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Bob Felix served as president of the board of directors of the National Arborist Association in 1972. Those were troubled times for the tiny trade association. Many questioned whether or not it would, or should, survive. Bob believed in the NAA, though. He knew the value of the benefits that the NAA could offer to its members, and understood how critical it is for small companies to have a helping hand. Bob's vision for the NAA was so strong that in 1974 he left his position as vice president of Harder Tree and Landscape in Hempstead, New York and assumed the executive vice presidency of the NAA. Bob and his wife Pat set up shop in their kitchen. Bob developed the services that NAA could offer its members. Pat kept the entire membership file in a recipe box. There were 300 members of the NAA that year. This year alone, 22 years after Bob took the helm, there are 300 new members in an organization that now counts its membership in thousands.

The NAA is successful because Bob maintained one constant rule: The NAA exists for its members. Every action taken by the NAA, every word spoken by its staff, every word written, will serve the membership to the best of the ability of the NAA. Bob pushed, challenged and stretched himself to make certain that every member was receiving the full benefits of membership. "Good enough" was never good enough. There was always a way to do things just a little bit better. As that philosophy nurtured the growth of the NAA, Bob never forgot that his success, the NAA's success, occurred one member at a time. He was never too busy to answer a phone call from a member personally; never too busy to stop and chat for a moment. He was a leader, educator and, for many of us, an inspiration.

When Bob passed away on September 23, the loss suffered by the tree care industry was enormous. There will never be another Bob Felix. Here in the NAA office, we've all taken a deep breath and looked carefully around us. Each of us bears our grief. We turn to each other as we remember the funny things he did: Rainbow colored memos when he ran out of black ink for his color printer, the jokes he told, the jellybeans ... We've all confided in each other that there are times when we expect to see him turn a corner, or think we just heard his voice. But we also remember that our beloved leader demanded, demanded, the very best of what each of us has to offer. We were required to learn our jobs independently. We had to prove to Bob our ability to make decisions and offer solutions. If we wanted a raise, we had to show how we had earned it. These demands were made by a man who offered us a gentle hand and made us understand in an almost fatherly manner that we always had to expect a little bit more from ourselves because of that one golden rule: The NAA exists for its members.

There is little that Bob enjoyed more than a challenge. O.K. Bob, you've given us the ultimate challenge, and we won't let you down. We know that he would have expected nothing less than for us to examine everything that he did and make it better. That's a tough job, but the NAA staff is dedicated to building a stronger, bigger, better organization every year, just as Bob did. We look to the future with an eye on the past, so that we can continue to build on this solid foundation that Bob left for us. The NAA's voice will continue speaking in Wash-

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A dvanced modern Arboriculture is the care of the tree system based on the most current accepted tools, machines, products and techniques, and on an awareness of the scientific principles behind decisions, predictions and treatments. The tree system is made up of trees, their associates and their environment.

Arboriculture has grown from an art where muscles and skills were the major ingredients. Now it is time to add mind and science. The major science disciplines are biology, engineering, and chemistry. Of course, many other science disciplines play a role in the profession, as well as economics and communications.

Chemistry is the science of arrangements of atoms and their properties. As reactions change arrangements, the properties of the products also change. Chemistry speaks to the trees and associates at the molecular level. It is a ribbon that runs through all life processes and treatments. The use of fertilizers, water, herbicides, pesticides, mulches, soils and even proper pruning, all have a great amount to do with chemistry.

I believe many highly intelligent arborists ran from biology and chemistry primarily because of the way the subjects were taught. Students could fail by misspelling photosynthesis, or forgetting the makeup of glucose. It was not teaching; it was boring memorization. Some people wanted to be out touching trees and really learning about them.

Times are changing. Muscles and mind are now both required for the job. Some people will resist, but those who can see the writing on the wall will know that better jobs with higher wages are there for arborists who take the next steps.
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Cover Story

Chemicals produced by an insect that deposited an egg in this oak twig stimulated the tree to form a gall that served as the protective home for the developing larva. Chemicals of one kind may turn on or off other chemicals in living things. These processes become more understandable when you realize that all organisms are "bags" of chemicals.

Basic Chemicals of Life

Six chemicals - carbon (C), hydrogen (H), oxygen (O), nitrogen (N), sulfur (S) and phosphorus (P) - make up about 98 percent of the weight of people and trees. Water (H₂O, or two hydrogens and an oxygen atom) is the most abundant molecule in all living things. Other organic molecules are of four basic types: lipids (CH₂O), carbohydrates (CHO), proteins (CHONS), and nucleic acids (CHONSP). Carbon is the central chemical of life. The term "organic" means that carbon is part of the molecule. (Science is full of exceptions. Diamonds, coal, oil, graphite and natural gas have carbon, but they are not organic molecules mainly because of their structure and lack of oxygen.)

Lipids

Lipids are fats, oils and waxes made up of long chains of hydrogen and carbon connected to a glycerol molecule that has three oxygens. The chains of hydrogen and carbon can take on many forms because of branching.

Suberin is a lipid that in the outer periderm of phellem waterproofs outer bark. Suberin-impregnated phellem is called cork. The chains of carbon and hydrogen in suberin are so varied that few enzymes from microorganisms are able to cleave it for an energy source. This characteristic gives corks their unique benefits for sealing bottles. Suberin is also in a layer in absorbing roots called the Casparian strip. This layer is an effective boundary essential in the absorption processes. Energy is required to transport water and elements through the...
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Suberin is also a major compound in the barrier zone that forms after wounding. Outer bark that contains suberin is often used for mulch, since bark mulch will not be broken down by soil microorganisms because of the suberin. The bark mulch has aesthetic value, but the bark is of little value for providing energy-releasing compounds to soil microorganisms.

Some trees store fats and oils as their reserve energy source. The fats and oils are not soluble in water. Many palms store oils. Waxes on leaves and fruits are also lipids.

**Carbohydrates**

Carbohydrates are substances made of carbon, hydrogen and oxygen in the ratio of one carbon to one oxygen to two hydrogens. They are the energy-carrying compounds. The basic fuel for living processes is glucose, a simple sugar that contains six carbons, 12 hydrogens and six oxygens—C₆H₁₂O₆. The wonder of this compound is in the way in which the atoms are bonded.

A great amount of light energy from the sun trapped by photosynthesis goes into glucose. Glucose is like a mobile battery, because it is soluble in water. When the glucose reaches the living cells, it is “burned” in the presence of oxygen and provides the energy to run living processes.

Trees use energy in five basic ways: Growth, maintenance of all cell processes, reproduction, exudates and storage (mainly for new growth and defense). Growth and maintenance are linked in that growth increases the mass of an organism while...
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Cover Story

maintenance keeps the cellular bodies orderly and active. Reproduction, which increases the numbers of an organism, takes a great amount of energy from the system. Some trees have periodic heavy seed crops, while other trees, such as American elms, have heavy crops every year. Root exudates are like taxes: From 5 percent to 20 percent of the carbohydrates and other organic substances made from photosynthesis and metabolism exit the non-woody roots into the rhizosphere. These exudates are used as an energy source and building blocks by many soil microorganisms. Storage of compounds for new growth and defense is usually as insoluble starch or as oils and fats. Starch is made up of long chains of glucose. Starch is different from cellulose because of a different type of bonding.

Glucose from photosynthesis follows two different routes: Some fuels the living processes, and other glucose molecules form cellulose, which is the most abundant natural substance in the world. Cellulose is made up of twisting rope-like chains of glucose molecules. Lignins fill the spaces between the twisting "ropes" of cellulose. Lignins are natural cementing materials that give wood its unique characteristics for strength. Tree cell walls also have hemicelluloses, which are compounds made up of shorter chains of sugars.

An enzyme called amylase can change the starch chains back to glucose molecules. Many fungi have enzymes that can cleave the cellulose chains to release glucose. The wonder of glucose is that it can be an active cellular fuel, a tough material, a storage material and the basic unit of many other molecules essential for life.

Now, back to growth and maintenance as linked processes. We know how to stimulate growth: add a nitrogen source to soil or leaves and shoots will grow bigger. What we cannot do directly is add an energy source to trees. When growth increases, energy goes out of the system first. Then maintenance and defense must also increase after this for the added living matter. If stored energy is used to meet the added growth demands, little stored energy remains for defense, leaving a bigger plant with a smaller defense system. Any number of insects and microorganisms "know" this. The classic example is fire blight. Add nitrogen to a tree that has a little fire blight and the disease will spread rapidly. Add an overdose of nitrogen to trees and any number of sucking insects will be there.

The latest example is the Canadian hemlock problem caused by the hemlock woolly adelgid. Some people may argue that the added growth will support more photosynthate and this adds to the total energy budget of the system. The fact often forgotten is that the energy must come out of the system first and then the photosynthate begins to come back. Much can happen in the time between these processes that would benefit pathogens, which are opportunists waiting for a weak moment.

There is a way to indirectly "feed" a tree, and that is by the addition of composted wood and leaves to the soil. I believe we must think of the tree as the major part of an entire system. In this sense, it is possible to feed the tree system. The composted wood and leaves provide a carbon source for the many microorganisms...
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that are a part of the tree system. Dose again is extremely important. High mounds of mulch about the bases of trees is not beneficial, especially if the wood and leaves are not composted.

Proteins

Proteins are compounds of amino acids that contain carbon, hydrogen, oxygen, nitrogen and, in a few cases, sulfur. There are 20 basic amino acids arranged in many ways to form proteins.

Proteins are the basic molecules that make up living matter. Animals are mostly proteins and trees are mostly carbohydrates on a weight basis. Proteins are also the central molecules in enzymes, which are substances that catalyze many reactions along the pathways of life. Enzymes are "efficiency experts" in that they bring about chemical reactions in ways that minimize the expenditure of energy. They are often likened to keys that open the doors. Or, they may be likened to knives that cleave long chains or big molecules into smaller ones. All of these actions occur in ways that minimize energy costs and keep heat down. If it were not for enzymes, living cells would run out of fuel and would heat to the point of total disruption.

A major benefit of fertilizers is that they provide nitrogen for proteins. As more proteins form, the possibility for added growth increases. Nitrogen is absorbed at the rhizoplane in two forms: as nitrate ions or ammonium ions. Nitrate is an anion that carries a single negative charge. The ammonium ion is a cation that carries a single positive charge. The molecular weight of the nitrate ion, which is made up of one nitrogen atom and three oxygen atoms, is 62. Nitrogen has a molecular weight of 14, and each oxygen is 16. The ammonium cation is made up of one nitrogen and four hydrogens that have a molecular weight of one each. It weighs 18, the same as water, H₂O. A nitrate anion is three times the weight of an ammonium cation. This is extremely important, because the ammonium cation—being as small as the water molecule—often is attached to the inner surface of clay crystals. The ammonium cation is attracted to negative points in and on the clay crystals. In this way, clays hold ammonium cations as a reserve nitrogen source. A nitrate ion is too big and heavy to compete with an ammonium ion in clays.

Nitrate is usually the molecule that is absorbed by non-woody roots. The absorbing, non-woody root boundary is called the rhizoplane. In a sense, the rhizoplane is the "great discriminator." Ions pass into and out of the tree by way of the rhizoplane. When a cation moves in, an inner cation moves out. The same is true for anions. The usual cation that exits is a proton or the positively charged nucleus of hydrogen. The usual anion is the bicarbonate anion, which forms from carbonic acid, which in turn forms when carbon dioxide dissolves in water. Carbon dioxide and water are products of respiration, which is an energy-releasing process that requires oxygen. The energy released then "runs" the pathways in the living cells.

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an oxygen and hydrogen exit. A bicarbonate ion is made up of one hydrogen, one carbon and three oxygens. An important point to remember is that a carbon-containing ion exits when a nitrogen-containing ion enters. When nitrate ions enter, they usually react with reserve carbons to form amino acids. So again, carbon is leaving the reserves. And even more carbon exits as root exudates.

As carbon reserves decrease, so does the potential for defense. Add to this the fact that the percentage of exudate excreted increases when trees are over-pruned or injured during construction, and the defense potential is threatened even more. Overt evidence of the decrease in defense potential is shown by the abundance of root diseases in areas where trees are commonly over-pruned, over-watered or over-fertilized. Remember, pathogens "know" how to wait for a short, weak moment in the life of an organism. When the moment comes, they are always ready.

**Nucleic Acids**

Nucleic Acids are so called because they were first found in the nuclei of cells. Nucleic acids are made up of carbon, hydrogen, oxygen, nitrogen, phosphorus and sometimes sulfur. Two nucleic acids, DNA—Deoxyribonucleic acid and RNA—ribonucleic acid, are almost household terms.

The acids hold the codes for life. DNA is like a rubbery ladder that is twisted. The "rungs" are made up of four different nitrogen-containing molecules. The combinations of groups of "rungs" are the genes that determine the makeup of an organism.

The codes within a species are basically similar in their themes, but there are countless variations on the themes. This fact accounts for the great difference between individuals within a species. This variation is very important to the people who select individual trees for superior traits. We have known for more than 25 years that some individuals of a species are able to compartmentalize wounds more effectively than others. With the great need for tough city trees, it is difficult to understand why this information has never been used.

**Water**

Water is the medium for the chemicals of life. For instance, we know that glucose is the basic fuel for living processes, however, it is only usable when it is in a soluble state or in water. The same can be said for the 14 elements from soil that are essential for life, as well as a long list of organic compounds.
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Water is made up of two hydrogen atoms and an oxygen atom. The way these three atoms are bonded gives this molecule amazing characteristics. Think of the water molecule as a large balloon for oxygen and two smaller balloons for the hydrogens. The hydrogen balloons are bonded to the large balloon in a way that leaves each hydrogen atom with a small positive charge. On the opposite side of the balloon from the hydrogens, the oxygen has two small negative charges. The water molecule then has two small positive charges on one side and two small negative charges on the opposite side. Such a molecule is called a dipole because it has positive and negative ends. When many water molecules are together, one negative point is attracted to one positive point of another water molecule. The way the two negative points and two positive points are positioned makes it impossible for two water molecules to connect both positives to both negatives. The charges are small but they are enough to result in highly complex three-dimensional lattices of connected water molecules. This is why water that weighs only 18 on the molecular scale is not a gas at room temperature. The molecules normally form huge clumps of connected lattices. The cohesive nature of water explains why water will form humps on the surface of smooth glass or on the waxy coatings of leaves and needles.

The lattice structure of water molecules is a major reason it "holds together" in vessels and tracheids. The exact nature of the 3-D lattices is still not understood. When free-flowing water moves in trees, some of the water molecules “stick” to the small negative charges on cellulose molecules. The positive charges of the hydrogen of water are attracted to the negative charges of the oxygen on hydroxyls (oxygen and hydrogen bonded) on cellulose. This is called a hydrogen bond. It is like a Post-It Note. It sticks when you want it to stick, but when you pull it away, you cannot tell where it was stuck. The water that bonds with cellulose is called bound water.

The Bonds of Life

There are three major types of chemical bonds--covalent, ionic and hydrogen. Think of bonds as magnets: Covalent bonds are the strongest magnets; Ionic are next; and hydrogen the least strong. Covalent bonds hold the nitrogen in the air so tightly together that it takes a great amount of energy to break the bonds. That is good, because the air is about 80 percent nitrogen, which is in a form that is very difficult for organisms to use.

 Ionic bonds are lesser magnets. Elements and combinations of elements enter and exit non-woody roots as ions. Ions have a positive or negative charge.

Hydrogen bonds are the smallest magnets. Yet in many ways, they are the major magnets of life. They hold things together and, when pressures are applied, they let things go. The more you know about hydrogen bonds, the more you will know about living processes.

There are three physical forces that we know of--gravity, electromagnetic and nuclear. Chemistry speaks primarily to the electromagnetic forces. Nuclear forces hold atoms together. Gravity and nuclear forces are primarily within the discipline of physics. Something must hold matter together. At the same time, the matter that is held together must eventually come apart—build up, breakdown, recycling. Some force holds them together and some greater force pulls them apart. Think about how it would be
if once matter got together, it could not be taken apart. Or think of the other extreme, that matter would be always falling apart. The wonder of natural systems is the way in which matter holds together and the way that matter comes apart.

The Tree Seesaw

Dynamic equilibrium is one of the major principles of chemistry. Dynamic equilibrium is a state of apparent balance while in reality two opposing processes are operating at a constant rate.

Natural systems are in constant states of dynamic equilibrium that are often misstated as the balance of nature. Trees are in the same state: The top supplies the energy to the bottom and the bottom supplies the water and elements to the top.

Trees can be likened to seesaws. For a seesaw to work, it must go up and down. If one end is shortened (through over-pruning), the seesaw will be more difficult to operate. If the seesaw is balanced and still, the tree is dead. If a heavy weight is placed on one side (through over-watering or over-fertilizing), it will be difficult to operate.

Some Final Points

I have discussed very briefly some organic molecules of life, water, bonding and dynamic equilibrium. Here are some examples of the ways this information is related to trees and their treatments.

1. Tanning

Many evergreen leaves tan after they mature. Tanning means that proteins bond with phenol-based molecules. In the process, the hydrogen bonds that hold the protein spirals in place are pulled away and the protein spiral collapses like a slinky toy. Once collapsed, no insect or other organism can use the protein as a food source because the collapsed spiral makes it almost impossible for an enzyme to enter and cleave the protein. This is why we tan animal skins.

2. Fiber Saturation Point

When the thick inner wall layers of fibers become saturated with water, that condition is called the fiber saturation point. The secondary wall has three layers called S1, S2, and S3. The S2 layer has an abundance of cellulose. The hydrogen bonds on the water molecules attach to the negative positions of oxygen atoms on hydroxyls that "stick out" from the cellulose. The water is now called bound water. The high amount of bound water in the S2 layer is a major protection feature against decay-causing fungi in living trees.

3. Urea Fertilizer

Urea is the major molecule used for nitrogen in fertilizer. It is inexpensive to make. Urea is an organic molecule with a central carbon, an oxygen, two nitrogens and four hydrogens. The hydrogens form weak hydrogen bonds with positive charges and the oxygen has two weak negative bonds. The molecule is a dipole, and is very soluble in water because of the hydrogen bonds. This is the good news. The bad news is that the molecule reacts very quickly in water to release ammonia gas that can go off into the atmosphere on hot windy days and not into the soil. Also, many microorganisms contain a urease enzyme that splits the molecule to release ammonia. Many fertilizers are now including a chemical to slow the action of the urease in order to minimize loss of nitrogen as ammonia gas.
4. Over-watering

If high turgor pressure is essential as a protection feature against infection, why not add lots of water to make sure you maintain a high turgor pressure? If you do, the plant wilts or the palm heart is infected. How can this be? The seesaw and absorption in the soil are the answers. When too much water is added to soil, the oxygen content is decreased. When oxygen is low, non-woody root respiration will be low. When respiration is low, very little carbon dioxide and water will be formed. As a result, very little carbonic acid will form. When carbonic acid is low, very little bicarbonate ion will form. Bicarbonate anion is a major player in absorption. For nitrate ion to enter the non-woody root, an anion must exit. When bicarbonate anion is low, nitrate anion entering the non-woody root will be low. The seesaw states that extremes kill. Too little is not good, and too much is not good. If you load the soil with water, absorption of essential elements and water decreases because respiration and bicarbonate ions decrease.

5. Pesticides and Herbicides

Most pesticides and herbicides kill by blocking a chemical pathway within the cells, usually by the alteration of enzymes. The alteration is such that a chemical compound almost the same as the real enzyme "fits" into the real enzyme's usual position, but it does not work. Chemicals designed to kill specific organisms usually have an enzyme-blocking chemical for some enzyme specific to that organism. More broad-range killer chemicals alter some other chemical essential for living pro-
cesses. For example, arsenic “fits” into the position occupied by phosphorus in the molecule ATP, adenosine triphosphate. ATP is the universal “money handler” in organisms. Arsenic is an analog for phosphorus. The problem for the organism is that arsenic does not do the job of ATP, and the cash flow system of the organism disrupts. Other broad-range chemicals work in similar ways.

6. Chlorosis
When nitrate anion enters a non-woody root, bicarbonate anion exits the root. When bicarbonate anion dissolves in water, the pH will increase in the rhizosphere. The pH could be two or more units higher right after fertilization with urea. First, urea forms ammonia, which dissolves in water to form a strong base. Then, when bicarbonate anions enter the rhizosphere water they are also bases. If this takes place in soils that are already high in pH, and if trees that have genetic codes for optimal growth in low pH soils are planted there, it is possible that some chlorosis could occur. As pH increases, iron and manganese form insoluble precipitates rather than ions in water. When iron and manganese are low, processes of photosynthesis decrease. The other side of the urea story is that after two to four weeks, the pH will decrease if certain bacteria are present and active. This seesaw effect with pH changes is more common than recognized in the rhizosphere. The problem is that when the pH conditions favor pathogens, it does not take long for them to infect.

7. Taxol and Cancer
I end with this example because a very valuable chemical from yew trees shows great promise as a control for some forms of cancer. Taxol does it by blocking the pathways that lend elasticity to the cell’s inner cytoskeleton. What does that mean? When cells divide rapidly, as they do in some cancers, the inner cell cytoskeleton stretches to accommodate the genetic apparatus that transfers the genetic material. If that apparatus is not elastic, it will not stretch as two cells begin to form from one. Instead, it resists stretching and may even break, thus preventing cell division. Since some cancers are cell divisions out of control, taxol slows this division process. The side effects are that the same slowing of cell division also takes place in normal healthy cells. But cancer cells multiply so much faster than normal cells that this side effect is far outweighed by the benefits.

Why Do I Need to Know This Stuff?
The answer is simple: You do not need to know this stuff if you are satisfied with your job and wages. If you are pleased with your position and pleased with the thought that you will be doing the same things for the same wages the rest of your life, fine!
If you want to advance—not only in your job but as a person who gets enjoyment out of understanding the way things work—then you need to know this stuff. The people who want this stuff rarely ask the question of why they need it because they already know the answer.
I believe arboriculture will become more of a science, and it will follow the same route as modern medicine. So far, the early history of medicine fits very well with the developing profession of arboriculture.

Dr. Alex L. Shigo is the owner of Shigo and Trees, Associates of Durham, NH.

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The Safety Mind-Set and the Color Code of Awareness

By Donald F. Blair

If you were to study a railroad yard, you could begin to understand how my mind works. A large freight yard has a vast complex of rails running parallel to each other in order to stage and organize thousands of individual cars into freight trains. The vast complex of track is channeled and narrowed through switches until a single track emerges from one end.

I have a broad base of interests and hobbies seemingly unrelated to my profession as an arborist stored in box cars, gondolas and flat cars. I enjoy reading, thinking and writing about things other than the basic skills of arborists, and being able to relate my other interests to my profession helps to keep my focus.

Years ago, the Gunner’s Guru, Col. Jeff Cooper, developed a model for mental awareness entitled, “The Combat Mind-Set and the Color Code of Awareness.” In Cooper’s line of work, the wrong mind-set or lack of awareness to a pending combat situation can get you killed. Arborists have also been killed “in the line of duty” because they failed to recognize or be aware of hazards in the workplace.

Cooper’s model identified four states or conditions of mental awareness: White, Yellow, Orange and Red.

In condition White, you are in the most relaxed state possible. A good place to be in White is at home, on the couch watching the game or reading this article in TCI magazine. Engrossed in your relaxation, you’re basically oblivious to your surroundings and the fact that your 3-year-old and 5-year-old are getting ready to pounce on you in a classic envelopment from two sides. A bad place to be in White is on the job, either when meeting the client or getting the work done. I have a classic example of what can go wrong when you meet someone in condition White, later in this article.

Condition Yellow is also a relaxed state, but you maintain just enough control over your perimeter to be able to warn “the boys” to cut it out before they can get the drop on you. On the street, a person in condition Yellow is in a casual state of alertness. You would be aware of the people on the street, the mugger coming toward you, the dog poop on the sidewalk (before you step in it) or the piano-shaped shadow you are standing in that is getting larger and larger.

Condition Yellow gives way to Condition Orange as the next state of alertness. You move into Orange as you identify potential threats to your safety. In Orange, you are mentally preparing a plan of action should the flag go up.

Condition Red means the bull is charging! You are officially in harm’s way and you need total concentration upon the technical aspects of getting yourself out of this situation alive and unharmed.

Cooper’s model, of course, relates the Color Code to the intensive training in defensive combat that he developed for law enforcement, security and military personnel. Cooper relates White to a police officer on the street so totally engrossed in writing a ticket that she fails to notice the out-of-control bus careening toward her.

In Yellow, while walking a beat, the officer is relaxed but observant of the people and activities going on around her. Orange places the officer on full alert as she chases a purse snatcher down the street and into a blind alley. In Orange, she has to be prepared to defend herself from attack by knife or gun, react appropriately in defense or take cover in an instant.

In Red, the flag is up! The purse snatcher has emerged from behind a dumpster with
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a knife in one hand and a broken bottle in the other. He appears to be out of his mind on PCP and is obviously committed to an attack upon the officer. In Red, the officer is in a fight and has to bring her training, judgment and defensive skills to bear instantly and appropriately in order to protect herself and subdue her attacker.

Wow! I'm glad I just have to worry about getting electrocuted, decapitated or crushed. You see my freight yard mind at work here. I read an article about the colonel by Jeff Cropsey in the October 1996 issue of Handguns entitled “Survival and the Color Codes of Mental Awareness.”

I immediately began to route that box car of information through the switching yards until I could hook it up to a fast freight. With full credit to Cooper for his pioneering work and Cropsey for expanding upon the concept, I have adapted Cooper's principles to our specific needs and here-with present my interpretation: The Mind-Set of Safety and the Color Code of Awareness.

Fortunately, we don't have to be as extreme in thinking about safety as Cooper, but a lack of attention near high voltage can be just as deadly as a slug from a .45.

The first rule of survival is awareness! You have to be aware of what the threat to your safety is, where it is coming from, when it is going to reach you and how you are going to deal with it.

The crucial colors on the chart are not Orange and Red, as you may think. A White or Yellow state of mind can get you into serious trouble if the situation calls for Orange or Red.

My old mentor and Euc Man buddy, Troy Payne, once told me a story about an encounter with a passerby locked into Condition White. Troy and a full crew were in the process of felling large eucalyptus trees on the Stanford University campus in Palo Alto, CA. They were wrestling with a huge euc that didn't want to go over and were using a bulldozer on the back-cut side to shove the stubborn tree into the face cut. Along comes a Stanford student at a distance, nose buried in a paperback and walking directly toward the fall line for this 200-foot-tall euc.

Picture the scene: A bulldozer snorting and grunting as it tries to wrestle this tree to the ground, determined men with powerful saws revved and ready to limb and buck the tree when it lands. My friends, this was not a quiet workplace. Bookworm kept walking, totally Yellow = Caution. Think of a traffic signal. Yellow implies caution. Unlike the signal yellow that warns that traffic will stop, the mental state is a general alert to be on the watch for potential danger.

Orange = Warning. Traffic warning signs are orange. They warn you that a bridge is out, a lane is closed or tree work is ahead. In Orange, you have identified a hazard, threat or danger and are mentally preparing a plan of action to minimize the risk or likelihood of an accident.

Red = Danger. You take appropriate action to prevent an accident, injury or death.
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oblivious to the increasingly profane shouts of warning from Troy and his compadres. Well, the cat finally gained the upper hand and tilted the lean of the euc into the face of him. All the fellow could mutter as he strode off was, "You guys should have put up a sign!"

Stanford must have been the capital of Condition White who slalomed through the cones, and got all tangled up in the brush. He never even noticed the job site because I recall pruning a live oak that overhung a sidewalk there. We had road cones, and brush piled about 3-feet high on the sidewalk. Along came a bicyclist in Condition White who slalomed through the road cones and got all tangled up in the brush. He never even noticed the job site and was mad at me because he was on his back in a pile of brush with his derailleur all jammed up with brush and acorns.

A tree job site is no place for Condition White. Save the state of blissful ignorance for the couch at home. Always approach the job in Yellow. Note the lay of the site, study the tree for the safest method of entry or removal. When underway, whether you are on the ground or in the tree, shift into Orange and stay there! Stay Alert! Stay Alive! When keyed into the Orange state of mental awareness, you know where the hazards are, you have planned your work to avoid obvious hazards and you have left yourself an escape route. You and your crew are trained, equipped and capable of performing first aid or an aerial rescue should the need arise. Leaving condition White at home and coming onto the job in Yellow and Orange should mean that you'll rarely have to deal with Condition Red without time to properly react.

I know an arborist who had a brush with Red and lived to tell about it. Years ago, Dick Alvarez had occasion to remove a large pine tree. He ascended to the top, tied in and limbed the tree as he worked his way down. So far so good. He got down about 40 feet and picked a good place to dump the top. He put in a good face and a great back cut. The tug on his climbing line instantly shifted his awareness from Yellow to Red - he was still tied in! The flag was up! Dick was in a fight with that tree for his life! Fortunately, he had a flipline around the main stem and his saw was still idling. Dick cut his climbing line an instant before he would have been catapulted out of that tree. Dick went on to found Arbor Tree Surgery, stress safety training and found the Jamboree with Bailey Hudson.

Anyone who has to perform first aid, CPR or an aerial rescue will have to operate in Red. Cooper and his disciples teach and stress that the best gunfight to win is the one that never occurs. Their training in mind-set and tactics are aimed at that goal. Of course, they also teach exceptional skills in pistol craft just in case. For years now, I have been an advocate of Aerial Rescue Avoidance. Independently arriving at the same conclusion as Cooper, I have preached, pleaded and cajoled that the most effective aerial rescue is the one that doesn't have to be performed.
Adapting Cooper’s landmark work to our profession gives us yet another model for visualizing the mental processes that can lead us away from or directly into harm’s way.

Consider the value of adopting this model for awareness to your everyday life. I almost got killed in my first few hours in Australia, because I tried to cross a street in condition White. My parents always taught me to approach a road crossing in a Yellow state and instilled in me a lifelong habit of always looking left-right-left. In Australia, that standard mode almost got me run down by a huge lorry because they come at you from the right! Although some may never forgive Mark Hartley for grabbing my arm when he did, I’m grateful for the fact that his Orange state of awareness and appropriate action in Red kept me from Condition Dead!

Last Fall, I spent a day in the redwoods with my logging buddies, Ken Johnson and Derek Zatkovich. Both are good at what they do. Zak had one last tree to drop. His strip was in a thinning operation, so on double-leader trees he would only take one. Zak set his face and started in on the back cut. I had my camera up and was probably in a dirty White or bleached Yellow state of awareness. Once a timber faller, always a timber faller, Ken trusts Zak but stayed in a bright neon Yellow state of mind.

Zak had some trouble and sure enough the tree spun off the hinge 45 degrees from the planned lay and very slowly and deliberately began to set its course for our precise location. Ken had it all sized up. Calmly, deliberately, he shifted into flaming Orange and suggested that I join him in a thoughtful shift of position. Shifting into Red, we picked up the gas can and day pack and calmly moved to a safe spot and watched 150 feet of coast redwood crash right onto our former vantage point. In seconds, Ken had shifted from Yellow to Orange and then Red as we took appropriate action. There was no hullabaloo, no desperate scramble for safety, no drama. The shift from potential disaster to safety was routine and seamless.

It could have been worse. All too frequently, it is. Yellow to Orange made the difference. Don’t be color-blind to safety and remember. Better Red Than Dead!

Donald F. Blair is the sole proprietor of Sierra Moreno Mercantile Company, an arborist equipment, research and development firm.

Author’s Note
As regular readers know, I have been a frequent contributor to TCI magazine since its inception. Having just finished one book and being deep into research on two others, I’d sort of hit a burn-out of energy and ideas for TCI.

Peter Gerstenberger asked me to contribute an article for this issue, but I couldn’t come up with any fresh ideas in the amount of time we had. With a deadline of September 30 looming, I told Peter on the 20th that I didn’t have time, energy or ideas.

Robert Felix, executive vice president of the National Arborist Association and the founder of this magazine, passed away on September 23. I attended the services in New Hampshire and returned home on September 27. I wrote a tribute to my friend on the 28th and this article the next day. For 21 years, Bob was my friend, mentor, cheerleader and press agent. Even in death, he inspired me to produce that which I didn’t think I had in me. I shall miss him.
Management Training

Take the time to train your supervisors to use the tools of proper management and supervision to help your employees grow.

The Effective Supervisor

By Keith D. Sheriff

The most limiting factor to our growth in the line clearance industry is recruiting and retaining employees. Each crew leader knows the difficulties associated with hiring and training a new employee. It takes time to instruct, observe and evaluate new ground workers. This is effort and expense that could be used for production for greater company profit, and in turn for higher wages, which would conceivably produce a more satisfied, dedicated employee. So, we find ourselves caught in a revolving door. We can’t pay higher wages, because our turnover cost is so high. We can’t retain employees, because our wages are so low. But let’s examine this cause-and-effect relationship by comparing some typical situations.
As members of a freshmen class of 54 students in rural Iowa in 1963, we were subjected to freshmen initiation at a “party” held at the town hall on a Saturday night a few weeks after school started in the fall. It was a “Sock Hop” of sorts, but prior to the musical entertainment was the initiation of freshmen into the high school. Lee Ellis had lived in the area all of his life, but was new to our school due to school consolidations. Ellis was a quiet guy and most of us had not taken time to get to know him or to welcome him to our school. That night he was made up with lipstick, nail polish and perfume and made to wear a dress and wig. He had to eat onions and was forced to dance with a freshman girl made up like a guy. It was obvious that he was embarrassed. A fact that delighted some of the more exuberant seniors. Ellis did not come to school the following Monday morning. Nor did he return on any morning. I later heard that he had enrolled in the Catholic high school 20 miles away.

Years later in basic training for the U.S. Army, I met Private Gillian. Gillian’s family had made careers out of the military, and so would he. Gillian, however, seemed better suited for a life outside the military. He was quiet and amiable, but wasn’t keen on spit and polish. His character and habits soon came under fire from the drill sergeants. Not an hour went by when some sergeant didn’t single Gillian out for something. He appeared to take it in stride at first, but as time went on he became more withdrawn. Then one morning, as we were falling out for breakfast, Gillian was packing his things. I never saw him again.

Last year, I was observing a crew on the job. The crew leader sat down on the curb, lit a cigarette and told the ground worker to drag and chip the brush, put the tools away and clean up the street. The crew leader drank a soda and finished his cigarette. Other than bark a few more commands, he did nothing to help with the cleanup. His attitude was that the ground worker had to “pay his dues,” as everyone else had paid his dues, until being promoted. This particular ground worker left our employ after only three weeks on the job.

I have had some doubt and fear starting every new job. At some point, usually the first day or two, I think, “Why am I here?” or “I don’t belong in this company!” If I were put down, ridiculed or singled out as being different, I would probably consider quitting the job.

What I am driving at is that the way we treat a new employee during his/her first few weeks of employment is very important. I have been lucky to have had positive, helpful supervisors. The doubts and fears disappeared as I discovered the new job and my importance in fulfilling the company’s goals. I feel good about the people that I met and their reaction to me. I want to go to work each day. Ellis, the freshman, may have been on the edge of a decision to stay in public school or go to private school. We’ll never know, but the freshman initiation did not welcome him or make him feel a part of his new surroundings. Private Gillian and the ground worker were similar examples. They could not adapt to an environment that wouldn’t accept them, so they left that environment.

A survey known as the Kovach Study was done in the 1940s and again in the 1980s. Supervisors and employees were asked what they felt were the top motivators for an employee. The re-
The supervisors listed:
1. Good wages
2. Job security
3. Promotional opportunities

All of these features of a job are motivators and, in fact, ranked in the top 10 among responses gathered from employee's list. However, as the top three motivators, the employees listed:
1. Interesting work
2. Appreciation for work
3. Being included in discussions and decisions

The studies revealed that employees list satisfaction-oriented motivators rather than monetary motivators as major attributes of a good job, while the supervisors believe employees want monetary motivators. Supervisors need to be made aware of an employee's needs to be able to provide for those needs.

As we grow from childhood to adulthood, we are exposed to many types of people. Our education, in part, comes from this exposure and the relationships that we have with these acquaintances. Some people we know socially, some professionally. The more time we spend with people in their social or professional roles, the more we learn from them. We learn our jobs in the same manner.

In the tree care industry, we learn how to prune a tree, how to run a chain saw and how to climb a tree safely. More importantly, we learn how to communicate with people on the crew, our supervisor, the public and the customer. We learn how to do our job, so we can take a paycheck home and have a comfortable family life. If we are successful in this learning process, we learn how to be supervised. We learn supervisory skills in the same manner as we learned the skills to be supervised, from the people in supervisory roles around us. We tend to supervise as we were supervised, unless we receive specific instructions on how to develop our supervisory skills. It is important, therefore, that employees who are promoted through the ranks receive instruction on how to supervise.

It follows that a portion of our labor problem may be due to improper supervision. Maybe we treat the new ground worker like a private in the army or a freshman in high school. We're sure he already has doubts about his place in the new company and the wrong experience can send him out to find a different job. Supervisors need to understand the plight of the new employee and recognize that today's ground worker, private or freshman may have the potential to become tomorrow's supervisor, general or teacher. Just as we train our ground workers to use the saws, ropes and equipment for tree growth and maintenance, we should take the time to train our supervisors to use the tools of proper management and supervision for employee growth and maintenance.

Keith D. Sheriff is director of safety, education and training for Wright Tree Service in West Des Moines, IA.

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The Evolution and Use of Pruner Poles

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By Thomas B. Crates, VP and GM of the Jameson Corporation

Fiberglass pruner poles, although relatively new to the tree care industry, have quite a history. In 1956 an entrepreneur named James C. Crates, founder of Jameson Corporation, was instrumental in developing a sprayer system used in locating leaks in pressurized telephone cable. The sprayer unit was lifted onto the cable strand with wood pruner poles and then pulled like a trolley across the strand. The sprayer emitted a soapy solution that bubbled at a point where the cable was damaged and leaking air.

The poles lifting the heavy sprayer had a tendency to break and “spear back”, depending on the condition and grain of the wood. This was a safety problem for the user and a hindrance to completing the job if a pole broke.

Enter the old entrepreneurial spirit. James Crates worked with a well-known fishing rod manufacturer to design a high strength resin system that would ultimately produce a fiberglass pruner pole unequalled in strength-to-weight ratio. A mandrel supported the resin-soaked glass fibers and maintained the round shape of the pole during manufacturing. This innovation solved the problem of breakage and eventually became the standard with telephone utilities across the country. Benefits to phone companies are: high strength, non-conductivity, and the ability to attach a multitude of tools by using an adapter system also designed by Jim Crates.

As fiberglass poles gained recognition in the utility industry, the line clearance contractor was experiencing the need for a high strength, safe, and lower-cost fiberglass pruner pole. Necessity is the mother of invention, so Jameson again went to work and was instrumental in the development of a completely hollow fiberglass pruner pole. This marked the birth of the current Jameson FG series pole. Although not as strong as the foam core JE series, the FG series offers a lower cost alternative.

The foam core Jameson JE series provides the ultimate in strength and dielectric protection. The hollow Jameson FG series provides high strength and good dielectric properties, but without the non-moisture-wicking foam center core.

How do you choose a quality hollow pole? Compare the wall thickness (thicker means stronger), surface quality, and grade of aluminum ferrules. Ultraviolet (UV) inhibitors are important for longer surface quality. Additionally, require your fiberglass pole to have a non-fiberglass surface veil. This further protects the pole from ultraviolet deterioration and abrasion.

In 1981, as our visibility in the marketplace increased, Jameson began manufacturing fiberglass poles in an effort to maintain quality and assure adequate supply. In recent years, tree care has matured as an industry. The tree care professional is more concerned with the selection and quality of tools available. High quality, straight grain wood is less available and certainly does not provide as safe a tool as fiberglass.

The overall benefits of fiberglass far outweigh any other pruner pole material on the market today, when considering strength, longevity, safety, and low maintenance. Important to the tree care professional should be the lower life cycle cost compared to wood. As the initial cost and added benefits are spread over a longer usage span (life-cycle), the cost of fiberglass will be lower.

As with any tool, proper maintenance adds life to the tool and is an excellent quality check for continued safety. We at Jameson believe that anything wood can do, fiberglass can do better and safer!
For many tree care workers, effective communications in the field can make the difference between a safe and efficient job and one that presents problems. In some instances, a strong pair of lungs will overcome chain saw, chipper and other tree care noises. But in other situations, the machinery is just too darn loud, the hearing protection too good, the crew is on the road or the space between workers is too great for a voice to carry well enough to be an effective safety tool.

In these instances, many tree care workers turn to two-way radios. With so many makes and models on the market, it’s impossible to land on any one model that will satisfy all tree care firms and situations. But there are some basic questions that a buyer should ask before investing in a radio communications system.

Following are a few suggested questions, along with some other useful information to have when you’re choosing a two-way radio.

Q: Over how great a distance will two-way radios communicate?

VHF handheld radios usually operate in the 1- to 2-watt range and sometimes up to as much as 5 watts output (but note that higher power levels will more quickly drain your batteries.) These radios might provide useful radio coverage at ground level over about 1/2 mile, if one or both radio users are inside buildings or structures. Outside coverage may be more than 1 mile if relatively free of obstacles.

Q: What if I need to talk over a greater range—say 20 miles—with handheld radios?

It may be possible to use a telescoping antenna on a VHF handheld radio, greatly increasing your usable range versus that provided with the short flexible antenna typical of most handhelds. You may also have the option of installing an outside antenna at one end of the link. Depending on your desired coverage area, you might see a 2- to 5-mile range—or more if one end is high above the other and clear of obstacles.
If you need a longer range, you should consider using a "repeater." A repeater is a specially built receiver and transmitter pair that receives signals from low-power, handheld or mobile radios and retransmits them using a better antenna and more transmitter power. A repeater can extend the range of a typical handheld considerably. The actual increase in range depends on the system design and location.

Where a repeater is located high atop a mountain, it may be possible to communicate to another station 100 miles away. For commercial users, you can rent use of an existing, shared repeater system. You can also inquire about using Specialized Mobile Radio Service (or SMR) systems that operate in ways similar to the basic repeater and provide coverage over wide areas. Look under "Radio, two-way" in your telephone directory.

Q: What is the difference between a VHF handheld and a UHF handheld?

The terms "VHF" (Very High Frequency) and "UHF" (Ultrahigh Frequency) refer to parts of the radio spectrum. "VHF" refers to signals in the 30 MHz to 300 MHz range and includes many public safety and business communications systems, FM broadcasting, TV channels 2-13 and aviation radio. "UHF" refers to radio signals in the 300 MHz to 3000 MHz range. Until a decade ago, it was technically difficult or more expensive to build radios in this frequency range. As demand for radio usage has increased, the technology has improved and the costs of UHF radios have declined, so that VHF radio applications have moved or are moving to UHF.

You will also find cellular phone service in this part of the radio spectrum; at the upper end, you will find consumer microwave ovens and microwave "wireless cable" TV systems.

Q: What are the advantages of handheld radios over cellular phones?

A cellular phone is ideal for making phone calls. It is not ideal for short range point-to-point communications, since cellular communication is expensive. Further, if you need to make frequent short contacts, cellular requires that you dial the phone number and wait for the connection to be established, a delay of up to 30 seconds for every call that you make.

With a handheld radio, you push the talk button and you talk without delay. If you need to have several people talking to each other at the same time, you can set up several two-way radios on the same frequency. Each time one user speaks, everyone on the same frequency hears that person.

Q: How much power do I need in my two-way radio system?

How much power you need depends on how you plan to use the radio system. As a general rule, you should always use the least amount of power necessary to establish your communications. This reduces interference to other users (and they likewise reduce interference to you) when the radio frequency is in use by more than one

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Handheld radios normally operate in the 1- to 5-watt range. Cellular phones dynamically adjust their power levels, according to the direction of the local cellular base station. Handheld cellphones operate between 40 milliwatts and 600 milliwatts (6/10ths of one watt); mobile cellular phones operate from 40 mw up to 3 watts.

Mobile two-way radio equipment operates typically from 5 watts up to 50 watts and sometimes as high as 100 watts output. The power level of the equipment is determined by the needs of the system.

Following is contact information for a few companies that sell two-way radios and associated equipment. There are many more companies out there and your first stop should be at your local dealer.

Midland International has introduced two compact, ready-to-travel portable base station/repeaters that are ideal for the toughest emergency and remote location applications. Two versions are available, the VHF model 70-3400R and a UHF model 70-5600R.

Midland's Syn-Tech XTR FM two-way land mobile radios are rugged, military-spec radios that deliver maximum performance in the most hostile off-road environments. The compact XTR is field-programmable.
Sold throughout North America by Midland’s network of franchise dealers, both units can be set up quickly by airlift or in rugged terrain under the most extreme disaster conditions.

The 40-watt VHF model 70-3400R features a frequency range of 136-160/150-174 MHz, while the 30-watt UHF model 70-5600R operates in the 406-430/450-470 MHz range. Midland Syn-Tech II portable base station/repeaters are built into a rugged, weather-resistant aluminum case and are ready to use in temporary or remote applications. With optional microphone and speaker, the portable repeaters can also be used as dispatch stations.

Both units run on low standby current for remote applications, and utilize weather-tight RF and DC power connectors. Other features include standard CTCSS/DCS encode/decode, a 10-foot power cord that is internally stowable for transport, choice of LED or alpha-numeric LCD control panel configurations and an optional internal duplexer. Total weight, including stowed power cable, is only 30 pounds.

Midland designs and manufactures a complete line of communications products, including mobile radios, portable radios, repeaters, antennas and accessories. For more information on Midland Syn-Tech II portable base station/repeaters, contact Midland LMR, 1690 North Topping, Kansas City, MO 64120. Phone 816-241-8500, Ext. 1690 or fax 816-920-1144.

CSA DIRECT is introducing to the tree care industry a new line of lightweight, two-way radios from Motorola.

According to CSA, one of the common ingredients for all successful businesses,
large or small, is the ability to communicate quickly. The company that comes out ahead is usually the one that can maximize output while minimizing waste, downtime and costs. And keeping your employees in immediate reach is a key step towards reaching maximum output.

Working with various tree-related experts over the last several years, it became apparent to CSA that there is a need for affordable two-way communication in all fields of industry. CSA tried to answer a host of questions before offering its selection of radio equipment. These included:

- How many times have you been frustrated in getting the skidder operator’s attention on a job site? If you are working out of sight of your fellow employees and you have been injured, how are you going to get their attention? If you have a very dangerous tree, how easy would it be to get the skidder to take care of it?

Motorola’s Spirit Pro line of Jobsite Radios fulfills this important role of two-way communication in the field. These durable, lightweight, dependable radios have a range of 2-5 miles in even the roughest terrain and weather conditions, and they have rechargeable Nickel Cadmium batteries.

Contact Bob or Michael at CSA DIRECT to help you get the right system.
The E-Z Beever Model 2500 is one of eleven high performance chippers in Morbark's new 2000 Series.

Morbark started a revolution in the early 1980s with the invention of the disc-style brush chipper. We shook the industry again in the early '90s with the invention of the E-Z drum-style chipper. We don't believe the perfect brush chipper has been built yet, but we aim for that goal every day. It must be working, because thousands of customers over the years have turned to Morbark for simple, dependable, heavy duty wood chippers.

We thank you for your past business as we continue making every effort to earn your business now and in the future. With that goal in mind, Morbark is proud to introduce our new 2000 Series of E-Z Beevers. Seven exciting new designs. High performance chippers in every size range to fit every waste wood disposal application and budget. Contact your E-Z Beever dealer or call us toll free at the factory for more information on our new '96 models. Ask for a demonstration. Compare features, performance and production and we believe you'll find the best value where you've always found it . . . in a Morbark chipper.

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Les Kozaczek is staff writer for TCI

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OSHA Inspection Program on Hold

 Approximately two years ago, OSHA implemented the “Maine 200” program, an initiative that targeted the 200 Maine employers with the highest workers’ compensation claims. These companies were directed to develop an action plan to improve safety or be subject to wall-to-wall safety inspections.

Pleased with the results, and confident that self-identification efforts followed Vice President Gore’s “reinvention of government” program, OSHA moved forward to expand the program. In May 1995, President Clinton announced that the Maine 200 concept would spread nationwide. As part of this effort, OSHA recently attempted to initiate the Missouri 500 Program.

Several members of the National Arborist Association (NAA) in Missouri were placed on the list, and the NAA objected strenuously. As a result of the cooperative efforts of the NAA, the Associated Industries of Missouri and the timely intervention of Missouri Senators Christopher Bond and John Ashcroft, the program is now on hold.

According to OSHA, the expanded initiative was “designed to assist employers who are experiencing the greatest number of known workplace disabilities and fatalities and provide them with an opportunity to address safety and health hazards within their workplace(s).”

If an employer develops an action plan and responds within 45 days, the company will have an additional 60 days to implement the plan. The company will then be placed on the secondary inspection list. Employers who choose not to participate or who fail to respond within 45 days will be placed on a primary inspection list for a comprehensive inspection.

The NAA raised several strong complaints regarding the plan. Among them, the program:

1. was coercive rather than cooperative
2. used faulty selection criteria
3. improperly obtained confidential, proprietary information
4. unfairly and publicly tarred companies with exemplary safety records

1. Coercion or Cooperation

Despite OSHA’s public stance that the program was meant to be cooperative, the government’s letter “inviting” companies to participate stated that: “Those employers who decline participation in the program, or who fail to respond within 45 days with the requested information, will be placed on a primary inspection list for a comprehensive inspection.”

The NAA asserted that the choice between participating voluntarily or enduring a comprehensive inspection was no choice at all. The targeted company would be subject to intrusive inspection either way.

In essence, the program coerces employers to be inspected now or be inspected later. This is a serious threat to tree care companies that believe they should not have been included in the program in the first place. Here’s why.

2. Faulty Methodology

Selection for inclusion in the Missouri program was based on the total number of workers’ compensation claims filed in 1993 and 1994. This criteria unfairly targeted large employers by basing inclusion upon total claims rather than claim rates.

Companies made the list based on their size rather than on the rate or severity of accidents or on a per-employee injury rate. Members of the NAA, who pride themselves on having a sterling safety record, inexplicably were included. They believe the method of selection amounted to discrimination against larger employers. In addition, smaller employers with worse records were not included on the list.

The evidence that OSHA’s criteria were not based on actual safety records is viv-
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- 1980 Freightliner C-70; V-8 Auto.; 4x4 With Sterling Post Driver/Production Digger. Also: Ford 74 With Sterling Driver. $19,500
- 1988 Ford F700; 6.6 Diesel 18' Bed With 5-Ton Hiab Knuckleboom Model 950 (23'). $19,500
- 1986 Ford F8000; CAT 3208; Allison Auto.; 14' Bed w/11 Ton After Knuckleboom; 27' Side Reach w/Remote Control. $44,500
- 1994 F600 4x4; Cummins Diesel; 5 Spd/2 Spd Transfer; 16' Flatbed w/Bed Winch; 6,000 Orig. Miles, Like New. $37,500
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- (20) Hiab; IMTCO; National; Etc. Knucklebooms Unmounted Or Mounted. $4,500 And Up
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idly demonstrated by the fact that companies taking part in OSHA's "Voluntary Participation Program," a program OSHA says is reserved for companies with excellent safety records made the list of 500.

3. Improper Disclosure

The Missouri 500 program forced companies to disclose their Experience Modifier Rate (EMR) from workers' compensation data. This is proprietary trade data. The NAA stresses that release of this information could have devastating consequences for employers in the highly competitive utility line clearance business. In Missouri, workers' compensation data was filed with the state in confidence, subject to state provisions mandating that the information not be released. OSHA illegally obtained this information.

NAA members are adamant against disclosing this data to any entity because of the impact on their competitive position.

4. Negative Publicity

The program requires mandatory public notice of participation to employees, unions, trade associations and the public. According to OSHA instructions: "To the extent possible and with the permission of the affected company(s), the Area Director shall, in consultation with the Regional Administrator, consider issuing a press release describing the success of companies who have demonstrated a significant reduction in their injuries and illnesses as a result of their participation in this program."

The perception of NAA members of this requirement was that publication accomplishes little in enhancing safety and instead places the employer in a negative light as an unsafe company.

This fear was immediately confirmed when Assistant Secretary of Labor for OSHA, Joseph Dear, stated in an interview with The Kansas City Star that those on the list are "companies with shady records."

Conclusion

OSHA insists that programs such as the Maine 200 have been successful. But a more cooperative relationship between OSHA and NAA member companies would result in real worker-safety improvements. The NAA insists that such cooperation be voluntary and not coerced under threat of heightened and arbitrary OSHA enforcement activities.

As a result of the efforts of many companies and organizations, the Missouri 500 program will not go forward at this time. Assistant Secretary Dear has agreed to take the following steps:

- OSHA will exclude all companies with 10 employees or less or with injury rates lower than the national average (approximately 3.8 percent).
- At least in Missouri, rates of injuries, not total injuries, will be the basis for identifying companies.
- OSHA will review the information participating companies were asked to provide and significantly reduce the volume and scope of the information in the future.
- OSHA will review the entire program and will not proceed until Assistant Secretary Dear has met with Missouri businesses to provide them with an opportunity to offer their suggestions on ways to improve worker safety.

Mark Garvin is managing editor of TCI

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Disappearing landfills and a heightened environmental awareness have created an opportunity for tree care companies facing a saturated local market for wood chips and mulch. Many states and municipalities have banned some or all types of green waste from landfills. Clean air rules and “not-in-my-backyard” opposition have made it more difficult to build wood-burning power plants. The result is a glut of chips, mountains of mulch and razor-thin margins for processors. Some companies, however, have figured out ways to profit from current market conditions. And while not all of the operations profiled below make money, they do at least reduce expenses, which is a significant step toward a healthier bottom line.

Mid-Michigan Recycling

Mid-Michigan Recycling in Flint, MI, has established a profitable business gathering and processing wood waste for burning at the nearby Genesee Power Station. Mid-Michigan gathers its fuel source at five waste disposal yards in Flint, Livonia, Detroit, Mt. Clemens and South Lyon.

Almost all of the wood burned at the power plant is urban waste wood culled from a variety of sources: industrial wood waste, residential tree care companies, line clearance operations, pallet yards and construction debris.
Mid-Michigan has two tub grinders, a Morbark 1250 and a Morbark 1300, that grind the wood waste collected at the waste disposal yards. For a fee, the machines will travel to transfer stations or land-clearing jobs for onsite grinding.

"We have built an infrastructure, so that we can offer a variety of services," explains General Manager, Robert Wheeler. "We have wood receiving yards where we accept waste wood. If it is processed, we take it for free. If it comes in as brush, logs or stumps, we charge."

While Mid-Michigan profits from its operations, "This is not a money-maker for tree care companies," states Wheeler. Tree care firms can chip their wood waste and deliver it to Mid-Michigan, but they won't be paid for their efforts. Wheeler's company will reimburse a small amount for transportation charges, however.

"We are a waste-disposal company, in a sense," says Wheeler. "What we try to do is provide a less costly alternative for companies to dispose of the waste they generate in their operations."

Waste generators seem to be responding to the option. Supplies are plentiful, and Mid-Michigan has a 70-day inventory on hand. Of course, the supply of waste wood is seasonal, but the company has not experienced any serious shortages of willing suppliers for the power plant.

If supply begins to outstrip demand, Wheeler will investigate markets beyond the needs of the power plant. He believes the higher value material may be put to other uses some day, but for now, the needs and demands of the Genesee Power Station don't leave much left over.

One satisfied supplier is Randy Owen, owner of Owen Tree Service in Attica, MI. "We cover five counties, and we generate 40 to 100 yards of chips a day," says Owen. Most are delivered to homeowners in the country or suburbs. However, Owen notes that "in metropolitan Detroit, it is very hard to get rid of chips. Recycling centers charge $17 a ton to take chips. Others charge $8 to $10 a yard."

Owen figures that Mid-Michigan's convenient drop-off centers are saving him money. "I have more productive time with my equipment, because I don't have to spend a lot of time hauling the chips away. It is a waste product for us. I have sold them in the past—and there is a market for mulching—but I don't concentrate on that end of the business."

Mid-Michigan has a contract with the power plant that runs through 2012, guaranteeing a stable market for the ground wood waste. "Whether you invest in grinding equipment really depends on the end use, and, specifically, local market conditions and rules," cautions Wheeler.

For the future, Wheeler plans to examine the quality of wood arriving at the company's waste disposal yards. "We need to focus on what I would call 'weeding out' the lower BTU fuel. Pallets are the highest quality, and the material from stump grinding is the lowest."

While the mulch that results from stump grinding may not be high in BTUs, it is a superior gardening material. Perhaps a new market for Mid-Michigan may emerge from this.

---

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Bob Ray Company

In Louisville, KY, the place for mulch is down on Old LaGrange Road, home of the Bob Ray Company. Owner “Tee” Ray has transformed his tree care business into a comprehensive green waste marketing enterprise.

Bob Ray Company generates chips and mulch from a combination of residential, municipal, commercial and land-clearing operations. The firm handles tree removals for the city of Louisville, as well as all of Jefferson County. Four crews work full time just on residential accounts, and three workers are assigned exclusively to grind stumps. In all, Ray reports “I have 25-27 people on the payroll, and I am turning down more residential work than I accept.

“We had a tornado here recently that caused a lot of damage. I could do twice the amount of

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Recycling Markets

work if I could find the people.”

All of this business generates tons of wood waste. Since Kentucky bans the disposal of chips and mulch in landfills, Ray needed a way to dispose of it without bankrupting himself.

“The reason we recycle is to give us an affordable way to get rid of our byproduct,” relates Ray. “Our [chip and mulch] operation barely breaks even, but we save on travel costs and tipping fees.”

Ray estimates that tipping fees would run $40-$60 dollars a ton, depending on which part of the state he is in.

For removals, Ray has several 18-inch capacity, tow-behind chippers. For land clearing, he uses a Bandit whole-tree chipper. “As we take these trees down, they immediately go from crane to chipper. One crew can remove five 24-inch trees in a day.”

On an average day, six chipper trucks that hold 12-24 yards each arrive at Ray’s processing facility. The chips are dumped into a tub grinder and emerge as mulch. The operation generates 75-100 yards of processed mulch daily that sells for $10 per yard for customers who pick it up. Delivery is extra. A pickup truck loaded with chips fetches $12.

“We have been making the mulch for six years, and we have a real faithful following,” states Ray.

Tons of chips arrive at the facility, but how does Ray manage to sell so much of it? Marketing, marketing, marketing.

“We do a lot of TV advertising,” he explains. “A fellow named Fred Wishy is the spokesman for our mulch. He has a gardening talk show on TV, and he also hosts a series of specials. His word is gold around here.”

Landscape contractors buy a significant percentage of the mulch. One company bought 6,000 yards, which is 60 tractor trailer loads, for an Interstate reconstruction project. Ray actively targets homeowners, gardeners and gardening centers as well. After a TV ad, he reports that “our phones light up with orders from as far as 70 miles away.”

“One thing that people like about our mulch is that since it is the whole tree, it puts more nutrients back into the soil than bark mulch. Rose growers, especially, appreciate this.”

As with all successful retail operations, location is an important factor. Ray offers this piece of advice to others looking to enter the business: “If you can get the authorities to cooperate, you should set up in a residential area.”

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For 20 years, Steve Argo, president of Argo Grading and Paving, Inc., of Phoenix City, AL, built up a thriving land-clearing, demolition and paving business near the Georgia border. Growing to 90 employees and 100 pieces of equipment, his company helped many commercial and residential developments get off the ground. In the beginning, waste disposal was never a problem. Often, he could open burn it or find a private landowner who needed the waste for erosion control in a gully. He could truck in the green waste, oak and pine stumps and debris without fear of being on the wrong side of environmental law.

As anybody in the land development or building demolition business will tell you, however, times have definitely changed. When the Alabama Department of Environmental Management (ADEM) started enforcing laws that required Argo and others to dump only at certified landfills with state permits, the costs of running his business immediately rose. With only two approved landfills in his area, Argo saw his tipping fees and associated costs of waste disposal skyrocket.

"Almost overnight, I incurred tipping costs of running my business immediately rose. With only two approved landfills in his area, Argo saw his tipping fees and associated costs of waste disposal skyrocket."

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fees as high as $38 a ton and increased transportation costs," Argo recalls. "Hauling huge stumps in trailers with all the voids in the truck bed between the stumps and the dirt was obviously impractical. I had to find a better way to do business."

One of the options was to buy some rural land and apply for state approval to operate his own licensed landfill. If he secured the necessary state permits, he could avoid the tipping fees at other landfills and some of the transportation expenses. But the process for obtaining a state permit was filled with costly obstacles at every turn.

To obtain the permit, Argo would have had to check with his local government to see if the land use was consistent with its planning. Public hearings followed by state soil and groundwater testing and expensive private engineering studies would have been needed. This option seemed expensive and appeared to be filled with more immediate and future bureaucratic headaches than he wanted.

The choice Argo Grading and Paving made proved to be a much sounder business decision. "With the kind of money I anticipated spending to get into the landfill business," Argo reasons, "I could buy the necessary equipment and recycle the waste created by land-clearing and demolition operations. By recycling, I could reduce my landfill expenses to zero and maybe make something off the recycled material."

Exploring the recycling business while running his current operation, Argo researched the types of equipment he might need. He traveled to Florida to view various grinders and rock crushers in action. Brand new to the grinding business, he wanted one machine to handle concrete, asphalt and demolition waste, along with green waste such as brush and stumps.

Argo's purchase of a demolition waste grinder taught him an early lesson in the waste recycling business. "There is no one machine that will handle both demolition and organic waste. The rock crusher we bought handles concrete, asphalt and demolition waste fine, but its production with green waste was really slow. It often would work on a stump and not be able to cut it up. It would just start smoking."

For the green waste, Argo brought in a Vermeer TG400 organic material tub grinder. It ground up in an hour what the other machine had been trying to grind for two days. "It was so superior to what we had," Argo states, that "I signed and order for the tub grinder on the spot." He
still uses the rock crusher for demolition debris.

Argo currently uses the mulch chips in two ways. He sells them to a local paper company that uses them for fuel, or he sells the chips as landscaping mulch to prevent hillside soil erosion. Either way, he’s avoiding the costs of trucking debris to a landfill.

“The paper company pays us only a nominal amount for the wood chips, but this market outlet provides for the disposal of the chips,” notes Argo. “The unfortunate part is that this market evaporates when the paper company has all the wood fuel they need. I am continually trying to find outlets for the mulch.”

Because of its medium size, the Vermeer tub grinder is used on site and is taken on the road for land-clearing duties. For efficiency reasons, Argo has a CAT950 wheel loader equipped with top clamps for transporting and bunching of organic green waste and stumps; and an excavator with a grapple for loading the waste into the tub of the Vermeer TG400.

“On a spread-out site, I only need to have the wheel loader mobile,” explains Argo. “The other two can stay stationary.” The operator of the excavator has the remote with him, which offers him the ability to operate the tub grinder from the cab of his excavator.

Although it may not be a highly...
Recrecycling Markets

profitable business as yet, Argo knows that he is saving money on tipping fees and the associated transportation costs of organic debris. Plus, the future for the recycling business looks bright. When the state catches up with all the illegal dumpers, Argo predicts he can start charging them tipping and grinding fees at his site and market the resulting mulch.

Summary

With national changes in laws and public opinion, the option of disposing of green waste in landfills is fast disappearing. But new market conditions often elicit new markets and fresh ideas. If you are paying too much to dispose of your green waste, or you are looking for new profit centers, take a second look at the sales opportunities in your area.

One new market that shows particular promise is golf courses. According to George L. Machado, Jr., a consultant to the composting industry from Zephyrhills, Fla., courses in the Sunshine State are using mulch as a top dressing on fairways.

“Golf course superintendents have found that mulch is a great addition to the sandy soils we have here in Florida. And, it holds water very well, which is particularly important in areas with limited water supplies.”

A few national companies do not dominate the mulch and compost market. Even if a significant regional processor commands the larger local outlets, consider smaller garden centers, fruit stands and non-chain hardware stores. And remember, as the expert in the area, think about creating brand-new sales opportunities.

Mark Garvin is managing editor of TCI.
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As access to the Internet expands, we will feature some of the new Web Sites available to readers interested in learning more about the green industry. This month, we highlight the Husqvarna Forest & Garden Company’s new Home Page on the World Wide Web. Husqvarna’s site will include:
- an animated Home Page
- a series of 13 articles that will be rotated
- three pages devoted to the company’s chain saws, trimmers, blowers, mowers and other products
- an accessories page
- and a page of information for Husqvarna dealers and prospective dealers.

The 13 articles in the feature section are rotated randomly, so a different story is viewed at each visit. All articles are indexed at the bottom of the page allowing any story to be read at any time.

The product pages feature a selection of three or four models of equipment from each of the product categories and include animated illustrations.

A logger dressed in a complete set of safety gear is featured on the accessories page. Viewers can “double click” on any accessory and read a description of the product.

Husqvarna’s Internet address is http://www.husqvarna.com.

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- Brian Toss—renowned splicing and rigging expert, as well as author of books and videos—will be joined by our own splicer, Eric Moore.
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To all the attendees, exhibitors, speakers and demonstrators who made TCI EXPO ’96 such a success, thank you. We look forward to seeing you all at TCI EXPO ’97.

And to Bob Felix, whose vision led us all toward tree care in the 21st century, we’ll miss you.
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Altec's new DC12 Whisper Chipper is a direct-drive unit with chipping capacities up to a 5-inch diameter. It features chipping speeds up to 177 fpm. This new direct-drive chipper is a low-maintenance, low life-cycle cost machine with no belts, sheaves or clutch. It features a heat-treated, cast-steel rotor, an all-welded steel chassis and electronic control panel. For more information on Altec tree care equipment, call 800-958-2555.

As organic grinders become larger and more productive, the recycling industry demands a high production screen to process material into saleable commodities. In response, Morbark designed a high-volume portable trommel spiral screen for applications such as composting facilities, wood recycling yards and whole tree chip screening. The Morbark Spiral Screen is a three-sort trommel equipped with continuous spiral flites from end to end that serve to agitate material and break up clumps, while advancing material quickly through the screen. It can efficiently screen at production rates in excess of 300 cubic yards per hour. For further information, contact Dan Brandon, Morbark, 8507 S. Winn Road, Winn, MI 48896. Phone: 800-233-6065; Fax: 517-866-2280.

Safety Storage announces its new line of Portable Spill Containment Sumps (Safe-T-Sump) for on-site storage of 55-gallon drums of hazardous liquids. Available in five sizes, the new prefabricated sumps accommodate up to 80 55-gallon drums of hazardous liquids and have a spill-containment capacity of up to 1,460 gallons. Storage capacities range from 69 square feet for the 16-drum model to 371 square feet for the 80-drum model. The sumps are provided with removable, steel floor grating for sump inspection and cleaning. Forklift openings are provided for ease of relocation. An optional chemical-resistant sump liner is available. The sumps meet fire safety needs and comply with federal, state and local regulations. For information, contact Safety Storage, Inc., 2301 Bert Drive, Hollister, CA 95023. Phone: 800-344-6539; Fax: 408-637-7405.

Southco Industries introduces the latest standard feature on all forestry body packages—chipper exhaust vents. The vents allow air to escape through the sides of the chipper body, lessening the chances of a clogged chipper radiator due to "blow back" of the dust from the chipper body. For information, contact Southco Industries, Inc., 1840 East Dixon Boulevard, Shelby, NC 28150. Phone: 704-482-1477.
Spot treatment of hard-to-kill weeds in metal fencing, curbing, sidewalks and waterways is easier with Gempler's Hotspotter flame tool. As governments move to decrease the use of pesticides, the Hotspotter is an environmentally friendly way to control weeds. This tool delivers 500,000 BTUs with no smoke or fumes. A 31-inch torch with an adjustable gas flow flame-control valve and 10-foot hose round out the kit. You supply the propane tank. For information, contact Gempler's, Inc., PO Box 270, Mt. Horeb, WI 53572. Phone: 800-382-8473.

NU-ARBOR Tree & Shrub Care Products, a manufacturer of fertilizers and specialty products, introduces a new starter package containing Kioritz Soil Injector, five gallons of NU-ARBOR 5-16-16 Root Fertilizer plus Root Enhancer and one gallon of NU-ARBOR Soil Rejuvenate. These fertilizers are a high-quality, food-grade formulation designed to enhance vigorous root growth and improved plant/soil relations. For a free catalog, contact NU-ARBOR Tree & Shrub Care Products, PO Box 151455, Grand Rapids, MI 49515-1455. Phone: 616-364-5509; Fax: 616-364-7616.

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The Municipal Arborists and Urban Foresters Society of the International Society of Arboriculture (ISA) presented its $500 Urban Forestry Scholarship to Joel Keebler at the ISA Annual Conference and Trade Show in Cleveland, OH.

Keebler, a graduate student at the University of Tennessee in Knoxville is studying the use of mulching techniques to improve root systems of existing urban trees. His long-term goal is to become a municipal or urban forester.

With the recent merger of M.A.U.F.S. with the Society of Municipal Arborists, a yearly scholarship will be awarded under the new organizational name—Society of Municipal Arborists (SMA). For more information, contact: Nolan Rundquist, Urban Forestry Scholarships, 925 N. Broad, Fremont, NE 68025-4129.
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Cost of Cure
This method of appraisal calculates the cost of treatment to return the plant to a reasonable level of its original condition. This may include replacing a large tree with one or more smaller trees, repairing damage to trees worthy saving and rebuilding the hardscape involved.

Appraisal by this method is usually divided into three phases:

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2. Replace and/or repair plants and restore the property to its pre-casualty condition.
3. Post-restoration maintenance.

Again, there are many factors that have to be taken into consideration to further determine the loss value of a property. To go into all the details would be reproducing the 8th edition of The Guide. This synopsis gives a brief overview of the beginning of a plant-loss appraisal. The Guide may be purchased from the NAA, ISA or ASCA if it is not already in your library.

Ellis Allen is a consulting arborist in Massachusetts and the National Arborist Association’s representative to CTLA.

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FOR RENT

Before we developed our new arborist product line, we at Samson did something unique... we talked to a lot of arborists.

It's not a new idea at Samson; we've been doing it all along.

To operate a successful arborist business you must be a business manager, manage inventory, maintenance, personnel (if you have employees), and do such things as advertise your service so your business grows. You must estimate jobs, deal with customers, collect money and pay bills; all the while keeping your sanity and carrying liability and health insurance, too. No mention so far of doing any tree work, the part you really enjoy, and the reason you're in this business to start with.

All these tasks require good decisions based on solid information. In this respect, there's little difference between the arborist's business and the business of developing the ropes so critical to your security. The best advice we can offer is to ask as many questions, of as many people as possible, then base your decisions on the information you've gathered.

That's what we did.

Filling real needs in a challenging workplace.

Today, arborists are asking for braided constructions with maximum flexibility, while retaining a firm, round shape; critical requirements for the “Footlock” climbing technique. The answer is Blue-Steak. It is slightly oversized for better grip, and the distinctive pattern makes Blue-Steak highly visible amid the many rigging lines common on the worksite today.

Because climbing and rigging techniques are changing, there is a growing demand for pre-spliced products. Samson now offers spliced climbing lines in standard lengths either unspliced or with an eye splice in one end. A split-tail length with pre-spliced eye and fixed thimble is also available. All pre-spliced climbing lines come complete with a removable thimble.

For the rigger, a series of pre-spliced Stable-Braid slings is also available. Color coded for ease in identifying sizes and strengths, they make life a little simpler when rigging.

Look to Samson for the answers.

Because we value the importance of good information, our Arborist products catalog has been expanded. We've gone all out to present not just Samson's line of Professional Arborist Products and their specifications, but information invaluable to anyone who depends on rope for their security and safety.

Along with complete product information, there are sections with critical information on rope inspection and retirement, as well as climbing and rigging techniques. Information that can help you use our products with both confidence and security.

See us at TCI EXPO, Booth #529

The new catalog will be introduced at TCI EXPO in Charlotte, NC – so stop by and pick up a copy or see your local Samson dealer. Or contact Samson directly at 1-800-227-7673, we'll be glad to send you a copy.
Charitable Giving

Making it work for your business

Only two words come to mind as you receive still another telephone call asking for a charitable contribution from your business: "Not again!"

As the ever-lengthening holiday season begins, requests for donations seem to come in droves. You hear pleas over the telephone and you're inundated with letters from worthy causes in the mail. Sometimes, friends or acquaintances ask you to support a charitable endeavor, or strangers appear at the door of your office.

Which charitable appeals merit your support? How much should you give? That's entirely up to you. But when you are inclined to offer support, don't hesitate to ensure that you get the most value out of your philanthropic dollar.

Put simply, while you may support charitable causes for purely altruistic reasons, there's nothing wrong with your tree care business receiving some benefit from your generosity. In fact, leaders of many charities today understand your giving needs very well, and they're quite sophisticated in their ability to help you maximize returns from your support.

So next time you're asked to support a worthy cause, look for ways to help the charity and yourself. For example:

- Position yourself in the marketplace through charitable support. Using positioning techniques, you'll link your name with the name and reputation of a charity or cause. The result should be an increase in consumer awareness of your firm. Publicize donations of free pruning or fertilization services that you perform. Mention your charitable involvement in your own publicity materials, such as brochures and signs. Support high-profile services that attract the media's attention. If you're providing major support for a particular program, ask that it be named after your business. Distribute information about your favorite charitable organization with bills or job estimates or invite employees to wear charity buttons when they are out in the field. And, of course, be sure to ask that charities recognize your support in their publicity.

- Market yourself to the constituencies of charities. Many supporters of charities—members, employees, clients, students, visitors—can number in the thousands in your local area. Generally, those with the time and disposable income to support a charity also have the income to purchase tree care services.

Consider advertising your products in a favored charity's newsletter or magazine. Devise special sales or pruning promotions for the charitable organization's constituencies, or offer discounts or coupons to people associated with the charity. Still another option: donate some portion of the price of selected services purchased by constituents. A good example would be a donation of 5 percent of the price of all removals in the month of November.

Finally, develop affinity or membership programs, featuring special benefits for your favored charity's constituents—along with support to the charitable organization. Common affinity programs include preferred customer programs or discounts for members of an organization.

- Invite a charity's constituency to market your products or services. Your objective is to enlist the help of people associated with a charity in building new
markets for your business. Invite your charity's members or friends to sell coupon books on your behalf, and donate the sale price of the books. Or consider designating certain services as "charitable" or "cause" services, which, after their sale, bring revenue into the charitable coffers; naturally, the charity can help promote these services. They retain ticket proceeds; you benefit from the increased traffic. You should also consider putting together charitable product "packages" with heavy consumer appeal at strategic times of the year: Arbor Day, Memorial Day or the start of hurricane season, for example. These can be donated to your favorite charity, sold to the charity at cost, or even sold through your own advertising; net proceeds, of course, benefit the charity.

- Work with a charity to build mutual markets. Let's say you and your favored charity are interested in building a new market among a specific segment of the population—new homeowners, for example. Working together, you can often generate far more support for the charity and more business for yourself than either of you could generate working alone. Consider sponsoring a special event geared toward your target audience.

  Mention the charity's name in advertising directed toward your new target market. If you're introducing a service geared toward the new market, develop a product promotion offering donations to your charity for each tree planted or fertilized.

- Take advantage of the networking opportunities charities offer. No, you shouldn't become involved in a charity strictly to build new business. But don't hesitate to take advantage of the contacts you build through your charitable involvement and the involvement of your employees. Consider making a charity the beneficiary of the combined volunteer services of you and your employees—say, through a special fund raising effort or Arbor Day project. Offer your services as a member of committees and boards. Attend the charity's key events and rub shoulders with the diverse variety of people who attend. Offer to participate as a volunteer in the charity's phone-a-thon programs, or as a member of its community speakers' bureau. You are the town's tree expert, so meet new people by sharing your knowledge for a charitable cause.

- Think about allowing charitable organizations to use your facilities or "borrow" the expertise of employees for a day or two at a time.

  Hundreds of opportunities for mutually beneficial charitable support are all around you. The secret is to determine where your needs and the charity's needs match. Once you identify those common interests, you'll no longer be quite as frustrated when you receive solicitations over the telephone or in the mail. Instead, you'll be able to determine how you can work with a charity you like—and use your limited time and philanthropic dollars most effectively. The result may be a steady stream of benefits for you and your charity for years to come.

Richard Ensmier is a freelance writer based in Albany, NY. He specializes in business topics.
Events & Seminars

November 7-9
TCI EXPO '96
New Charlotte Convention Center
Charlotte, NC
Contact: 800-733-2622

November 12
Maryland Dept. of Natural Resources
Selecting Tree and Plant Stock
Maryland National-Capital Park
Riverdale, MD
Contact: Mike Galvin, 410-355-4737

November 15
University of California Extension
Landscape and Tree Contracting
1200 University Ave., Riverside, CA
Contact: Ted Stamen, 909-787-4105

November 17-21
Green Industry Expo
Cincinnati Convention Center
Cincinnati, OH
Contact: 770-973-2019

November 17-21
Professional Grounds Mgmt. Society
85th Annual Conference
Cincinnati, Ohio
Contact: John Gillan 410-584-9754

December 4-6
Rocky Mountain Regional Turfgrass
Association
Turf Conference
Currigan Hall, Denver, CO
Contact: Julia Marie 719-489-3222

January 8-10, 1997
Eastern Regional Nurserymen’s Assoc.
Annual Show
Meadowlands Convention Center
Secaucus, NJ
Contact: Jean Rankin 301-990-8350

January 19-21
New York State Arborists
Empire State Tree Conference
Holiday Inn, Suffern, NY
Contact: 518-783-1322

January 20-24, 1997
Professional Horticulture Conf. of VA
1997 Conference
Virginia Beach, VA
Contact: Polly Carden, 804-523-4734

Jan. 30-Feb. 1, 1997
New England Grows Conference
Hynes Convention Center, Boston, MA
Contact Jennifer Barth, 508-653-3009

February 4-9, 1997
National Arborist Association
Winter Management Conference
Nassau Marriott Crystal Palace Resort
Nassau, Bahamas
Contact: Carol Crossland, 603-673-3311

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Here's just a sample of what your membership delivers:

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- **Member Discounts on Safety Training Programs**
- **A Supportive Network of Knowledgeable, Experienced Peers**
- **Arborists Consulting with Arborists on a Toll-Free Hotline**
- **National Publicity Campaign to Raise Public Awareness of Member Companies**
- **An Entire Staff of Talented, Experienced Tree People Working for You**
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Leading commercial arboriculture into the 21st century.
Cyberspace is the new frontier for scam artists. The latest "hazards" on the information highway are scams broadcast over computer networks and electronic bulletin board services. The scams aren't new, the medium is.

One of the most common, time-tested scams that has found its way onto the Internet recently is the use of disguised advertising. Bulletin boards and chat forums may include areas where comments about the quality or performance of products or services may be ads in disguise.

In some cases, individuals contributing to the bulletin board have financial ties to companies or businesses that sell products or services related to the bulletin board subject area. What appears to be an open discussion on the most effective ways to control pests could be a sales pitch in disguise. Because the identities or affiliations of online bulletin board operators and participants may not be known, it is difficult to detect this type of disguised advertising.

Some commercial online services also provide live discussion groups called "chat rooms" or "chat forums." Service subscribers can "drop by" for an online conversation by typing in their comments. These forums provide the chance to discuss a variety of subjects, including products and services. Some marketers have used these chat forums to promote their products and services without disclosing their interests.

If you use credit cards, owe money on a personal loan or are paying on a home mortgage, you are a debtor. If you fall behind in repaying your creditors, or an error is made on your accounts, you may be contacted by a debt collector.

You should know that the Fair Debt Collection Practices Act prohibits certain methods of debt collection. Keep these rules in mind, also, when you are attempting to collect overdue bills.

A collector may contact you by mail, telephone, telegram or fax. However, a debt collector may not contact you at unreasonable times or places, such as before 8 a.m. or after 9 p.m., unless you agree. You may not be contacted at work if the collector knows that your employer disapproves.

You may stop a collector from contacting you by writing a letter to the collection agency telling them to stop. Once the agency receives your letter, they may not contact you again except to say there will be no further contact. Another exception is that the agency may notify you if the debt collector or the creditor intends to take some specific action.

A collector may contact other people, but only to find out where you live and work. In most cases, the collector is not permitted to tell anyone other than you or your attorney that you owe money.

Debt collectors may not:
- use threats of violence or harm against you, your property or your reputation;
- publish a list of consumers who refuse to pay their debts (except to a credit bureau);
- use obscene or profane language;
- repeatedly use the telephone to annoy someone;
- telephone people without identifying themselves;
- advertise your debt.

If you believe a debt collector violated the law, you have the right to sue in state or federal court within one year from the date you believe the law was violated. You may recover money for the damages you suffered, as well as court costs and attorney's fees.

Report any problems you have with a debt collector to your state Attorney General's office and the Federal Trade Commission.

According to a survey by Foster Higgins, 87 percent of employers ban smoking on the job as a way to promote health. International Survey Research reports that 65 percent of American workers say their companies are good employers. Health care costs are leveling off for small to mid-sized employers. Benefit costs rose just 1.6 percent in 1995, with the average employer cost per worker reaching $3,476. Though the nation's overall jobless rate declined to a seven-year low of 5.1 percent, pockets of unemployment remain. Tree care companies looking for new workers should recognize that while the unemployment rate is only 4.1 percent among workers between the ages of 25 and 54, for 16- to 19-year-olds the rate is 17.2 percent. For those 20-24, the rate is 8.3 percent overall.
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See us at TCI EXPO '96!
Iowa is celebrating 150 years of statehood with a series of events throughout 1996. One of the largest was held in Dubuque’s Eagle Point Park on September 1. Eagle Point Park encompasses 164 acres overlooking the Mississippi River. It offers a spectacular view of the river and valley when the trees and brush below the bluffs are maintained at a low enough level. This scenic overlook area consists of a cement sidewalk running some 1,000 feet along the bluff, with viewing towers and a 5-foot chain-link fence to protect park visitors from a very sheer drop hundreds of feet to the railroad tracks below.

For years, park maintenance crews struggled to cut back the cliff-side vegetation by lowering workers using ropes and dozens of points of attachment. The job always progressed very slowly, and was a constant burden for the whole crew.

Since this big celebration was expected to draw thousands of visitors and time was of the essence, Dubuque’s forestry crew was asked to help out. After evaluating the job and concluding that this appeared to be an insurmountable task, we began looking for a better way.

We devised a better way, so that by the time the celebration began, the visitor’s view was clear.

Here’s how we did it!

The chain-link fence that runs along the edge of the bluff and sidewalk is 5 feet high. Fence posts are spaced every 10 feet and extend an additional 10 inches above the top of the fence. Along the top of the fence in this 10-inch section run two 1/4-inch cables, spaced 4 inches apart, that pass from post to post. We took a 150-foot-long, 1/2-inch line and tied it off at the beginning of the work area at the top of a post just above the lower of the two cables. The line was run along the bluff side of the fence parallel to the lower cable and secured at the other end of its extended reach using a come-along, so it could be secured with minimal slack in the 140-foot stretch. Four carabiners were used to connect the rope to the lower cable. The carabiners were spaced about every 30 feet and served to keep the rope from sagging excessively where the load would be placed. A 3/4-inch clevis with safety pin was attached to the 1/2-inch stretched line on the bluff side of the fence.

Once this was secure, a climber passed his climbing line through the clevis and tied in using a taut-line hitch. After rappelling down the 30-foot wall to the steep and rocky bluff below, the climber began cutting trees and brush. He could move freely along the base of the wall—while always being tied in from directly above—since the clevis slid along the 1/2-inch line as he moved from side to side. He never had to work at an angle from his point of attachment or be secured with a safety lanyard to prevent him from slipping and falling backwards. The climber was also able to negotiate up and down short distances as the work required.

When the clevis met up with one of the carabiners, the climber simply secured himself with a lanyard and took his full weight off of his climbing line. A second worker transferred the carabiner from one side of the clevis to the other. The climber then resumed his work with another 30-foot run in which to work. When the job was complete, the climber was winched back up by swinging the aerial tower's winch-equipped boom out over the bluff and lowering the cable. This system meant no more untying, repositioning and tying in again.

A little innovative thinking and rigging resulted in what turned out to be a very smooth-running operation, which saved hours of valuable time. The celebration went off without a hitch.

Steven G. Pregler is city forester for Dubuque, Iowa.
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Extracting a Tree

By Fred Burns

Extracting a tree from a tight spot in difficult terrain is always a real challenge. For one job in particular, the dual problems of space and terrain proved exceedingly demanding. When the house was built, the owner had added a deck around an existing red oak tree. It must have seemed like a good idea for a few years, as the oak provided shade over his picnic area and he could watch it grow year by year.

When he called Tree Works in the spring of 1995, the red oak had grown to a height of 70 feet and was growing out of control. The homeowners were in a predicament. The branches were too high up to shade their deck. Ants had discovered that the base made a wonderful home. In the fall, damp leaves collected on the deck, making it slippery and a safety hazard. Worst of all, the acorns pelted them, so they could no longer sit outside under the tree.

When the call came in to Tree Works, the man stated only that a tree needed to come down. As the owner of the business, I responded to estimate the job. From the moment I stepped into the back yard with the owner and saw the tree, I realized we had trouble. Although I have worked on trees surrounded by decks, this was the first tree I had considered of this tremendous size. To complicate the situation even further, the back yard sloped at a drastically sharp angle that would not allow my trucks to be of any use.

“Well, Fred, what do you think? Can you do the job?” he asked.

Not willing to sidestep any challenge, I told him that I had every confidence I could do it, but would have to get back to him in the morning with a price. I went home that night and made plans on how I could extract it from the deck.

The next day, I gave a price to the owner and explained to him that the tree would have to be climbed and cut into chunks that would go over his roof to his front yard.

“Why is that?” he wondered.

I responded: “My trucks can’t sit on the grade in your back yard.”

It seemed obvious to me, but he was a little skeptical. Obviously envisioning this huge tree going over the top of his house piece by piece, he asked, “Are you insured?”

I assured him that I was. After I got a statement from my insurance company to prove that I was covered in case of a disaster, he hired me to do the job.

The day the tree was to come down, a crane was hired to sit in the front yard and bring the pieces of the tree over the roof. Confident that my plan would work, I put on my hard hat and gear and started my climb up to the branches. Bob, one of my workers, was stationed on the roof of the house, since the house blocked the crane driver’s vision about half way down the tree. Another worker, Joe, was on the ground in the front yard, guiding the lines and releasing the pieces into the back of the large dump truck. He also dragged the pieces of limb to the chipper.

It was a slow and tedious job, as we proceeded carefully to make sure no harm was done to the shingles or deck. We were joined by the owner, who watched the process warily. I felt proud of my crew when we finally had the tree extracted from its tight spot in the center of the deck.

When the yard was cleared and I had payment in hand, we headed home for a well-earned, relaxing evening.

Fred Burns, owner of Tree Works in Charlestown, RI, has been climbing for 17 years and has owned his own tree service for 14 years.

Do you have a story for From the Field? TCI will pay $100 for published articles. Submissions become the property of TCI and are subject to editing for grammar, style and length. Entries must include the name of a company and a contact person or they will not be considered for publication. Articles and photos must be received by the first day of the month for the following month’s issue.

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