeville, PA 15017-2838; phone 1-800-933-4463.
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Making the Most Out of Your Software Deductions

By Mark E. Battersby

It took the Internal Revenue Service 30 years to update the rules governing tax deductions for computer software. It took Congress only 18 months from the time those rules were updated to create a new tax deduction that dwarfed many of those updated software cost deductions.

The recently passed “Job Creation And Worker Assistance Act of 2002” was designed primarily to provide an economic stimulus to our economy and help businesses in New York City recover from the Sept. 11, terrorist attacks. The end result, however, is a tremendous tax incentive for purchasing computer software.

After 30+ years, the Internal Revenue Service updated the guidelines for the treatment of computer software. In Revenue Procedure 2000-50, the IRS defined computer software and explained the circumstances under which they will accept a tree care business’s treatment of the costs, paid or incurred in developing, acquiring, leasing or licensing computer software.

The new tax law allows every tree care company to claim an additional first-year depreciation deduction equal to 30 percent of the adjusted basis of qualified property (such as computer software). Generally, the new law applies to software or other qualified property acquired after Sept. 10, 2001 and before Sept. 11, 2004.

What is “software” in the eyes of the IRS?

Defining the deduction

To many tree care professionals software is simply what makes the computer run. According to the IRS, however, “computer software” is any program or routine (that is, any sequence of machine-readable code) that is designed to cause a computer to perform a desired function or set of functions and the documentation required to describe and maintain that program or routine. Software includes all forms and media in which the software is contained, whether written, magnetic or otherwise.

Computer programs of all classes – operating systems, executive systems, monitors, compilers and translation, assembly routines and utility programs, as well as application programs, are included. Computer software also includes any incidental and ancillary rights that are necessary to affect the acquisition of the title to, the ownership of, or the right to use the computer software and that are used only in connection with that specific computer software.

Computer software, according to the IRS, does not include any data or information base (for example, data files, customer lists or client files) unless the database or item is in the public domain and is incidental to a computer program. Nor does it include any cost of procedures that are external to the computer’s operation.

Deduction first

Admittedly, most tree care professionals buy business software off-the-shelf – even arborist-specific software – and claim its cost as an immediate business expense. After all, the software will soon be updated. Unfortunately, even under the new procedures outlined by the IRS, that deduction may not escape the IRS’s scrutiny. And what about those instances where you – or someone you pay – customizes that off-the-shelf software or develops software especially for your business?

Under their latest procedure, the IRS states that costs for developing software for your use or for sale to others may continue to be treated as a current, immediately deductible expense. Or, if it is to the business’s advantage, the company can continue to treat the costs of developing software as capital expenditures amortizable (written-off in equal installments) over 60 months – or, in some cases, depreciated over only 36 months.

The software deduction

At its most basic, every tree care business is offered the choice of immediately deducting the costs of developing software (whether for the operation’s own use or for sale to others) or amortizing them over a five-year (60 month) period. In fact, the amortization period can be even shorter if appropriate. The key to the deduction is consistency – all software costs, year-after-year must be treated in the same manner.

The option granted to the business by these rules means that a start-up or unprofitable business with little taxable profits can deduct software costs over a period of years where, perhaps, the write-off will offset taxable income in the later years of the deduction. An immediate, full deduction for software development costs would benefit a more profitable business by offsetting its current, high tax bill.

When it comes to acquiring software, the tax rules ask only how you acquired the software that you are trying to claim as an expense. If you obtained that software in the acquisition of another business – or its assets – that software is classified as a so-called “Section 197” intangible and can only be written-off over a 15-year period.

If, as is more often the case, the soft-
ware was acquired “off-the-shelf,” its cost is depreciated or written-off over a three-year period using the straight-line method of equal deductions each month of the 36-month period.

In those situations where the software is included as part of the cost of computer hardware and if it is not separately stated, the cost is treated as part of the cost of that hardware and depreciated accordingly.

Naturally, computer software with a useful life of less than one year is currently tax deductible as a business expense. Even better, a deduction is permitted under the tax rules for rental payments made for software leased for use in any trade or business.

The bottom line

If your company acquired software at TCI EXPO 2002, at a cost of $5,000, a depreciation “bonus” equal to 30 percent of the cost is available. That’s a $1,500 deduction. Plus, if the software has a recovery period of three years, the business’s remaining basis in the software, $3,500, is recoverable over three years, starting in 2002 using the normal MACRS (Modified Asset Cost Recovery System) rules.

Under the current tax rules, the small business expensing election under Section 179, allows first year expenses of up to $24,000 (in 2001 and 2002 and scheduled to increase to $25,000, in 2003) to be “expensed” or immediately written-off. Property such as computer software costs may qualify for both the 30 percent depreciation bonus and Section 179 expensing. Taxpayers in New York City’s Liberty Zone will enjoy an even higher expensing election: $35,000.

Leasing or licensing deductions

When a tree care business leases or licenses computer software, the IRS will not disturb any deduction that is properly allowable as a rental deduction. Naturally, if lease or license fee does not qualify as a so-called “business expense” and, in fact, is something that should be charged to a capital account, it is not currently deductible. But, as a capital expense, it qualifies for that new 30 percent “bonus” depreciation.

Changes ... even though there’s no rule change

In the eyes of the IRS, any tree care business that changes the way they treat costs paid or incurred to develop, purchase, lease or license computer software to another method (even one prescribed by the IRS), is considered to have changed their method of accounting. Fortunately, a change in useful life under the software development rules or acquired software rules is not a change in accounting methods.

However, any business that wants to change their method of accounting under this new Revenue Procedure must follow the automatic change in accounting provisions in Revenue Procedure 99-49 with a couple of minor modifications. For one, the IRS requires that you include the statement “Automatic Change Filed Under Section 8.01 of Rev. Proc. 2000-50” to assist them in processing changes and ensure proper handling.

This statement should be printed or typed at the top of any Form 3115, Application for Change in Accounting Method, filed under this revenue procedure.

In addition, if you are changing to the method described in the new revenue procedure for the costs of developing software, another statement should be attached to Form 3115, stating whether the business is choosing the 60-month period from the date of completion of the development of the software or the 36-month period from the placed-in-service date of the software.

Finally, the IRS has provided guidelines for the treatment of computer software costs. In most cases, the IRS will not disturb the way that your business treats those software costs. If you wish to change to a more advantageous method of writing those costs off — or to take advantage of the R&E tax credit that you’ve ignored until now, you must change your method of accounting.

Year-end is a great time to take a look at how your business treats software costs. The new tax law grants a 30 percent bonus depreciation allowance for capitalized computer software costs. Changing accounting methods has never been easier. Even better, the IRS has announced that they will not question the way you deduct software costs – as long as you are consistent. So what better time to make the most of the many tax benefits that exist for computer-software costs?

Mark E. Battersby is a tax and financial advisor, freelance writer and columnist. His syndicated weekly column on topical small business tax matters is carried by more than 60 newspapers.

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Tree Cuttings
Gathered for Cloning

A bristlecone pine estimated at 4,767 years old may live even longer if cloning efforts spearheaded by the Michigan-based nonprofit Champion Tree Project International are successful.

The tree, believed to be the world’s oldest, lives at 10,400 feet in the White Mountains on the California-Nevada border, and has been nicknamed Methuselah.

Chris Friel, a doctoral student in plant pathology at UC Davis, is in charge of trying to clone the tree. “Within a year, either I’ll have an itty bitty little tree or I won’t,” Friel told The Associated Press. “Frankly, the chances on an ancient tree are extremely slim.”

The U.S. Forest Service backed the Champion Tree Project’s efforts to clone prized trees for research and to restock sparse forest areas, and the nonprofit National Tree Trust also helped the effort.

Seeking Better Hardwood

Purdue University scientists are taking the lead in hopes of creating faster growing, richer grained and disease-resistant hardwood trees.

Scientists at the Hardwood Tree Improvement and Regeneration Center are hoping to boost the nation’s $14-billion-a-year hardwood industry with improved black walnut, black cherry and northern red oak trees. Using a combination of breeding and biotechnology, trees may go the way of crops which, for decades, have been improved through similar techniques.

The results of these efforts may also eventually pave the way for tree plantations of the highly demanded hardwoods - and protect forests.

“If we can domesticate hardwood trees,” Purdue University’s molecular biologist Keith Woeste told The Associated Press, “...you can eventually leave the wild ones where they are in the woods because you’ve made something that’s better.”

High-quality black walnut, black cherry and northern red oaks are prized by the furniture and wood flooring industry. Most old-growth forests were felled in the 19th century. Although demand for North American hardwood trees grows each year, there is an annual shortfall of about 55 million seedlings.

Scientists Estimate the Cost of Leaf Scorch

Bacterial leaf scorch is spreading through Philadelphia and parts of New Jersey, subcuting oak populations to a slow death. Recent results from tests conducted by the N.J. Forest Service last year indicate that 39 percent of the 1,372 oaks tested are infected by the disease. Most of those trees are located in southern New Jersey.

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My first experience in the tree care industry was as a groundworker at Lee’s Trees in Saratoga, Calif. I left that job for a seasonal job with the National Park Service. Upon my return to the Bay Area the following winter, I took a job with Davey doing line clearance in the Santa Cruz mountains.

The Santa Cruz mountains are mostly redwoods, oaks and madrone. It was not an easy training ground for the freshly hired climber that I was. My foreman was frustrated because there were so many large and burning trees in our area and I was just training and was not confident enough to tackle 90 percent of them.

At the end of the day we usually stopped at a turnout along the road to sharpen and clean tools before heading back to the yard. One day at the turnout, I wandered into the woods to heed the call of nature when I saw a huge, two-stemmed redwood. It was the biggest one I had seen in the area. I was awestruck. I looked up to take in the whole sight and fear struck me. Were my eyes deceiving or was I really seeing power lines way up there, very close to the tree? I got my foreman and showed him my find. Just then the supervisor showed up and we showed him, too. The supervisor looked, said, “Good luck,” and left. The foreman looked at me and said, “We are going to save this tree for last and you are going to do it.”

Two months later, the day arrived. Those power lines were strung from ridge to ridge. The tree base was at the bottom of the valley next to the creek. It was mid-summer and 105 degrees. My foreman said that if I could do this tree, we would do nothing else the rest of the day. The base of the tree was huge. I had to keep going around and around to unsnag my unflippable flip line. The tree split about 30 feet up to the durable stem. I was already caked in dirt and sweat, but at least the following 175 feet were a little bit more flippable.

At about 50 feet up, I was real nervous but refused to quit.

It took 3½ hours to reach the hazard limbs. There were only five limbs to cut. They were about 6 inches clear of the lines so I cut them at the trunk. I counted 14 seconds from the snap to the limb hitting the ground.

I had to tie in three times to get down. My last tie-in barely got me down.

The foreman congratulated me and told me to kick back till it was time to go and he would buy me an ice cream. At the end of the day, the ice cream time finally arrived and the foreman told me to pull my rope out of the tree so we could head out. When I pulled my rope, the end hitched around the limb below my tie-in. In desperation, we tied the rope to the truck but it would not come loose. The branch wouldn’t break and the truck tires just spun in the dirt.

Guess what I got to do next? We were late getting back to the yard, but I still got my ice cream.

[We sure hope he never used that rope to climb again. Ed.]

David Motzkus is the owner of Pro Tree & Lawn in Salida, Colo.

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STIHL Precision Series™ Hand Tools – STIHL has developed a product line that will help professional landscapers with the most demanding tasks. The STIHL Precision Series™ Hand Tools line has a collection of versatile hand-held cutting tools, including pole pruners, loppers, pruning saws, hand pruners, axes and a hedge shear. These tools offer blades that can be sharpened or replaced, strong lightweight handles, comfortable grips, and computer-designed cutting teeth or blades. Best of all, STIHL’s entire line of hand tools comes standard with a limited lifetime warranty. Ask your STIHL dealer how you can learn more about this exciting product line.

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Weighing in at just 13.2 lbs., Echo’s CS-670 is one of the lightest chain saws in its class. The CS-670 is equipped with a robust 66.7cc high-output two-stroke engine with a vibration reduction system, a 21 oz. fuel tank and a 10.5 oz. oil tank. Other signature elements include a grouped fast idle and choke system incorporated into the choke mechanism, as well as an automatic and manual oiler with external oil flow adjustment. Also included is an inertia-type chain brake and single lever access for easy air filter maintenance. This popular Echo chain saw is covered by a limited two-year consumer/one-year commercial/90-day rental warranty.

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Bandit’s Chipper/Chip Box Combo eliminates the need for a separate chip truck, and related costs such as insurance, licensing, etc., and is available with Bandit’s Model 65 (6-inch diameter capacity) or Model 90XP (9-inch diameter capacity). Combo unit features an 8.5 cubic yard dump box with hydraulic lift. Chipper is mounted on a turntable. Seven different chipping positions are provided and can be changed in a matter of seconds. For further information, contact Bandit Industries, Inc., 6750 Millbrook Road, Remus, MI 49340. Phone: 1-800-952-0178; Fax: (989) 561-2273; E-mail: brushbandit@eclipsetel; or visit online at www.banditchippers.com.
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New to the growing line of Cone-Head™ chippers is the Model 550. This is the fifth model in our expanding product line. Equipped with the revolutionary Cone-Head™ drum design, the 550 is in the 18-inch class and boasts a whopping 19-inch-high-by-28-inch-wide (532 sq. in.) throat opening with a full 28-inch cut, and industry leader. From 160 to 225 hp, the Model 550 can handle the toughest jobs. With the 8-inch Model 350; 10-inch Model 400; 12-inch Model 450; 14-inch Model 500; and the 600 series of 20-inch and 22-inch Models up to 300 hp coming next year, we have the size to meet your needs. Call (989) 644-8109 or visit www.dynamicmfgcorp.com. Dynamic Manufacturing Corp., 5059 W. Weidman Rd. P.O. Box 39, Weidman, MI 48893.

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Morbark, Inc.'s Model 13 Tornado: High-production chipping performance in a very popular size and price range make the Model 13 Tornado one of Morbark's best-selling chippers. With a 33-inch-by-55-inch infeed chute opening and a dual feed wheel system, the Tornado easily accepts the toughest wood debris. The Model 13, with a 13-inch diameter chipping capacity and a feed rate of 100 fpm, comes standard with electric brakes and Torflex axles. The Tornado is also available as a PTO Unit. Contact your local Morbark dealer for a demonstration of the Model 13 Tornado, or contact Morbark directly at 1-800-831-0042. Log on to www.morbark.com for additional information.

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PT Tech has introduced its hydraulically actuated and microprocessor controlled HPTO8 clutch for wood chippers. Hydraulic actuation eliminates the need for adjustment. The microprocessor controller makes the clutch push-button operated. The controller's start-up sequence matches the engine to the load, making each start-up smooth and consistent regardless of the operators' skills. To prevent operator abuse, the controller inhibits engagement when engine speed is too high and prevents the operator from repeatedly engaging the clutch to clear a jam. The HPTO8 increases chipper reliability and long-term profitability.

PT Tech, P.O. Box 305, Sharon Center, OH 44274; Phone: (330) 239-4933; Fax: (330) 239-2012; Web: www.PTPech.com.

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TRELAN MANUFACTURING

Trelan chippers have been in production for nearly 30 years, serving the whole tree market for paper and fuel chip producers. The chipper technology developed over that time is now available to the arborist industry, with five brush chipper models developed and introduced in 2002. Designed with the same features as Trelan's large models, the Model 6000 pictured is designed to fill the need of tree contractors needing to dispose of material with a maximum diameter of 13 inches. The models 5000, 6000, 7000, 8000 and 8000-L are now available. Trelan Manufacturing, 498 Eight Mile Road, Remus, MI 49340; Phone: (989) 561-2280; E-mail: trelan@trelan.com; Web: www.trelan.com.

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The International Society of Arboriculture keeps its members informed of the latest practical and scientific information through the Journal of Arboriculture and Arborist News. Members receive each publication six times per year. In addition, members are entitled to discounts on more than 100 different publications, videos, and other membership items. To become a member, call ISA; annual membership is $105. International Society of Arboriculture, P.O. Box 3129, Champaign, IL 61826-3129. Phone: 1-888-ISA-TREE (472-8733) or (217) 355-9411; Fax: (217) 355-9516; E-mail: isa@isa-arbor.com; Web: www.isa-arbor.com.

NAA – TREEWORKER

The NAA’s TreeWorker newsletter is for field employees of tree care companies. Each colorful issue gives employees “how-to” pointers on subjects such as improving client relations and avoiding vehicular accidents. Special features on disease and pest alerts, tree identification or technical features appear in many issues. Those often hilarious, always informative Mr. Safety cartoons, created by the tree care industry’s own Brian Kotwica, are on the back cover. Many arborists use each issue as a monthly safety tailgate training session. To subscribe, call the NAA at 1-800-733-2622 or (603) 314-5380; Fax: (603) 314-5386; or visit online at www.natlarb.com.

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THE HARTFORD


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ArborLearn.org delivers online arborist education to your home or office computer. Current course offerings include Plant Appraisal Workshop and Crew Leader Training Course. The Plant Appraisal Workshop is based on material from the CTLA Guide for Plant Appraisal, 9th Edition. It was developed by the American Society of Consulting Arborists (ASCA) with assistance from both ISA and NAA, and features six sessions. The Crew Leader Training Course is designed to help your employees make the jump from labor to supervisory positions. The course is based on the “Crew Leader” manual of the NAA’s Home Study Program and features additional materials and online testing. Visit www.ArborLearn.org for more info.

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TCI BUYERS' GUIDE - DECEMBER 2002 - 15
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Distributors

Adjuvants/Miscellaneous Chemicals
American Arborist Supplies Inc.
Ben Meadows Company
ESSCO Distributors Inc.
Midwest Arborist Supplies
Professional Tree Surgeon Supplies
Sherrill Arborist Supply

Aerial Lifts
Aerial Lift, Inc.
CUES, Inc.
Forestry Equipment of Shelby
G&A Equipment, Inc.
MAT-3, Inc.
Mickey's Truck & Equipment Sales
MIRK, Inc./Toombs Truck & Equip.
NESSCO, Inc.
Opdyke, Inc.
Sherrill Arborist Supply
Southeastern Equipment Company
Specialized Hydraulics, Inc.
Thayer Chevrolet Toyota / Great Lakes Ford Nissan
Trueco, Inc.

Aerial Lift Parts & Equipment
Aerial Equipment, LLC
Aerial Lift, Inc.
CUES, Inc.
Forestry Equipment of Shelby
MAT-3, Inc.
Mickey's Truck & Equipment Sales
NESSCO, Inc.
Sherrill Arborist Supply
Specialized Hydraulics, Inc.
Trueco, Inc.

Augers - Earth & Bits
American Arborist Supplies Inc.
Bailey's
Ben Meadows Company
CUES, Inc.
ESSCO Distributors Inc.
Forestry Suppliers, Inc.
J.P. Fuller Inc.
Karl Kuemmerling, Inc.
Midwest Arborist Supplies
Peak Trading Corporation
Professional Tree Surgeon Supplies
Sherrill Arborist Supply
Tree Tools

Biocides
American Arborist Supplies Inc.
ESSCO Distributors Inc.
Midwest Arborist Supplies
Professional Tree Surgeon Supplies
Sherrill Arborist Supply

Biostimulants

Biopesticides
ESSCO Distributors Inc.
Professional Tree Surgeon Supplies
Sherrill Arborist Supply

Blower, Debris
American Arborist Supplies Inc.
Ben Meadows Company
Bishop Company
Blue Ridge Arborist Supply
Cleaves Company, Inc.
ESSCO Distributors Inc.
J.P. Fuller Inc.
Tree Tools
Western Tree Equipment & Repair

Cabling & Bracing
Alexander Equipment Co. Inc.
American Arborist Supplies Inc.
American Chainsaws & 2 Cycle, Inc.
Bailey's
Bartlett Manufacturing Company
Berkeley Products, Inc.
Bishop Company
Blue Ridge Arborist Supply
Cleaves Company, Inc.
ESSCO Distributors Inc.
Fehr Bros. Industries, Inc.
J.P. Fuller Inc.
Growtech, Inc.
Karl Kuemmerling, Inc.
Kramer Equipment Co., Inc.
Labonville Inc.
Midwest Arborist Supplies
North Eastern Arborist Supply
Peak Trading Corporation
Professional Tree Surgeon Supplies
Sherrill Arborist Supply
Tree Line Supply Co.
Tree Tools
Western Tree Equipment & Repair

Chain Saws & Accessories
Aerial Equipment, LLC
Alexander Equipment Co., Inc.
Alliance Equipment Company, Inc.
American Arborist Supplies Inc.
American Chainsaws & 2 Cycle, Inc.
Arbor Direct, LLC
Bailey's
Bishop Company
Blue Ridge Arborist Supply
Cleaves Company, Inc.
Commercial Cutters Direct
Cutter's Choice
ESSCO Distributors Inc.
J.P. Fuller Inc.
Growtech, Inc.
Hollie Wood Enterprises
Karl Kuemmerling, Inc.
Labonville Inc.
NESSCO, Inc.
Northeastern Arborist Supply
Professional Tree Surgeon Supplies
Shelter Tree, Inc./Tree Care Products
Sherrill Arborist Supply
Tilton Equipment Co
Tree Line Supply Co.
Tree Tools
Western Tree Equipment & Repair

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Distributors (cont.) ...

**Chemical Absorbants**
American Arborist Supplies Inc.
ESSCO Distributors Inc.
Professional Tree Surgeon Supplies

**Chippers**
Aerial Equipment, LLC
Alexander Equipment Co. Inc.
Blue Ridge Arborist Supply
The Cat Rental Store
Cleaves Company, Inc.
Crane & Shovel Sales Corp.
Droege Equipment Inc.
ESSCO Distributors Inc.
Forestry Equipment of Shelby
G&A Equipment, Inc.
Karl Kuemmerling, Inc.
Mickey’s Truck & Equipment Sales
NESCO, Inc.
Northeast Arborist Supply
Opdyke, Inc.
Professional Tree Surgeon Supplies
Shelter Tree, Inc./Tree Care Products
Southeastern Equipment Company
Tree Tools
Trueco, Inc.
WesSpur, LLC
Western Tree Equipment & Repair

**Chipper/Shredder/Vac**
Forestry Equipment of Shelby
G&A Equipment, Inc.
Tree Tools
WesSpur, LLC
Western Tree Equipment & Repair

**Climbing Gear**
Aerial Equipment, LLC
Alexander Equipment Co. Inc.
American Arborist Supplies Inc.
American Chainsaws & 2 Cycle, Inc.
Arbor Direct, LLC
Bailey’s
Bartlett Manufacturing Company
Bashlin Industries, Inc.
Ben Meadows Company
Bishop Company
Blue Ridge Arborist Supply
Buckingham Manufacturing Co., Inc.
Cleaves Company, Inc.
Climb Axe, Ltd.
Cutter’s Choice
Droege Equipment Inc.
ESSCO Distributors Inc.
Forestry Suppliers, Inc.
J.P. Fuller Inc.
Growtech, Inc.
Hollie Wood Enterprises
Karl Kuemmerling, Inc.
Kramer Equipment Co., Inc.
Labonville Inc.
Midwest Arborist Supplies
Northeast Arborist Supply
Peak Trading Corporation
Petzl America
Professional Tree Surgeon Supplies
Shelter Tree, Inc./Tree Care Products
Sherrill Arborist Supply
Tree Line Supply Co.
Tree Tools
WesSpur, LLC
Western Tree Equipment & Repair

**Clothing**
American Chainsaws & 2 Cycle, Inc.
Bailey’s
Bartlett Manufacturing Company
Ben Meadows Company
Bishop Company
Blue Ridge Arborist Supply
Cleaves Company, Inc.
Commercial Cutters Direct
Growtech, Inc.
Karl Kuemmerling, Inc.
Labonville Inc.
Midwest Arborist Supplies
Professional Tree Surgeon Supplies
Sherrill Arborist Supply
Tree Line Supply Co.
Tree Tools
WesSpur, LLC
Western Tree Equipment & Repair

**Communication Systems**
American Arborist Supplies Inc.
Arbor Computer Systems
Sherrill Arborist Supply
Tree Line Supply Co.
Tree Tools

**Composting Equipment**
Cleaves Company, Inc.

**Computer Hardware/Software**
Arbor Computer Systems
Creative Automation Solutions
Tree Management Systems, Inc.

**Cranes**
Crane & Shovel Sales Corp.
CUES, Inc.
Mickey’s Truck & Equipment Sales
NESCO, Inc.
Peak Trading Corporation
Royal Truck & Equipment, Inc.
Southeastern Equipment Company

**Diagnostic Tools**
American Arborist Supplies Inc.
Bishop Company

Concept Engineering Group, Inc.
IML - Instrument Mechanic Labor, Inc.
Tree Tools
WesSpur, LLC

**Education/Workshop/Reference**
American Arborist Supplies Inc.

**Engines & Engine Parts**
Aerial Equipment, LLC
American Arborist Supplies Inc.
Capital Engine Co.
Cleaves Company, Inc.
Commercial Cutters Direct
Cummins Michigan, Inc.
Engine Center
ESSCO Distributors Inc.
McDonald Equipment Company
Perkins Power Corporation
Power Great Lakes, Inc.
Sherrill Arborist Supply
Southeastern Equipment Company
Superior Diesel Inc.
Tree Tools

**Excavators**
Cleaves Company, Inc.
Rayco Manufacturing, Inc.

**Fertilization Supplies**
American Arborist Supplies Inc.
Ben Meadows Company
Bishop Company
Cleaves Company, Inc.
Midwest Arborist Supplies
Northeast Shade Tree
Professional Tree Surgeon Supplies
ROOTWELL Inc.
Sherrill Arborist Supply
Tree Line Supply Co.

**Fertilization/Aeration Equipment**
American Arborist Supplies Inc.
Ben Meadows Company
Cleaves Company, Inc.
Concept Engineering Group, Inc.
J.P. Fuller Inc.
Midwest Arborist Supplies
Northeastern Arborist Supply
Professional Tree Surgeon Supplies
Shelter Tree, Inc./Tree Care Products
Sherrill Arborist Supply

**Footwear**
Bailey’s
Bishop Company
Blue Ridge Arborist Supply
Commercial Cutters Direct
Forestry Suppliers, Inc.
Growtech, Inc.
Distributors (cont.) ...

Footwear (cont.)
Karl Kuemmerling, Inc.
Labonville Inc.
Sherrill Arborist Supply
Tilton Equipment Co.
c/o Jonsered EFo

Fungicides
American Arborist Supplies Inc.
ESSCO Distributors Inc.
Professional Tree Surgeon Supplies
Sherrill Arborist Supply

General Arborist Supplies
Aerial Equipment, LLC
Ahborn Equipment, Inc.
Alexander Equipment Co. Inc.
American Arborist Supplies Inc.
American Chainsaws & 2 Cycle, Inc.
Arbor Direct, LLC
Bailey's
Ben Meadows Company
Berkshire Products, Inc.
Bishop Company
Blue Ridge Arborist Supply
Cleaves Company, Inc.
Commercial Cutters Direct
Cutter's Choice
Droege Equipment Inc.
ESSCO Distributors Inc.
Fehr Bros. Industries, Inc.
Forestry Suppliers, Inc.
Growtech, Inc.
Hollie Wood Enterprises
Karl Kuemmerling, Inc.
Kramer Equipment Co., Inc.
Labonville Inc.
Midwest Arborist Supplies
Peak Trading Corporation
Professional Tree Surgeon Supplies
ROOTWELL Inc.
Shelter Tree, Inc./Tree Care Products
Sherrill Arborist Supply
Sierra Moreno Mercantile
Tree Line Supply Co.
Tree Tools
WesSpur, LLC
Western Tree Equipment & Repair

Generators
Ben Meadows Company
Capital Engine Co.
Cleaves Company, Inc.
CUES, Inc.
J.P. Fuller Inc.
McDonald Equipment Company
Northeastern Arborist Supply
Peak Trading Corporation
Tree Tools

Grapples/Loaders
Crane & Shovel Sales Corp.
Growtech, Inc.
Payeur Distributions Inc.
Royal Truck & Equipment, Inc.
Southeastern Equipment Company

Growth Retardants/Regulators
American Arborist Supplies Inc.
Sherrill Arborist Supply

Herbicides
American Arborist Supplies Inc.
Ben Meadows Company
Forestry Suppliers, Inc.

Hydraulic Tools & Equipment
Aerial Lift, Inc.
American Arborist Supplies Inc.
Bishop Company
CUES, Inc.
Karl Kuemmerling, Inc.
Midwest Arborist Supplies
NESCO, Inc.
Peak Trading Corporation
Professional Tree Surgeon Supplies
Southeastern Equipment Company
WesSpur, LLC
Western Tree Equipment & Repair

Insecticides
American Arborist Supplies Inc.
Bayer Corporation
- Bayer Professional Care
ESSCO Distributors Inc.
Midwest Arborist Supplies
Professional Tree Surgeon Supplies
Sherrill Arborist Supply

Integrated Pest Management
American Arborist Supplies Inc.
Arbor Computer Systems
ESSCO Distributors Inc.
Professional Tree Surgeon Supplies
Tree Line Supply Co.

Irrigation/Aeration Products
Ben Meadows Company
ROOTWELL Inc.
Sherrill Arborist Supply

Knives, Chippers
Aerial Equipment, LLC
Alexander Equipment Co. Inc.
American Arborist Supplies Inc.
Blue Ridge Arborist Supply
Cleaves Company, Inc.
Cune & Shovel Sales Corp.
CUES, Inc.
Droege Equipment Inc.

Lightning Protection Systems
American Arborist Supplies Inc.
CUEs, Inc.
Independent Protection Company
Northeastern Arborist Supply
Tree Tools

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Distributors (cont.) ...

**Lubricants**
Arbor Direct, LLC  
ESSCO Distributors Inc.  
Fehr Bros. Industries, Inc.  
Growtech, Inc.
Peak Trading Corporation  
Tree Tools

**Macro Infusion Supplies**
American Arborist Supplies Inc.

**Miticides**
American Arborist Supplies Inc.  
Professional Tree Surgeon Supplies

**Mulch Coloring Equipment**
Alexander Equipment Co. Inc.  
American Arborist Supplies Inc.  
Southeastern Equipment Company

**Natural Homeopathic Remedies**
American Arborist Supplies Inc.  
SelfHEAL, Inc.  
Sherrill Arborist Supply

**Office Supplies**
Arbor Computer Systems

**Personal Protective Equipment**
American Arborist Supplies Inc.  
American Chainsaws & 2 Cycle, Inc.  
Arbor Direct, LLC  
Bailey's  
Ben Meadows Company  
Bishop Company  
Cleaves Company, Inc.  
Climb Axe, Ltd.  
Commercial Cutters Direct  
Cutter's Choice  
ESSCO Distributors Inc.  
Forestry Suppliers, Inc.  
Growtech, Inc.  
Karl Kuemmerling, Inc.  
Kramer Equipment Co., Inc.  
Lablaville Inc.  
Midwest Arborist Supplies  
Peak Trading Corporation  
Professional Tree Surgeon Supplies  
Shelter Tree, Inc./Tree Care Products  
Sherrill Arborist Supply  
Tree Line Supply Co.  
Tree Tools  
WesSpur, LLC  
Western Tree Equipment & Repair

**Pneumatic Tools**
American Arborist Supplies Inc.  
Karl Kuemmerling, Inc.  
Sherrill Arborist Supply

**Poison Ivy Protection**
American Arborist Supplies Inc.  
Bailey's  
Ben Meadows Company  
Bishop Company  
Cleaves Company, Inc.  
ESSCO Distributors Inc.  
Forestry Suppliers, Inc.  
Growtech, Inc.  
Midwest Arborist Supplies  
Professional Tree Surgeon Supplies  
SelfHEAL, Inc.  
Sherrill Arborist Supply  
Tree Line Supply Co.  
Tree Tools

**Power Pruning Equipment**
American Arborist Supplies Inc.  
Bailey's  
Bishop Company  
Blue Ridge Arborist Supply  
Cleaves Company, Inc.  
ESSCO Distributors Inc.  
Florian Ratchet-Cut  
J.P. Fuller Inc.  
Growtech, Inc.  
Karl Kuemmerling, Inc.  
Lawn Equipment Parts Co.  
NESSCO, Inc.  
Northeastern Arborist Supply  
Peak Trading Corporation  
Professional Tree Surgeon Supplies  
Shelter Tree, Inc./Tree Care Products  
Sherrill Arborist Supply  
Southeastern Equipment Company  
Tree Tools  
WesSpur, LLC  
Western Tree Equipment & Repair

**Pumps**
American Arborist Supplies Inc.  
CUES, Inc.  
ESSCO Distributors Inc.  
Minnesota Wanner Company  
Northeastern Arborist Supply

**Recycling/Wood Processors**
Aerial Equipment, LLC  
Alexander Equipment Co. Inc.  
Cleaves Company, Inc.  
Growtech, Inc.  
Hollie Wood Enterprises  
Karl Kuemmerling, Inc.  
Northeastern Arborist Supply  
Southeastern Equipment Company  
WesSpur, LLC

**Repellents**
American Arborist Supplies Inc.  
Ben Meadows Company  
ESSCO Distributors Inc.  
Forestry Suppliers, Inc.  
Sherrill Arborist Supply

**Right-of-Way/ Land Clearing Equipment**
Cleaves Company, Inc.  
Payeur Distributions Inc.  
Rayco Manufacturing, Inc.  
Southeastern Equipment Company

**Root Barriers**
American Arborist Supplies Inc.  
Ben Meadows Company  
Bishop Company  
Shelter Tree, Inc./Tree Care Products  
Sherrill Arborist Supply  
Tree Tools  
Western Tree Equipment & Repair

**Root Cutters**
Tree Tools  
Western Tree Equipment & Repair
Distributors (cont.)...

**Rope**
- Aerial Equipment, LLC
- Alexander Equipment Co. Inc.
- American Arborist Supplies Inc.
- American Chainsaws & 2 Cycle, Inc.
- Arbor Direct, LLC
- Bailey's
- Ben Meadows Company
- Bishop Company
- Blue Ridge Arborist Supply
- Cleaves Company, Inc.
- Climb Axe, Ltd.
- Commercial Cutters Direct
- Cutter's Choice
- Droege Equipment Inc.
- ESSCO Distributors Inc.
- Forestry Suppliers, Inc.
- J.P. Fuller Inc.
- Growtech, Inc.
- Hollie Wood Enterprises
- Karl Kuemmerling, Inc.
- Kramer Equipment Co., Inc.
- Labonville Inc.
- Midwest Arborist Supplies
- Northeastern Arborist Supply
- Peak Trading Corporation
- Petzl America
- Pigeon Mountain Industries
- Professional Tree Surgeon Supplies
- Shelter Tree, Inc./Tree Care Products
- Sherrill Arborist Supply
- Tree Line Supply Co.
- Tree Tools
- WesSpur, LLC
- Western Tree Equipment & Repair

**Skidsteer Loaders & Implements**
- The Cat Rental Store
- Cleaves Company, Inc.
- Snow Removal Equipment
- Cleaves Company, Inc.
- Commercial Cutters Direct
- J.P. Fuller Inc.

**Soil Amendments**
- American Arborist Supplies Inc.
- Ben Meadows Company
- ESSCO Distributors Inc.
- Midwest Arborist Supplies
- Northeast Shade Tree
- Professional Tree Surgeon Supplies
- Shelter Tree, Inc./Tree Care Products

**Sprayers & Accessories**
- American Arborist Supplies Inc.
- Ben Meadows Company
- ESSCO Distributors Inc.
- Forestry Suppliers, Inc.
- J.P. Fuller Inc.
- Karl Kuemmerling, Inc.
- Minnesota Warner Company
- Northeastern Arborist Supply
- Professional Tree Surgeon Supplies
- Shelter Tree, Inc./Tree Care Products
- Sherrill Arborist Supply
- Tree Tools

**Stump Cutter Teeth**
- Aerial Equipment, LLC
- Alexander Equipment Co. Inc.
- American Arborist Supplies Inc.
- Blue Ridge Arborist Supply
- Cleaves Company, Inc.
- Crane & Shovel Sales Corp.
- Droege Equipment Inc.
- ESSCO Distributors Inc.
- Growtech, Inc.
- Midwest Arborist Supplies
- Northeastern Arborist Supply
- Professional Tree Surgeon Supplies
- Rayco Manufacturing, Inc.
- Shelter Tree, Inc./Tree Care Products
- Sherrill Arborist Supply
- Southeastern Equipment Company
- Specialized Hydraulics, Inc.
- Tree Tools
- WesSpur, LLC
- Western Tree Equipment & Repair

**Stump Cutters**
- Aerial Equipment, LLC
- Alexander Equipment Co. Inc.
- Blue Ridge Arborist Supply
- Cleaves Company, Inc.
- Crane & Shovel Sales Corp.
- Droege Equipment Inc.
- ESSCO Distributors Inc.
- Mickey's Truck & Equipment Sales
- NESCO, Inc.
- Northeastern Arborist Supply
- Opdyke, Inc.
- Professional Tree Surgeon Supplies
- Rayco Manufacturing, Inc.
- Shelter Tree, Inc./Tree Care Products
- Southeastern Equipment Company
- WesSpur, LLC
- Western Tree Equipment & Repair

**Stump Cutters PTO**
- Blue Ridge Arborist Supply
- Droege Equipment Inc.
- Karl Kuemmerling, Inc.
- Professional Tree Surgeon Supplies

**Sweepers**
- Cleaves Company, Inc.
- J.P. Fuller Inc.

**Traffic Safety**
- American Arborist Supplies Inc.
- Ben Meadows Company
- Bishop Company
- Cleaves Company, Inc.
- ESSCO Distributors Inc.
- Forestry Suppliers, Inc.
- Karl Kuemmerling, Inc.
- Kramer Equipment Co., Inc.
- Midwest Arborist Supplies
- Northeastern Arborist Supply
- Professional Tree Surgeon Supplies
- Shelter Tree, Inc./Tree Care Products
- Sherrill Arborist Supply
- Tree Line Supply Co.
- Tree Tools

**Trailers/Ramps**
- Aerial Equipment, LLC
- Cleaves Company, Inc.
- Droege Equipment Inc.
- ESSCO Distributors Inc.
- Forestry Suppliers, Inc.
- Midwest Arborist Supplies
- Northeastern Arborist Supply
- Professional Tree Surgeon Supplies
- Rayco Manufacturing, Inc.
- Shelter Tree, Inc./Tree Care Products
- Sherrill Arborist Supply
- Tree Line Supply Co.

**Tree Injection/Implant**
- American Arborist Supplies Inc.
- American Chainsaws & 2 Cycle, Inc.
- Ben Meadows Company
- Cleaves Company, Inc.
- Droege Equipment Inc.
- ESSCO Distributors Inc.
- Forestry Suppliers, Inc.
- Midwest Arborist Supplies
- Northeastern Arborist Supply
- Professional Tree Surgeon Supplies
- Rayco Manufacturing, Inc.
- Shelter Tree, Inc./Tree Care Products
- Sherrill Arborist Supply
- Tree Line Supply Co.

**Tree Spades**
- Ben Meadows Company

**Trenchers**
- Ben Meadows Company
- Concept Engineering Group, Inc.
- NESCO, Inc.

**Trucks & Truck Accessories**
- Aerial Equipment, LLC
- Aerial Lift, Inc.
- American Arborist Supplies Inc.
- CUES, Inc.
- DICA Marketing Co.
- G&A Equipment, Inc.
- Mickey's Truck & Equipment Sales
- Opdyke, Inc.
- Payeur Distributions Inc.
- Royal Truck & Equipment, Inc.
- Southeastern Equipment Company
- Thayer Chevrolet Toyota / Great Lakes Ford Nissan

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Distributors (cont.) ...  

Tub Grinders
Alexander Equipment Co. Inc.
Opdyke, Inc.
Southeastern Equipment Company

Tree Protectors
American Chainsaws & 2 Cycle, Inc.
Bailey's
Ben Meadows Company
Cleaves Company, Inc.
Forestry Suppliers, Inc.
Growtech, Inc.
Midwest Arborist Supplies
Sherrill Arborist Supply

Tree Tools

Used Equipment
Aerial Lift, Inc.
Alexander Equipment Co. Inc.
Cleaves Company, Inc.
Crane & Shovel Sales Corp.
ESSCO Distributors Inc.

Manufacturers (cont.)

American Truck & Trailer Body Co.
Arbortech
MAT-3, Inc.
MTI Insulated Products Inc.
Terex Telelect, Inc.
VERSALIFT, TIME Manufacturing

Aerial Lift Parts & Equipment
Aerial Lift, Inc.
Alliance Equipment Company, Inc.
Altec Industries, Inc.
Buckingham Manufacturing Co., Inc.
DICA Marketing Co.
Jameson
MTI Insulated Products Inc.
Plastic Composites Corporation
U.S. Rigging Supply/Pelican Rope

Augers - Earth & Bits
Border City Tool & Manufacturing
Grow Gun Corporation
Karl Kuemmerling, Inc.
Powem Planter, Inc.
Redmax-Komatsu Zenoah America
Tanaka Power Equipment

Bioinsecticides
Monterey Lawn & Garden Products
Plant Health Care, Inc.

Biopesticides
Monterey Lawn & Garden Products

Blowers, Debris
Redmax-Komatsu Zenoah America
Stihl Incorporated
Tanaka Power Equipment

Cabling & Bracing
Berkshire Products, Inc.
Preformed Line Products
Vermeer Manufacturing Company
Wall Industries

Chain Saws & Accessories
Buckingham Manufacturing Co., Inc.
Husqvarna
Jameson
Oregon Cutting Systems
Rapco Industries, Inc.
Redmax-Komatsu Zenoah America
Stihl Incorporated
Tanaka Power Equipment
Tilton Equipment Co
c/o Jonsered EFCO

Climbing Gear
Excalibur DMM
Karl Kuemmerling, Inc.
New England Ropes, Inc.
Pigeon Mountain Industries
U.S. Rigging Supply/Pelican Rope
Vermeer Manufacturing Company
Wall Industries
Weaver Leather, Inc.

Clothing
Agape Designs
Arborwear, LLC
Karl Kuemmerling, Inc.
Vermeer Manufacturing Company

Communication Systems
Arbor Computer Systems

Composting Equipment
Fecon, Inc.

Computer Hardware/Software
Arbor Computer Systems
Tree Management Systems, Inc.

Cranes
Cargotec Inc.
Southco Industries, Inc.

Diagnostic Tools
Concept Engineering Group, Inc.
J.J. Mauget Company

Engines & Engine Parts
DEUTZ Corporation
Enginaire
Woodsman Chippers

Excavators
Concept Engineering Group, Inc.
Rayco Manufacturing, Inc.
Manufacturers (cont.)

Fertilization Supplies
Creative Sales, Inc.
Doggett Corporation
Grow Gun Corporation
Horticultural Alliance, Inc.
J.J. Mauget Company
Monterey Lawn & Garden Products
Nu-Arbor Tree & Shrub Care Products
Plant Health Care, Inc.
Tree Tech Microinjection Systems

Fertilization/Aeration Equipment
Concept Engineering Group, Inc.
Doggett Corporation
Grow Gun Corporation
J.J. Mauget Company
Minnesota Wanner Company
Nu-Arbor Tree & Shrub Care Products
Rear's Mfg. Co.

Footwear
Karl Kuemmerling, Inc.
West Coast Shoe Co.

Fungicides
ArborSystems, LLC
Bayer Corporation
- Bayer Professional Care
J.J. Mauget Company
Monterey Lawn & Garden Products
Tree Tech Microinjection Systems

General Arborist Supplies
Arborwear, LLC
Bahco Tools Inc.
Bartlett Manufacturing Company
Bashlin Industries, Inc.
Berkshire Products, Inc.
Buckingham Manufacturing Co., Inc.
Corona Clipper
Fanno Saw Works
Jameson
Karl Kuemmerling, Inc.
Oregon Cutting Systems
Peavey Mfg. Co.
U.S. Rigging Supply/Pelican Rope
Vermeer Manufacturing Company
Village Blacksmith/Olympia Industrial
Wall Industries
Weaver Leather, Inc.

Grapples/Loaders
Implemax Equipment Co., Inc.
Vermeer Manufacturing Company

Grinders, Horizontal
Bandit Industries, Inc.
Fecon, Inc.
Morbark, Inc.

Ground Cover Equipment/Mats
Alturnamats, Inc.
DICA Marketing Co.

Growth Retardants/Regulators
Dow AgroSciences
Monterey Lawn & Garden Products
Tree Tech Microinjection Systems

Herbicides
Bayer Corporation
- Bayer Professional Care
BBA Nonwovens/Reemay Inc./Bio Barrier
Dow AgroSciences
Monterey Lawn & Garden Products
Tree Tech Microinjection Systems

Hydraulic Tools & Equipment
ADI Pruning Tools by TOL Incorporo
FCI-Racine Hydraulic Tools

Insecticides
ArborSystems, LLC
Aventis Environmental Science
Creative Sales, Inc.
Dow AgroSciences
FMC Corporation-APG Specialty Prod.
J.J. Mauget Company
Monterey Lawn & Garden Products
Tree Tech Microinjection Systems

Integrative Pest Management
Plant Health Care, Inc.
J.J. Mauget Company

Irrigation/Aeration Products
Concept Engineering Group, Inc.

Knives, Chipper Repair
The Knifescape, LLC
Simonds Industries, Inc.
Vermeer Manufacturing Company
Wood/Chuck Chipper Corporation
Woodsman Chippers

Lawn Maintenance Equipment
Alturnamats, Inc.
Concept Engineering Group, Inc.
Corona Clipper
Dynamic Manufacturing Corp.
Minnesota Wanner Company
Rear's Mfg. Co.
Stihl Incorporated

Lightning Protection Systems
Independent Protection Company

Microinjections
J.J. Mauget Company
Tree Tech Microinjection Systems

Miticides
ArborSystems, LLC
Tree Tech Microinjection Systems
J.J. Mauget Company

Mulch Coloring Equipment
Fecon, Inc.
Morbark, Inc.

Natural Homeopathic Remedies
Doggett Corporation

Personal Protective Equipment
Arborwear, LLC
Bartlett Manufacturing Company
Bashlin Industries, Inc.
Buckingham Manufacturing Co., Inc.
Excalibur DMM
Stihl Incorporated
Tilton Equipment Co.
c/o Jonsered EFCO
U.S. Rigging Supply/Pelican Rope
Vermeer Manufacturing Company
Wall Industries

Pneumatic Tools
Concept Engineering Group, Inc.

Power Pruning Equipment
Florian Ratchet-Cut
Husqvarna
Jameson
Redmax-Komatsu Zenoah America
Stihl Incorporated
Tanaka Power Equipment
Village Blacksmith/Olympia Industrial

Pruning Supplies
Bahco Tools Inc.
Bartlett Manufacturing Company
Bashlin Industries, Inc.
Corona Clipper
Fanno Saw Works
Florian Ratchet-Cut
Manufacturers (cont.)...

Pruning Supplies (cont.)
Fred Marvin Associates
Future Forestry Products Inc.
Jamestown
Oregon Cutting Systems
Peavey Mfg. Co.
Stihl Incorporated
Village Blacksmith/Olympia Industrial

Pumps
Minnesota Wanner Company
Rear's Mfg. Co.
Tanaka Power Equipment

Recycling Equipment/Wood Processors
Bandit Industries, Inc.
Big Foot Industries Incorporated
Dynamic Manufacturing Corp.
Fecon, Inc.
Morbark, Inc.
Timberwolf Manufacturing Corporat
Woodsmen Chippers

Right-of-Way/Land Clearing Equipment
Bandit Industries, Inc.
Brush Technology
FAE Grinding Equip., LLC
Fecon, Inc.
Franklin Equipment Company
Gyro-Trac, Inc.
Implemax Equipment Co., Inc.
John Brown & Sons Inc.
Rayco Manufacturing, Inc.
Southern Farm Equipment Inc.
Vermeer Manufacturing Company
Wood/Chuck Chipper Corporation

Root Barriers
BBA Nonwovens/Reemay Inc./Bio Barrier
Deep Root Partners L.P.

Root Cutters
Corona Clipper
Vermeer Manufacturing Company

Rope
Bartlett Manufacturing Company
Bashlin Industries, Inc.
Buccaneer Rope Co.
Karl Kuemmerling, Inc.
New England Ropes, Inc.
Plymcraft, Inc.
Samson Rope Technologies
U.S. Rigging Supply/Pelican Rope
Vermeer Manufacturing Company
Wall Industries

Skidsteer Loaders & Implements
Brush Technology
Gyro-Trac, Inc.
Implemax Equipment Co., Inc.
Woodsman Chippers

Snow Removal Equipment
Dynamic Manufacturing Corp.

Soil Amendments
Doggett Corporation
Plant Health Care, Inc.

Sprayers & Accessories
Bartlett Manufacturing Company
Durand-Wayland, Inc.
ESSCO Distributors Inc.
Gyro-Trac, Inc.
Minnesota Wanner Company
Northeastern Arborist Supply
Rear's Mfg. Co.
Southern Farm Equipment Inc.
Stihl Incorporated

Stump Cutters
J.P. Carlton Company, Div. DAF Inc.
Dynamic Manufacturing Corp.
Husqvarna
Miller Machine Works
Rayco Manufacturing, Inc.
Stump Removal Inc./KAN-DU
Vermeer Manufacturing Company

Stump Cutters PTO
Fecon, Inc.
Miller Machine Works

Stump Cutters Teeth
Border City Tool & Manufacturing
J.P. Carlton Company, Div. DAF Inc.
CEI
Dynamic Manufacturing Corp.
Fecon, Inc.
Leonardi Manufacturing
Rayco Manufacturing, Inc.
Vermeer Manufacturing Company
Wood/Chuck Chipper Corporation

Root Barriers
BBA Nonwovens/Reemay Inc./Bio Barrier
Deep Root Partners L.P.

Root Cutters
Corona Clipper
Vermeer Manufacturing Company

Rope
Bartlett Manufacturing Company
Bashlin Industries, Inc.
Buccaneer Rope Co.
Karl Kuemmerling, Inc.
New England Ropes, Inc.
Plymcraft, Inc.
Samson Rope Technologies
U.S. Rigging Supply/Pelican Rope
Vermeer Manufacturing Company
Wall Industries

Skidsteer Loaders & Implements
Brush Technology
Gyro-Trac, Inc.
Implemax Equipment Co., Inc.
Woodsman Chippers

Snow Removal Equipment
Dynamic Manufacturing Corp.

Soil Amendments
Doggett Corporation
Plant Health Care, Inc.

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Bartlett Manufacturing Company
Durand-Wayland, Inc.
ESSCO Distributors Inc.
Gyro-Trac, Inc.
Minnesota Wanner Company
Northeastern Arborist Supply
Rear's Mfg. Co.
Southern Farm Equipment Inc.
Stihl Incorporated

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J.P. Carlton Company, Div. DAF Inc.
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Husqvarna
Miller Machine Works
Rayco Manufacturing, Inc.
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Fecon, Inc.
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Border City Tool & Manufacturing
J.P. Carlton Company, Div. DAF Inc.
CEI
Dynamic Manufacturing Corp.
Fecon, Inc.
Leonardi Manufacturing
Rayco Manufacturing, Inc.
Vermeer Manufacturing Company
Wood/Chuck Chipper Corporation

Service Providers

Aerial Lifts Parts & Equipment
Aerial Equipment, LLC
Mickey's Truck & Equipment Sales

Aerial Lift Parts & Equipment Repair
Aerial Equipment, LLC
Aerial Lift, Inc.
Sunbelt Rentals

Business Opportunity
Arbor Computer Systems

Grow Gun Corporation
J.J. Maugent Company
Tree Tech Microinjection Systems

Tree Protectors
Deep Root Partners L.P.

Tree Spades
Vermeer Manufacturing Company

Tree Transplanting Equipment
Vermeer Manufacturing Company

Trenchers
Concept Engineering Group, Inc.
Vermeer Manufacturing Company

Trucks & Truck Accessories
Aerial Lift, Inc.
American Truck & Trailer Body Co.
DICA Marketing Co.
Plastic Composites Corporation
Royal Truck & Equipment, Inc.
Schodorf Truck Body & Equip Co.
Southco Industries, Inc.
Specialized Hydraulics, Inc.

Tub Grinders
Fecon, Inc.
Morbark, Inc.
Vermeer Manufacturing Company

Used Equipment
Karl Kuemmerling, Inc.
Morbark, Inc.
Rayco Manufacturing, Inc.
Schodorf Truck Body & Equip Co.
Specialized Hydraulics, Inc.
Vermeer Manufacturing Company
Wood/Chuck Chipper Corporation

Grow Gun Corporation
J.J. Maugent Company
Tree Tech Microinjection Systems

Tree Protectors
Deep Root Partners L.P.

Tree Spades
Vermeer Manufacturing Company

Tree Transplanting Equipment
Vermeer Manufacturing Company

Trenchers
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Royal Truck & Equipment, Inc.
Schodorf Truck Body & Equip Co.
Southco Industries, Inc.
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Karl Kuemmerling, Inc.
Morbark, Inc.
Rayco Manufacturing, Inc.
Schodorf Truck Body & Equip Co.
Specialized Hydraulics, Inc.
Vermeer Manufacturing Company
Wood/Chuck Chipper Corporation

Service Providers

Aerial Lifts Parts & Equipment
Aerial Equipment, LLC
Mickey's Truck & Equipment Sales

Aerial Lift Parts & Equipment Repair
Aerial Equipment, LLC
Aerial Lift, Inc.
Sunbelt Rentals

Business Opportunity
Arbor Computer Systems
Service Providers (cont.) ...

**Computer Software/Hardware**
- ACRT, Inc.
- Arbor Computer Systems
- Creative Automation Solutions
- Practical Solutions, Inc.
- Tree Management Systems, Inc.

**Consulting - Business**
- ACRT, Inc.
- Arbor Computer Systems
- Arborist Skills, Inc.
- Creative Automation Solutions
- Environmental Consultants, Inc.
- Howard L. Eckel & Associates

**Consulting - Urban Forestry**
- ACRT, Inc.
- Safetrees

**Diagnose Disease**
- Concept Engineering Group, Inc.

**E-Commerce for Businesses**
- GreenIndustryYellowPages.com

**Education/Workshops/Training/Reference**
- ACRT, Inc.
- Arborist Skills, Inc.
- ArborMaster Training, Inc.
- Forest Applications Training, Inc.
- Integrity Tree Care/
  - Training with Integrity
- Safetrees
- Tree Safety International
- Tree Tools

**Fertilization Supplies Application**
- ESSCO Distributors Inc.

**Financing**
- American Express Business Finance
- C.A.G. Corporation
- Greystone Financial Group, Inc.
- Liberty Financial Group, Inc.
- OBL Financial Services, Inc.
- Pete Mainka Enterprises, Inc.
- Southeastern Equipment Company
- Tree Tools

**GPS Mapping**
- ACRT, Inc.
- Vermeer Manufacturing Company

**Insurance**
- CNA Commercial Insurance
- Hal Rose Agency Inc.
- The Hartford
- National Insurance Programs
- NRC Insurance Agency
- Ogilvy Hill Insurance
- TreePro Direct

**Lease/Rental**
- Aerial Equipment, LLC
- Greystone Financial Group, Inc.
- Karl Kuemmerling, Inc.
- Liberty Financial Group, Inc.
- Lowe's Company, Inc.
- MAT-3, Inc.
- Southeastern Equipment Company
- Vermeer Manufacturing Company
- WesSpur, LLC

**Pneumatic Tools Repair**
- Aerial Lift, Inc.

**Recycled/Wood Processors Repair**
- MAT-3, Inc.
- Southeastern Equipment Company

**Regulatory Affairs**
- ACRT, Inc.

**Repair/Rebuilding**
- Cleaves Company, Inc.
- MAT-3, Inc.
- Shelter Tree, Inc./Tree Care Products
- Southeastern Equipment Company
- Specialized Hydraulics, Inc.
- Tree Tools
- Vermeer Manufacturing Company
- WesSpur, LLC

**Soil Amendment**
- Concept Engineering Group, Inc.

**Transportation Services**
- Mayo Global Transportation Inc.
Alphabetical Listing

Associate Member of the National Arborist Association

(D) Distributor (M) Manufacturer (S) Industry Support and Services Provider

(S) ACRRT, Inc.
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Cuyahoga Falls, OH 44221-0401
Toll Free: 800-622-2562
Phone: 330-945-7500
Fax: 330-945-7200
E-mail: askacrt@acrtinc.com
Web: www.acrtinc.com
Ms. Sue Abbott

(M) ADI Pruning Tools by TOL Incorporated
PO Box 1498
Tulare, CA 93275
Toll Free: 800-732-2142
Phone: 559-686-2844
Fax: 559-685-1006
E-mail: scott@tol-inc.com
Web: www.tol-inc.com
Mr. Scott Hermann

(D) Aerial Equipment, LLC
2381 S Foster
Wheeling, IL 60090
Toll Free: 888-822-8008
Phone: 847-398-0620
Fax: 847-394-1042
E-mail: aerial@aerialequipment.com
Mr. Joel A. Chitty

(D) Aerial Lift, Inc.
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Milford, CT 06460
Toll Free: 800-446-5438
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Fax: 203-878-2594
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Web: www.aeriallift.com
Mr. Richard Mitchell

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Phone: 480-899-9831
Fax: 480-857-7216
E-mail: agapetree@msn.com
Web: www.agapetrees.com
Ms. Doreen Orist

(D) Ahiborn Equipment, Inc.
PO Box 500
Sayner, WI 54560-0500
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Fax: 715-542-3267
E-mail: ahiborn@nnex.net
Mr. Gene Ahiborn

(D) Alexander Equipment Co. Inc.
4728 Yender Ave
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Fax: 630-663-9754
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Web: www.alexequip.com
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Fax: 330-821-8375
Email: Sharon@Alliance-Equipment.com
Web: www.Alliance-Equipment.com
Ms. Regina Carte

(M) Altec Industries, Inc.
31 Inverness Center Pkwy,
Suite 360
Birmingham, AL 35242
Toll Free: 800-958-2555
Phone: 205-408-8052
Fax: 205-981-2522
E-mail: headquarters@altec.com
Web: www.altec.com
Mr. David W. Hill
See our ad in 4-Color Buyers' Guide

(D) American Arborist Supplies Inc.
882 South Matlack Unit A
West Chester, PA 19382
Toll Free: 800-441-8381
Phone: 610-430-1214
Fax: 610-430-8560
E-mail: aas@arborist.com
Web: www.arborist.com
Mr. Dave Francis
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3531A Lawrenceville Hwy
Tucker, GA 30084
Phone: 770-934-7297
Fax: 770-493-8085
Web: www.arboristequipment.com
Ms. Sheila Rutledge

(S) American Express Business Finance
2000 First Drive, Suite 300
Marietta, GA 30062
Phone: 770-971-6213
Fax: 800-343-0392
Web: www.amexbf.com
Mr. David Bethea

(M) Alturnamats, Inc.
PO Box 344
Titusville, PA 16354
Toll Free: 888-544-6287
Phone: 814-827-8884
Fax: 814-827-2903
E-mail: altturnamats@usachoice.com
Web: www.altturnamats.com
Ms. Janet Aaron

See our ad in 4-Color Buyers' Guide
American Truck & Trailer Body Co.
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Tracy, CA 95376
Toll Free: 800-499-8985
Phone: 800-499-8958
Fax: 209-836-1871
E-mail: amrtruck@pacbell.net
Mr. Michael Garner

Amerisafe
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DeRidder, LA 70634
Toll Free: 800-897-9719
Phone: 800-897-9719
Fax: 800-450-1091
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Web: www.amerisafe.com
Mr. Ed Ennis

Arbor Computer Systems
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Mr. Peter J. Hannan

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New Fane, NY 14108
Toll Free: 877-796-5999
Phone: 716-778-7021
Fax: 716-778-5568
E-mail: jong@arbordirect.com
Web: www.arbordirect.com
Mr. Jon W. Grierson

Arborist Skills, Inc.
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Phone: 517-439-0903
Fax: 517-439-0903
Mr. David Hineline

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CANADA
Toll Free: 888-240-3993
Phone: 403-240-3993
Fax: 403-240-3993
E-mail: arborweb@cadvision.com
Web: www.arboristsupplyco.com
Mr. Robert A. Romeril

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AUSTRALIA
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E-mail: sales@arborlink.com.au
Mr. Alan Drinnen

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Willington, CT 06279
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Fax: 860-429-5058
Web: www.arbormaster.com
Mr. Rip Tompkins

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CANADA
Phone: 403-439-0903
Fax: 403-439-0903
Mr. David Hineline

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Omaha, NE 68134
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Fax: 402-329-5011
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Web: www.arborsystemsllc.com
Mr. Chip Doolittle

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Chagrin Falls, OH 44022
Toll Free: 888-578-8733
Phone: 440-564-9264
Fax: 440-564-7977
E-mail: info@arborwear.com
Web: www.arborwear.com
Mr. Paul Taylor

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303 West Old Lincoln Way
Wooster, OH 44691
Toll Free: 800-255-5715
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Fax: 330-264-0891
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Web: www.arborine.com
Mr. Keith Barr

ArborMaster Training Canada, Inc.
RR 1 Site 9 Box 4
Olds, AB T4H 1P2
CANADA
Phone: 403-439-0903
Fax: 403-439-0903
Mr. David Hineline

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PO Box 34645
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Phone: 402-329-4459
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Web: www.arborsystemsllc.com
Mr. Chip Doolittle

Arborwear, LLC
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Chagrin Falls, OH 44022
Toll Free: 888-578-8733
Phone: 440-564-9264
Fax: 440-564-7977
E-mail: info@arborwear.com
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303 West Old Lincoln Way
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Fax: 330-264-0891
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Phone: 330-264-4266
Fax: 330-264-0891
E-mail: custservice@arborine.com
Web: www.arborine.com
Mr. Keith Barr

Bandit Industries, Inc.
6750 Millbrook Rd
Remus, MI 49340
Toll Free: 800-952-0178
Phone: 989-561-2270
Fax: 989-561-2273
E-mail: lkinnee@banditchippers.com
Web: www.banditchippers.com
Ms. Leslie C. Kinnee

Bartlett Manufacturing Company
3303 East Grand Blvd
Detroit, MI 48202
Toll Free: 800-331-7101
Phone: 313-873-7300
Fax: 313-873-5454
Mr. John Nelson

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PO Box 867
Grove City, PA 16127
Phone: 724-458-8340
Fax: 724-458-8342
E-mail: sales@bashlin.com
Web: www.bashlin.com
Mr. Roderick A. Paul
(D) Cherry Valley Tractor Sales
35 West Route 70
Marlton, NJ 08053-3099
Phone: 856-983-0111
Fax: 856-988-6629
Mr. Harold K. Wright, Jr.

(D) Cleaves Company, Inc.
300 Reservoir Street
Needham, MA 02194
Phone: 781-449-0833
Fax: 781-444-5611
Mr. Lenny Cleaves

(D) Climb Axe, Ltd.
PO Box 42314
Portland, OR 97242-0314
Phone: 503-236-9552
Fax: 503-236-9553
E-mail: climbaxe@aracnet.com
Web: www.climbaxe.com
Mr. Joe Garland

(S) CNA Commercial Insurance
CNA Plaza 37 South
Chicago, IL 60685
Toll Free: 800-CNA(262)-6241
Phone: 312-822-5000
Fax: 312-817-0775
Web: www.cna.com/commercial
Mr. Joel Appelbaum

(D) Commercial Cutters Direct
6450 Pottery Rd
Warner, NY 13164
Toll Free: 800-611-8486
Phone: 315-468-4248
Fax: 315-468-4183
Web: www.commercialcutters.com
Mr. Michael Harris

(S) Complete Tree Care
73 High Street
Church Stretton,
Shropshire, SY6 6BY
UNITED KINGDOM
Phone: 01694 720022
Fax: 01694 720033
Mr. Bruce Blackman

(D) Concept Engineering Group, Inc./AIR SPADE®
15 Plum St
Verona, PA 15147-2100
Toll Free: 888-557-2393
Phone: 412-826-8800
Fax: 412-826-8601
E-mail: richnathanson@air.spade.com
Web: www.air-spade.com
Mr. Rich Nathanson
See our ad in 4-Color Buyers’ Guide

(M) Corona Clipper
PO Box 1388
Corona, CA 92879
Toll Free: 800-234-2547
Phone: 909-737-6515
Fax: 909-737-8657
E-mail: sales@coronaclipper.com
Web: www.coronaclipper.com
Mr. John Reisbeck

(D) Crane & Shovel Sales Corp.
26781 Cannon Rd
Cleveland, OH 44146
Toll Free: 800-362-8494
Phone: 440-439-4749
Fax: 440-439-2177
E-mail: jsmsuch@ameritech.net
Web: www.craneandshovel.net
Mr. John Such
Wood/Chuck brush chippers, Atlas
Articulating cranes, and Hawk stump grinders.
See our ad in 4-Color Buyers’ Guide

(D) Creative Automation Solutions/ArborSoftWorx
10500 Old Court Rd
Woodstock, MD 21163-1112
Toll Free: 800-49-ARBOR (27267)
Phone: 410-461-5858
Fax: 410-465-3593
E-mail: dianac@creativeautomation.net
Web: www.ArborSoftWorx.com
Ms. Diana Cardillo
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(M) Creative Sales, Inc.
PO Box 501
Fremont, NE 68026-0501
Toll Free: 800-759-7739
Phone: 402-727-4800
Fax: 402-727-4841
E-mail: wd@Qwest.net
Web: medicap-medicap.com
Mr. Bryan Wolfe
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(D) CUES, Inc.
14 Caldwell Dr
Amherst, NH 03031
Toll Free: 800-258-1010
Phone: 603-889-4071
Fax: 603-886-5909
E-mail: info@cuesnet.com
Web: www.cues.net/aboutus.html
Mr. Alan Morrison

(D) Cutter’s Choice
PO Box 10308
Erie, PA 16514
Toll Free: 800-824-8521
Phone: 814-899-1629
Fax: 814-899-0275
Web: www.cutterschoice.com
Mr. Andy Bethel

(M) Deep Root Partners L.P.
81 Langton St Ste 4
San Francisco, CA 94103
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E-mail: Rebecca@Deeproot.com
Web: www.deeproot.com
Mr. Graham Ray

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Norcross, GA 30093
Phone: 770-564-7234
Fax: 770-564-7222
E-mail: mendoza.g@deutz.de
Web: www.deutz.de
Mr. Gustavo Mendoza

(D) DICA Marketing Co.
PO Box 685
Carroll, IA 51401
Toll Free: 800-610-3422
Phone: 712-792-5200
Fax: 712-792-1106
E-mail: info@dicausa.com
Web: www.dicausa.com
Mr. Dick Koberg

(M) Doggett Corporation
30 Cherry St
Lebanon, NJ 08833
Toll Free: 800-448-1862
Phone: 908-236-6335
Fax: 908-236-7716
E-mail: mellickr@cs.com
Web: www.doggett.net
Mr. Roger D. Mellick
See our ad in 4-Color Buyers’ Guide

(M) Dow AgroSciences
9330 Zionsville Rd
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Toll Free: 800-263-1196
Phone: 317-337-4436
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Mr. Kevin Tomka

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Mr. Dennis Droege

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