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Welcome to the third annual green issue of TCI Magazine, a special publication with a focus on recent environmentally friendly advances in the tree care industry.

Almost 20 years ago, TCIA undertook a study of consumer preferences on green pest management practices. The results of that study eventually became the first IPM marketing manual for tree care practitioners. Interestingly, consumer preferences were very specific back then: We want green, sustainable practices—as long as they are just as effective as traditional methods and as long as they don’t cost more. A tall order to be sure.

Fast forward 20 years and you will see that in many respects the industry has created that future. On page 40, you can read about advances in right-of-way equipment that create mulch along utility lines while using less fuel in lighter vehicles that have a lower impact on the soil. More work with lower emissions—a greener alternative.

On page 22, take a glimpse into the now well-established science behind organic lawn care and how the soil food web can be enhanced to benefit trees. The science has advanced considerably since the early days of integrated pest management, both in lessening the adverse impacts of chemical inputs and in understanding complex interrelationships beneath the surface of the soil. Debates continue over costs and overall effectiveness, but consumers now have at least the possibility of some affordable and effective organic care.

On page 8, stump cutters grind slowly toward more efficient machines that use less fuel. Like ROW equipment, technology is helping to create lighter, more fuel-efficient units. Of particular interest may be a green development that cuts both ways—a return to gas-powered engines over diesel. As Tier 4 environmental restrictions prove difficult for manufacturers, end users are seeing heavier and much more expensive engine options. This is leading some toward a return to gas engines.

On page 24, this month’s Accreditation profile highlights Collier Arbor Care, a company that was green before green was cool. From the early days of IPM to today’s complex sustainable solutions for landscapes, Terrill Collier continues the family tradition of environmentally focused tree care with the motto, “People, Planet, Profit.” For Collier, sustainable practices are at the forefront of all of his company’s activities. But sustainable has a second meaning, too. If you don’t turn a profit, you can’t sustain the business or its practices long term.

On page 28, Dr. Michael Raupp takes us on a tour of some of the insects that bedevil the tree care industry, along with some of the most environmentally sensitive solutions for their control. The arsenal of controls available to arborists today provides effective and reduced-risk treatments that were not possible just a few decades ago.

This year marks the 50th anniversary of the publication of Rachel Carson’s Silent Spring, the book that helped launch the environmental movement and led to the creation of the Environmental Protection Agency in 1970. Science, technology, the spirit of invention and a heartfelt desire by arborists to make the world a greener place have taken this industry a long way toward a more sustainable future. No doubt, that progress will relentlessly continue over the next 50 years.

We’ll keep you up to date on how those changes affect your business—and how you might be able to take advantage of them.

Mark Garvin
Publisher
Rayco is proud to introduce another industry first for compact stump cutters: the Super Jr series with swing-out operator control stations. The Super Jr line of compact, self-propelled stump cutters are now available with 3-position swing-out operator control stations to allow better visibility of the cutting action and easier travel through gates. The swing-out control is of particular value at times when visibility is crucial, such as grinding stumps near obstructions such as sidewalks or driveways. Novice operators will also have an easier time operating the swing-out control models efficiently, making this model perfect for rental stores. For travel through gates, the controls swing in-line with the machine so the operator can more easily drive through narrow openings. There are 2 grinding positions to allow operators the ability to select which position better suits the job conditions. Contact your authorized RAYCO dealer for more information or visit www.raycomfg.com.
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**FEATUES:**
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It’s fair to say that many of those in the tree care business don’t think about the green nature of stump grinders. At least not right away. Why should they? They’re primarily interested in what they do, i.e. making stumps go away – not necessarily how they do it.

However, there is one other significant reason the subject likely is not top-of-mind. The many strides in environmental stewardship with respect to stump grinders can be so subtle that they’re easily overlooked or taken for granted.

But they are real. So, if you read no further, the brief answer we found to the question of whether or not stump grinders can make for environmentally responsible additions to your equipment fleet is a resounding “Yes, absolutely!”

“Green” attributes among stump grinders (as with most of the power equipment we have been writing about the past few years) have twin missions: they not only help take the pressure off our environment and resources, they also have the potential to save or make you more money.

Up front, the biggest thing stump grinder makers have been doing is to maximize productivity while minimizing fuel consumption. They do this either by adapting existing technologies, developing new efficient and greener ones, or by making stumpers operation more efficient and thus reduce operating time.

Much of the obvious progress in green stump grinders has to do with reducing fuel costs, including offering more engine options, more efficient engines and systems that cut down on wasted horsepower, up to and including little things such as fewer drive belts and longer-lasting cutting surfaces. All of these separate and diverse steps add up to a greener approach to designing, manufacturing and using stump grinders.

Another side to green stump grinder operation is that the new machines tend to put less pressure on the marketplace for raw materials because they are growing more compact and lighter; they are physically easier on the worksite, being lighter and more easily maneuverable and, in some cases, designed to reduce the number of times they have to be re-positioned and thus the length of time they have to operate.

While any of these factors may seem minimal or insignificant on their own, taken collectively they add up to a stump cutter that is far more environmentally friendly than ever before. In an age where marketing...
and the green message converge, the new stump cutter gives you another marketing message to deliver—that you have another way to be professional by being environmentally responsible.

“The big thing we have been focusing on is the drive mechanism of our stumper cutters to increase torque to the grinding wheel,” says Jerry Morey, president of Bandit Industries. “This actually lets us reduce horsepower and, therefore, fuel consumption in our grinders, similar to what we do with our chippers.”

“We have had great success with our Model 2450XP, a compact, high-production stump grinder, which is a great example. This is a 40-horsepower machine and it can cut as well as or better than a 60-horsepower competitive unit. That means these machines cost less to begin with and they save a lot of fuel over time.”

“The new Model 2250XP we’re just coming out with is patterned after the 2450. It is a totally hydrostatic drive system using pressurized hydraulic fluid to drive machinery.) As Morey explains, “This eliminates the (mechanical) jackshafts and many of the drive mechanisms, such as pulleys and belts. The machine was shown at the TCI EXPO (last November in Hartford, Connecticut) and has been a big hit,” he maintains. “We sold a lot there and began delivering our first units in January.”

Other green benefits for this mechanical approach, Morey says, include the fact that there is also far less maintenance, requiring fewer parts and therefore pressure for materials. And, of course, there is less down time due to upkeep.

“We are working on similar designs for other products,” Morey notes. “We’ve done a tremendous amount of testing of our machines not only in the drives but also in our cutting wheels to include optimum cutting patterns. We have incorporated what we have learned in chipping. For example, evaluating cutting at an angle, which is far more efficient than straight-on. Teeth cut more at an angle, and how they bite is important in the amount if energy it takes to break a stump down. We use a lot of proven, standard industry-leading teeth brands and do not design our own,” he says. “It is the pattern and angle of how the teeth are set into the wheels that determines efficiency.”

Morey also explains that how the company focuses on the operator and operator comfort along with grinding efficiencies and remote controls means the operator can stand opposite the stump cutter, not behind, and therefore see better (and operate more safely) which speeds up the entire process, uses less fuel, and minimizes fatigue.

According to Sean Dwyer, global product manager for commercial products at Husqvarna, his company makes one stump cutter model, the SC13, sold under the company brand name and also under the more predominant Bluebird name. These units are often found at rental outlets for homeowner or contractor use, or used by smaller tree care companies looking for an entry-level machine or one with extreme flexibility of use, for example in tight urban areas.

Dwyer explains that the SG13 is a Honda-powered (the new 11hp model) unit with a 14-inch cutting head.

The unit is not self-propelled and, therefore, not what he calls “a monstrous unit.” He says one of its advantages is that “the SG13 easily can be put into the back of a
pickup, yet it can do as big of a monster stump as I want and cut to a depth of 12 inches. It takes only repositioning and time. It is truly a commercial quality stump cutter in a highly mobile unit costing under $4,000.”

According to Dwyer, “Three years ago, we made a major change to our cutter. Originally it had eight cutting blades, and the cutter weighed 50 percent more than it does today, when you take into account the teeth and poppets (hardware) used to hold them in place. We went to a much lighter design, not in terms of material but number of teeth. We went from eight to three teeth. Additionally, the operator can quickly rotate a tooth, each with three edges. From an environmental standpoint, Dwyer points to the fact that less material is used on a cutting head to get the same job done.

“Why is this green? Because as the engine rpm drops to cut, it can come back to speed faster because the wheel is lighter, and that burns less fuel,” Dwyer says.

“Let’s say if the cutting edges are damaged by a stone, they easily and quickly can be fixed by loosening and rotating the tooth. Previously, it could take up to 30 minutes to change them, a real wrestling job,” he explains. “And if you have to change them, there are only three, not eight.” The result? More work gets done.

Morbark’s philosophy is that the customer is the expert when it comes to equipment and Morbark’s job is to design and build it according to the customers’ wishes. That philosophy is reflected in its stump cutters as well as the rest of the Morbark equipment line, according to Casey Cross, tree care products sales manager, who points to a new stump grinder that is powerful, yet lightweight and compact.

“We have a new stump grinder,” Gross says, “the G42SP, introduced in the past six months, that is what customers asked for.” This is a self-propelled, wheeled, gas-powered machine featuring either a 27- or 38-horsepower Kohler engine. The G42SP features the company’s easy-to-use fingertip controls. Prices range from $14,000 to $16,000, he says.

“Customers had been asking Morbark for a smaller, more compact, entry-level unit that can fit through a 36-inch gate,” Gross says. “And we responded.”

“Because this is all-steel construction, it’s a durable, longer lasting machine. We put steel where steel matters most,” Gross adds.

He points to other features such as the Clic Duals, spring-loaded mechanisms that make it easy to install a second set of wheels after getting through that gate. “It’s easy. Just bury the pivot head in the ground, lift up the machine and click the wheels in place. No wrenches. No tools. You get the wide base stance you need to operate, and the extra wheel helps better distribute machine weight so it does not tear up the yard,” he explains.

At the other end of the spectrum is the company’s D86 track stump grinder. “This is unique because as a track machine it still can get through the gate, and the tracks expand for stability with the push of a button. Very turf friendly,” Gross notes.

Additionally, Morbark has incorporated wireless remote operations and a wider boom swing, which, he says, results in less repositioning of the machine on the stump and that results in the consumption of less fuel.

Horsepower ranges are 84 to 99hp. Engines are Kubota diesel. Prices range from $58,000 to $66,000 he says.

Another major player, Rayco, makes a total of 14 stump grinder models, according to Matt August, national sales manager, starting with its mini and progressing to the self-propelled and tow-behind varieties.

“The mini is gas-powered, due to its compact size and weight,” he says. “The self-propelled and towed versions offer a mix of gas and diesel engines.”
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August says that, “These days guys are taking a look at gas engines because of the long-term operating costs of Tier 3 and 4 (diesel engine) requirements. Because of the price increases caused by the move from Tier 3 to Tier 4 and the overall cost of diesel, we expect to see an increase in gas-powered unit sales.”

“Overall, the trend is toward more compact designs,” he says, pointing to changes in standard units such as the 25- and 35-horsepower Super Junior models. “We made them more compact with swing-out controls so the operator can walk behind versus beside the unit. Compact design means there is less pressure on material use. We also went back to using steel versus plastic/poly for enclosures. Part of that is cost, but steel is better for the environment since steel will decompose, and it can be easier to recycle or reprocess. Plus it is easier for the user to repair if the need arises.”

“With our patented Super Tooth we achieve a more consistent and uniform chip, and the cutting pattern keeps the spoil (cut material) beneath the machine, not throwing it out and away, which is messier and can cause greater collateral damage,” he notes. From a green standpoint, it’s
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faster and easier to clean up, and the consistency of the chip lends it better to be used as mulch or even better fill for the stump hole.

“Some of our self-propelled units have a blade that lets you push the spoil into the hole for a cleaner work site,” he adds.

August concludes, “Our newest unit is a walk-behind, self-propelled, 35-horsepower tracked version of our Super Junior. It’s very popular because the tracks aid in floating the machine (distributing weight) over the ground, especially good in wet and soggy conditions as we in the East experienced in 2011.”

Lee Schroeder, Vermeer tree care solution specialist, says, “Vermeer prides itself on being environmentally friendly, not only by cutting down on waste, but also in finding ways to be more efficient and productive.”

“The longer and more often a machine has to run, the worse it is for the environment. What we do is to make our machines so efficient that they do not have to run as much, and we have incorporated many features that allow us to do that.”

For example, Schroeder discusses the integrated auto sweep system, which monitors engine rpm and the swing of the boom and cutter wheel to prevent it from stalling. Rather, it creates a slower swing, resulting in no re-starting, which would use additional fuel. “The auto sweep allows the machine to keep working through the material and brings the machine back to full rpm. It actually takes away operator error in the event the operator gets too aggressive.” This technology is standard on all but the company’s smallest stump grinder, the SC252, and on that it is optional.

“We also use our Yellow Jacket system with a cutting tooth that allows for twice the life of a standard tooth. It is a double-edge tooth design for higher productivity and faster serviceability,” he says. “These days, more material is being reused for composting or landscaping. Our machines produce a finer, more consistent material with the Yellow Jacket, resulting in greater recyclability.”

“Another thing to consider is that all of Vermeer’s stump cutting machines have good ground speed and clearance, which makes it faster to move from stump to stump, which makes you more efficient at a job site. The less machines have to run the more green they are,” Schroeder says.

“Vermeer offers direct drive on some machines, such as the SC60TX, which means no belts or pulleys off the engine, and that allows for a higher transfer of horsepower to the cutting head,” he adds.

Schroeder concludes by stressing that today’s stump grinders offer features with green benefits that are not too obvious. For example, “With remotes, operators have the option to get direct views of a stump and not have to guess or feel their way through the job. Not only does this speed up the process by faster maneuvering and cutting, it also means less machine runtime and greater productivity.”

So, when you ask yourself if your stump is green, be assured that it probably is, at least if it is a newer model. Then use these benefits in your marketing to make sure it is putting as much green into your pocket as it could be.
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Photo: Davey and the 2009 ISA ITCC
In this new feature, a take-off of the Highlights Magazine children’s puzzles, our goal is to point out unsafe behaviors that can, and have, led to injuries or deaths in the tree care industry.

One month we run the image and challenge readers to identify one or more safety violations depicted. The next month we run the picture and identify the violations. The intent is that these will be used individually and/or by crews, for Tailgate safety sessions or in other training.

Email your name, title/job and company name along with the violations you find to editor@tcia.org. Each month we will draw a name from the list of those who submit the correct violations and award a prize to one winner. Extra Credit: Point out the Z133 Standard section numbers violated for a chance at a bonus prize.

Caution: This is a staged photo intended to show one or more ANSI, OSHA or other safety violations.

Activities shown are NOT approved practices.

Cuidado: Esta es una foto para mostrar una o mas ANSI, OSHA u otras infracciones de seguridad. Las actividades mostradas no son practicas aprobadas.

For the previous pic, above, which ran in the January 2012 issue, safety violations include:
1. No hard hat (ANSI Z133 3.4.2)
2. No safety glasses (3.4.7)
3. No hearing protection (5.3.6)
4. Chaps with undone straps – catch point for brush (8.6.3)
5. Sticking a metal tool into the infeed chute (see next)
6. Feeding a chipper with a shovel, which picks up rocks and other debris that shouldn’t go through a chipper (8.6.9 & 7.1.1)
7. Improper footwear (sneakers vs. work boots) (3.4.4)
8. Employee working in unsafe manner (1.4)
9. No hi-viz clothing (3.2.1)
10. Standing on trip hazards in front of chipper feed – loose branches (8.6.2)
11. Employee not following chipper manufacturer’s operator & safety instructions (6.1.2)

Additional comments from TCIA safety staff and John Ball:
- Using a metal shovel, instead of a wooden push paddle, is a violation in itself. Wrapping his hand inside the shovel handle, while not a technical violation, is ill advised, and actually killed a worker two years ago; the shovel was caught by the rollers and he could not pull his hand out quick enough.

Standing in front of the chute instead of off to one side is not a violation here; it is when you’re feeding a lengthy piece that could swing into you or catch you from behind.

Finally, it appears that the worksite is off-road and there is no indication of foot traffic, so possible violations for work-zone setup, cones and positioning for traffic and other situations cannot be assumed. (That includes tire pressure on the truck behind, as one pointed out). We hope these points will garner more discussion.

Congratulations to Tim Ayers, CTSP, safety and human performance manager at TCIA-accredited Kramer Tree Specialists in West Chicago, Illinois, whose name was drawn from our group of responents. He wins a copy of TCIA’s new Pro Arborist Series Volume 1: Climber Safety, a $44.99 value ($34.99 Member price).

Hi-Lights for Arborists

You should find at least a half a dozen safety violations in this picture, but how often do you see tree folks working out of a bucket this way? This picture was staged with the lift bucket only 3 feet from the ground and the saw was not running. Staged photo courtesy of John Ball, South Dakota State University.

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CARB approves Altec Green Fleet product

The California Air Resources Board (CARB) in December approved the Altec Jobsite Energy Management System (JEMS) when used in any power take-off, diesel-fueled truck application with a GVW rating over 10,000 pounds as meeting the requirements set forth in title 13, California Code of Regulations section 2485.

JEMS is a product of Altec’s Green Fleet, designed to eliminate engine idle time at the jobsite and reduce fuel consumption, noise pollution, and carbon footprint. The JEMS is an integrated plug-in system powered by application-specific battery packs. The system provides power for the aerial device, truck cabin heating and air conditioning, and export power for hand tools and other electrical accessories.

Bartlett Arborist Supply celebrates 100 years in 2012

Michigan-based Bartlett Arborist Supply & Manufacturing, a 27-year TCIA member, celebrates 100 years in the business in 2012. The company has already prepared for its centenial year by publishing a new print catalog, and moving into a new 300,000-square-foot warehouse.

Contributing to Bartlett Arborist Supply’s longevity is the fact that the company has only had three owners in its 100 years, and each owner has taken pride in developing the company to its fullest potential, according to a press release.

“It has been our loyal customers and our dedication to quality that has contributed to our success as a company,” says Sheree Kappen, office manager at Bartlett. “We ensure items are quality-made before we put them on our distribution list and we make it a point to only offer highly rated items.”

In addition to offering hundreds of pieces of arborist tree climbing gear and other products, such as saddles, ropes, cabling and bracing hardware, ground and log handling tools, and rigging equipment, Bartlett makes its own line of pruners and pole saws. Bartlett pruners and pole saws are made with brass connectors to ensure durability, and both have helped the company make a name for itself and its American-made products, the company says.

Morbark hires Keith Barr as national sales manager

Morbark, Inc. in January hired Keith Barr as national accounts sales manager. With more than 30 years of experience in the forestry and tree care industries, Barr comes to Morbark after four years with Reading Truck Body, where he served as director of national accounts and forestry products. Prior to that, he worked for Arbortech for nearly 28 years, most recently as director of fleet sales.

“We are proud to welcome Keith to the team,” said Morbark Tree Care Products sales manager Casey Gross. “With his extensive experience, broad network of contacts and highly respected reputation in the industry, Keith will bring a great deal of talent and positive energy to Morbark.”

Lewis Tree acquires an Atlanta software company

Lewis Tree Service, a 24-year TCIA member company headquartered in West Henrietta, New York, in January acquired Clearion, a software company headquartered in Atlanta, Georgia. The deal continues Lewis’ strategy of entering new business segments, the company said, adding that Clearion has grown in utilities, telecom and government markets while continuing as a leader in utility vegetation management systems.

“We are very excited with this opportunity to partner with a leading software company that develops superior software solutions,” said Lewis CEO Thomas Rogers.

Christopher Kelly, Clearion co-founder, said, “It is important for our clientele to know that there will be no course change for Clearion – we will continue to do what we do best for the same markets, but now with the support of a well-established company like Lewis Tree Service.”

FEVA adds Southeast rep

Forestry Equipment of Virginia in December added Doug Kloc as its new Southeastern sales representative. Doug brings to FEVA decades of mechanical experience in the hand-fed chipper market. He will be selling FEVA’s Terex Woodsman line of chippers and Hi-Ranger aerial lifts.
Growth Products BioNutrients Total-Pak injectable

Growth Products’ BioNutrients Total-Pak injectable for trees provides a complete micronutrient package along with a power-packed mix of beneficial microbes, symbiotic mycorrhizal fungi and other plant boosters. Professional arborists can rely on BioNutrients Total-Pak as an easy-to-use solution to promote better establishment of transplants and to improve the health and growth of both deciduous and evergreen trees. BioNutrients Total-Pak includes eleven strains of endo- and ecto-mycorrhizal fungi, which colonize soil and improve a plant’s nutrient uptake, mineral uptake and water absorption. The wide range of both endo- and ecto-mycorrhizae ensures that the correct type of fungi is present for all types of trees and climates. Growth Products Ltd. is a nine-year TCIA associate member company.

Davey Tree’s Tree$ense mobile app

TreeSense, a new, free mobile app created by The Davey Tree Expert Company and powered by its i-Tree Design software suite, allows users to calculate the value of single trees — for their energy savings to increased property values. It also can help users plant trees in areas where they can be most beneficial as they grow. Here’s how it works: Visit value.m.davey.com from a mobile device. Enter zip code. Hit calculate. Select tree species. Slide the ball to the diameter of tree (1 inch and up). Enter tree condition (vigorous and healthy, healthy with minor problems, unhealthy with minor problems, etc). Enter the tree’s distance from the home. Hit “next.” Select the position of the tree. View tree benefits. Click on arrow to learn more about each benefit. TreeSense turns users into “TREEconomists,” who can qualify and quantify a tree’s benefits and place trees in the best positions in the landscape to maximize these perks, from storm water removal to carbon dioxide sequestration. Consumers have options and links for additional information or services. The app works on most devices, including iPads and other tablets, iPhones, Android phones and Blackberry 6 OS.

Safetree Products chain saw scabbard

Safetree Products LLC’s new chain saw scabbard is made of King StarBoard, a marine grade polymer sheet plastic specifically developed to endure the constant punishment of sun, salt, water and all weather conditions. Utilizing state-of-the-art CNC (computer numeric controlled) advanced extrusion welding, the scabbard is engineered and designed to meet and exceed the rigorous demands of the outdoor industry, including tree trimmers and line clearance workers. It is designed by tree guys for tree guys and manufactured in the USA.

MyFleetDept.com EV charging stations

MyFleetDept.com, a national fleet management service provider and a TCIA associate member, now offers a full line of electric vehicle (EV) charging stations through distribution agreements with three leading manufacturers of this equipment. DBT USA is a manufacturer of EV charging stations in Europe and recently opened a U.S. facility in Chicago. MyFleet will provide their level I, II, and III charging stations as well as project management, installation and maintenance services. Shorepower Technologies of Utica, New York, offers their Truck Stop Electrification (TSE) as well as charging stations for EVs and Plug-in Hybrid Electric Vehicles (PHEVs). Coulomb Technologies’s ChargePoint Network first went live in January of 2009, operates in 14 countries, is the largest network of charging stations in the world and is open to all drivers of PHEVs and all manufacturers of EV charging stations. EV charging stations can receive reservations from a smart phone, accept credit card payments and fully charge a depleted electric or plug-in hybrid battery in less than 30 minutes. Solar generation and power storage options are also available and can be incorporated into each design based on vehicle use, budget, location and sustainability goals.
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Aerial Work Platform (AWP) Operator Training
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February 15-17, 2012*
ISA Ontario Annual Conference
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February 15-17 and 21-22, 2012
NOFA Organic Land Care Accreditation Course
CT Agriculture Station Laboratory, New Haven, CT
Contact: (203) 888-5146; www.organiclandcare.net

February 16, 2012
Hard Core: Fundamentals and Breakthroughs, with Don Blair and John Ball
Location: Rochester, MN
Contact: www.rochesterarboristworkshop.com

February 17, 2012
Electrical Hazards Awareness Program/EHAP
Location: Rochester, MN
Contact: www.rochesterarboristworkshop.com

February 21, 2012
Signs, Symptoms, Treatment Options & Research of Plant Diseases, Pests and other Conundrums
Bingham Office Center, Bingham Farms, MI
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February 21-24, 2012
ASCA 2012 Consulting Academy
Lancaster Convention Center, Lancaster, PA
Contact: (717) 412-7473; www.asca-consultants.org

February 26-28, 2012*
47th PennDel Shade Tree Symposium
Lancaster Convention Center, Lancaster, PA
Contact: www.penndelisa.org; (717) 412-7473

February 27-March 2, 2012
NOFA Organic Land Care Accreditation Course
Ninigret Nat. Wildlife Refuge, Charlestown, RI
Contact: (203) 888-5146; www.organiclandcare.net

March 1, 2012
ONLA Spring Field Day
Guthrie Greenhouses, Guthrie, OK
Contact: Becky, ONLA (405) 945-6737; info@oknla.org

March 6-7, 2012
MGIA 25th Annual Trade Show & Convention
Suburban Collection Showplace, Novi, MI
Contact: MGIA karla@landscape.org; (248) 646-4992

March 6-8, 2012
Art and Science of Trees Conference
Adams Pointe Conference Center, Blue Springs MO
Contact: Charles.Conner@mdc.mo.gov; (816) 622-0900; www.moconunitreebars.org

March 7-8, 2012
18th Annual ELA Conference and Eco-Marketplace
Springfield, MA
Contact: www.ecolandscaping.org

March 13, 2012
EHAP Electrical Hazards Awareness Program
Lansing Board of Water & Light, Lansing, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm.isa.org

March 17-20, 2012*
ISA Southern Chapter Annual Conference
Birmingham, AL
www.isasouthern.org

March 21, 2012
EHAP Electrical Hazards Awareness Program
Kalamazoo Dept. of Public Services, Kalamazoo, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm.isa.org

March 27, 2012
EHAP Electrical Hazards Awareness Program
Grace A. Dow Memorial Library, Midland, MI
Ctct: (517) 337-4999; asm@acd.net, www.asm.isa.org

April 29-May 2, 2012*
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Contact: www.wcisa.net; (866) 785-8960

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Arboriculture I - Basic Tree Climbing
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Quail Hill Boy Scout Camp, Manalapan, NJ
Contact: John Perry (732) 833-0325; www.caanj.org

June 20-21, 2012
Greenhouse Production Short Course
OSU-OKC, Oklahoma City, OK
Contact: Becky Sellers, ONLA, (405) 945-6737; info@oknla.org

August 11-15, 2012*
ISA Annual Conference & Trade Show
Oregon Convention Center, Portland, OR
Contact: www.isa-arbor.com; (888) 472-8733

September 6-8, 2012
Lake States Logging Congress & Equipment Expo
EAA Grounds, Oshkosh, WI
Contact: GLTPA (715) 282-5828; www.timberpa.com

September 20-21, 2012
Rock 'n Grow! ONLA Annual Convention & Trade Show
Hard Rock Casino, Tulsa, OK
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In a white paper entitled, “Injury and Illness Prevention Programs” released in January, the Occupational Safety & Health Administration extols the financial and other benefits of formal safety programs.

According to the report, 34 states already require or encourage employers to implement such programs. The key elements common to all of these programs are management leadership, worker participation, hazard identification and assessment, hazard prevention and control, education and training, and program evaluation and improvement.

Based on the positive experience of employers with existing programs, OSHA believes that injury and illness prevention programs (I2P2) provide the foundation for breakthrough changes in the way employers identify and control hazards, leading to a significantly improved workplace health and safety environment. Adoption of an injury and illness prevention program will result in workers suffering fewer accidents. In addition, employers will improve their compliance with existing regulations, and will experience many of the financial benefits of a safer and healthier workplace cited in published studies and reports by individual companies, including significant reductions in workers’ compensation premiums.

The reader may have surmised that the federal regulatory agency has something up its sleeve. OSHA has had I2P2 on its regulatory agenda for quite some time.

Ideally, the “safety management system,” the “safety and health program,” the I2P2 or whatever name you choose to give it helps the employer find hazards and fix them before injuries, illnesses or deaths occur. It helps employers meet their obligation under the OSH Act to “furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees.” OSHA’s argument, with which we agree, is that such a program also helps the employer avoid the significant costs associated with workplace injuries.

We are not necessarily convinced that a government-mandated, one-size-fits-all program will necessarily do the best possible job for employers and their employees, and even OSHA in its white paper stipulates that the program has to fit the employer.

Most successful injury and illness prevention programs include a similar set of common sense elements that focus on finding all hazards in the workplace and developing a plan for preventing and controlling those hazards. Management leadership and active worker participation are essential to ensuring that all hazards are identified and addressed. Finally, workers need to be trained about how the program works and the program needs to be periodically evaluated to determine whether improvements need to be made.

These basic elements—management leadership, worker participation, hazard identification and assessment, hazard prevention and control, education and training, and program evaluation and improvement—are common to almost all existing health and safety management programs.

Each element is important in ensuring the success of the overall program, and the elements are interrelated and interdependent.

OSHA examined the injury and illness prevention programs in eight states where the state had either required a program or provided incentives or requirements through its workers’ compensation programs. These state programs claimed to have lowered injury and illness incidences anywhere from 9 percent to more than 60 percent. We summarize three of them below:

► California began to require an injury and illness prevention program in 1991. Five years after this requirement began, California had a net decrease in injuries and illnesses of 19 percent.

► Massachusetts workers’ compensation program firms receive a premium credit for enrolling in a loss management program. In the first year of this program, firms participating in the program had a 20.8 percent improvement in their loss ratios.
By Bill Duesing

The NOFA Organic Land Care Program, a project of the Northeast Organic Farming Association of Connecticut, has guided and overseen land care professionals offering organic services to customers for more than 10 years. This article is an excerpt of the NOFA Standards in Organic Land Care, Practices for Design and Maintenance of Ecological Landscapes, first published in 2001 and updated every two years. This excerpt, edited for style and length, is from the section titled “Soil Health.”

In caring for trees, most practitioners know that the methods used to care for the surrounding landscape can significantly affect the trees, especially the feeder roots that extend out to the drip line and beyond. Organic land care that works holistically, encourages diversity and avoids harsh fertilizers and toxic chemicals is an important strategy to encourage tree health.

Soil tests, along with site analysis, allow the land care professional to select and implement practices that maintain or increase soil life and vitality and thereby enable the soil to support a vigorous plant community. A healthy soil is free of crusts, compaction, pesticides and other toxins, salt buildup and excessive erosion, and contains sufficient organic matter and nutrients, in proper balance, to support a large and active population of native organisms.

The community of organisms that inhabits the soil is known as the soil food web. The soil food web consists of such familiar earth dwellers as worms and insects, but also the countless microscopic creatures, bacteria and fungi that inhabit every spoonful of soil. The benefits of a healthy soil food web are many. It forms protective layers around roots to keep pathogens at bay, helps plants obtain nutrients from the soil, breaks down toxic compounds that inhibit plant growth, improves disease suppression, and builds soil structure, making it easier for roots to grow and obtain nutrients and water.

Soil compaction and drainage issues can be improved by drilling holes to break up the impermeable layer. Photo courtesy of Todd Harrington, Harrington’s Organic Land Care.

In natural systems, organic matter – provided by decaying roots and stems and, in forested areas, the autumn leaf drop – cycles in place. A thriving microbial community digests and breaks down this organic matter, releasing nutrients back into the soil. The organically managed landscape retains and recycles organic matter, to the extent that the client’s needs and the situation permit. On-site composting is a means to this end, as is shredding or chipping organic material on a property and allowing it to compost in place. By closing the nutrient cycle in this way, the need for external inputs is minimized.

Organic soil amendments may be needed to help balance a soil’s chemistry, stimulate its biology and restore its physical composition. Such amendments may also be required to support the growth of a typical lawn, which has extraordinary nutrient needs because it is maintained in an unnatural way – relentlessly mowed and
kept green as long as possible.

In an organically managed landscape, soil fertility is enhanced by feeding the soil, not the plant. Carbon and nitrogen are applied to the soil in the form of manure, compost, blended organic fertilizers and cover crops, and the soil food web breaks these organic materials down into the nutrients that plants need. Horticultural methods that short-cut this natural process by supplying synthetic nitrogen, phosphorus and potassium (NPK) directly to plants lead to damaged soils and weak root systems, making the plants more susceptible to insects, disease and drought. Repeated, excessive application of synthetic fertilizers may also inhibit the development of mycorrhizae – symbiotic fungi growing on or around plant roots that help to gather nutrients beyond the range of the roots themselves. Eventually the soil structure collapses and the soil becomes infertile. To revive dead, compacted soil, it may be necessary to apply compost to reintroduce soil life.

A carefully managed soil-building program that increases soil organic matter and humus gives many benefits. It recycles nutrients, improves water retention, balances minerals and buffers pH. In addition to compost and manure, other amendments, such as root stimulants, rock dust and beneficial microbes, may be indicated based on soil test results.

There are two approaches to matching soils and plants: We can maximize the diversity of soils and plants and minimize the need to alter the soil by leaving the soil alone as much as possible and choosing appropriate plants for that soil, site and microclimate; or we (or the client) can decide what plants are desired and alter the soil and site to make them suitable for the desired plants.

The first choice is the more desirable because it minimizes our effects on the environment, and thus the potential for harm from our interventions. In either case, we must avoid practices that impair soil health and the health, diversity and functioning of soil organisms.

Organic land care follows a holistic approach to plant health, nourishing soil life instead of feeding plants directly. This is accomplished by increasing organic matter in the soil, balancing nutrients and pH, and increasing soil life through the judicious use of biologically active materials such as compost and compost tea.

To reduce our ecological footprint, we emphasize the cycling of nutrients on site, supplemented as needed by local, renewable, sustainably harvested materials, and limit our use of materials that are mined or transported from far away to those that are necessary and not obtainable in any other way.

Soil tests are essential to gain specific information about the soil, and must be performed before any soil alterations can usefully be made.

We must minimize or eliminate any risk of contamination of soil or water with toxic substances or excessive nutrients, whether they are added directly, as with fertilizers, or simply allowed to come into contact with the soil. We utilize natural remediation methods, where possible, to cleanse the soil of contaminants.

Bill Duesing is executive director of the Northeast Organic Farming Association of Connecticut, in Stevenson, Conn. The NOFA Standards of Organic Land Care is used nationally and recognized internationally. The NOFA OLC program currently has 550 Accredited Organic Land Care Professionals who have pledged to offer organic services to customers according to NOFA standards.

Two NOFA accreditation courses are scheduled for early 2012: February 15-17 and 21-22 in New Haven, Connecticut; and February 27-March 2 in Charlestown, Rhode Island. The Accreditation program is open to landscapers, landscape architects, arborists, conservation property managers, parks and recreation employees, master gardeners and a number of other land care professionals. The first step to become a NOFA Accredited Organic Land Care Professional (AOLCP) is taking a 30-hour intensive Accreditation Course.

For more information about the course, costs or to register, visit www.organiclandcare.net or contact the NOFA OLC Office at (203) 888-5146.

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My father, Ray, started the business as a tree and landscape company in 1937 after he moved to Portland,” says Terrill Collier, now president of Collier Arbor Care in Clackamas, Oregon. “He started a spray service in the 1960s. It was a new thing back then, and people sprayed everything, whether it needed it or not. My dad set himself apart. He only treated the plants that needed it. He practiced IPM before it was called IPM.”

Terrill Collier studied entomology at Oregon State and got one of its first IPM degrees. He took over the company in 1981, and is a certified arborist, board certified master arborist and a licensed landscape contractor.

“We were a small mom and pop company for many years,” he says. “Now we have 25 employees, but we’re still kind of a family business. My wife, Janet, is the office manager and my business partner, and my son, Logan, is a certified arborist. I’m proud that we’ve been in business for 75 years, and that my son is going into the business.”

Approximately 70 percent of the company’s clients are residential and 30 percent commercial. Half their work is maintenance pruning of small ornamental trees and shrubs, maintenance and thinning of large trees, and some removals. They recycle all their pruning debris. The rest is plant health care (PHC).

They introduced their organic-based PHC system 20 years ago. The focus is on healthy soil, because everything starts there, Collier says. Their soil health care program consists of a blend of compost tea, organic fertilizer and mycorrhizae. Their deep-root fertilization, fruit tree and lawn care programs also are completely organic. They use mulch around the trees. And they still use IPM.

“We give our clients options of traditional and organic treatments,” he says. “They pick the best of both worlds. When you have an outbreak of emerald ash borer, there are no organic options besides removal.”

Terrill Collier was a TCIA board member for six years. As chairman his last year, 2009-10, he established TCIA’s sustainability task force.

“Oregon is a green state,” he says. “Sustainability is huge here, and I think it will spread. I think part of the reason is customer demand and part is government regulations. Our clients have embraced it. It’s helped us to retain our market leadership through the recession.”

Collier Arbor Care became accredited in 2004, the first company in Oregon to do so. “I see Accreditation as being in the early stages,” he says. “It’s slowly building and it will eventually become a lot bigger than what it is now.”

Because the business becomes accredited, not an individual, it’s an assurance to the consumer that the company is safe. It also dovetails perfectly with Terrill Collier’s guiding principles of “People, Planet, Profit.”
Accreditation from TCIA, setting the standard for professionalism, efficiency and profitablity in tree care.

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– Accreditation program statistics 2010

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For “Planet,” workers use ANSI A300 standards for the health of the trees in pruning, soil management, PHC, cabling and bracing, and protection during construction.

And for “Profit,” he says, “I believe to be sustainable as a business, you need to be profitable. A lot of arborists have a tendency to focus on the technical side, and when they try to get to the next level, they don’t have the systems in place.” With Accreditation’s emphasis on good management practices – such as maintaining a business plan, using proper accounting and financial management procedures, and having adequate insurance – it’s a key tool to grow a business, Collier says.

Terrill Collier was selected to take part in the Sustainable Sites Initiative (SITES), a partnership among the American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center at The University of Texas at Austin and the United States Botanic Garden. His four-acre business park is one of more than 150 sites in the United States, Canada, Spain and Iceland in the program.

The initiative began in 2009 and will end in June 2012. It will lead to a certification program for landscape practices comparable to the LEED certification for buildings. Eventually, LEED would include both landscape and building practices.

“It was started by landscape architects, so the emphasis is on design and development,” Collier says. He’s going to recommend that they also look at the maintenance side.

Collier is removing invasive plants on the property with organic products, replacing them with natives and using organics for fertilization and pest control. He restored the riparian area along a stream at one edge of the property that flows to Carli Creek, a tributary of the Clackamas River. He planted it with native trees and is underplanting with native plants and shrubs, and is building paths and a viewing platform. He put a conservation easement on the area, so it will be protected from development in the future.

“The stream has little salmon fingerlings in it,” he says.

He transformed the upper side of the business park into a mini-arboretum, with approximately 40 different species of ornamental trees. He also constructed two bioswales, one of them 300 feet long, and planted them with natives to filter runoff from the parking lot and the rooftops of the two buildings on the property.

“All our water is dealt with on-site,” Collier says. “The vegetation cleanses the water and it infiltrates back into the soil.”

He reduced the company’s water use by 50 percent by planting an eco-lawn, which includes grass, clover and yarrow, retrofitting the irrigation system to drip and using a rain sensor. The eco-lawn also has reduced mowing and fertilizing.

A solar system on one of the buildings provides more than enough electricity for the company in the summer, including charging the electric lawn mower. They use biodiesel in all the rigs and the salesmen all drive diesel VW Jetta “Arborcars.”

“I’m an early adopter,” Collier says. “I like to be a leader, not a follower.”
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There’s a Sucker Born Every Minute:
A whirlwind tour of sucking insect pests of woody plants

By Michael J. Raupp, Ph.D.

“T here’s a sucker born every minute,” a phrase often erroneously attributed to famed showman P. T. Barnum, describes well the spectacular capacity of many sucking insects to attain epic densities on woody trees and shrubs. How does this happen?

Several species of aphids and scale insects evolved a clever reproductive strategy called parthenogenesis, which is the ability of females to reproduce without males. By eschewing male offspring, partheno-genetic females put all of their resources into females that rapidly produce more spawn. Further exacerbating this problem is the fact that several sucking insects, such as aphids and scales, forgo the usual egg-laying business found in most insects. They give live birth (viviparity) much the same way we do. This shortens generation times and allows populations to grow rapidly. In addition to these unusual forms of reproduction, small size and rapid rates of development allow populations of many sucking insects to explode and reach damaging levels on plants. On hot summer days in the landscape, suckers really are born every minute.

Most pestiferous sucking insects (i.e. those producing or breeding infectious disease) belong to a large clan called the Hemiptera that is characterized by having gradual metamorphosis and mouthparts that are elongated into a beak that houses sharp styles capable of piercing plant tissue. Within the beak are two ducts — one for infusing saliva laced with proteolytic enzymes into...
plant tissues and one for imbibing the liquid contents of plant cells. When sucking insects remove cell contents, leaves are discolored. This injury appears as small dots called stipples, in the case of feeding by lace bugs and leafhoppers, or more generalized yellowing and chlorosis of foliage, as is the case with scale insects.

When sucking insects feed on meristematic and undifferentiated tissues, such as terminal buds and expanding leaves, the resultant plant parts may be distorted as is the case with curled leaves on deciduous trees and twisted needles on conifers infested with aphids or adelgids. Some sucking insects, such as Cooley spruce gall adelgid and elm cockscob aphid, secrete potent chemicals that enslave the genetic machinery of the plant causing it to form aberrant structures called galls, which provide food and refuge for the developing pests.

In addition to these direct forms of plant damage, sucking insects also make products that disfigure plants but are sometimes useful in diagnosing plant problems. Honeydew is a sugar-rich liquid excreted by sucking insects such as aphids, soft-scalars, felt scales, psyllids, leafhoppers and whiteflies. It rains down on foliage and forms the substrate for the growth of a black, non-pathogenic fungus called sooty mold. The presence of sooty mold is an excellent clue that honeydew producers are nearby. Sucking insects including some aphids, all scales, and whiteflies produce protective wax that is highly diagnostic as are the shed skins left behind by lace bugs, leafhoppers and aphids.

More than 10,000 species of Hemiptera are found in North America alone. Most are terrestrial, but many, such as water striders, are aquatic. Some, such as assassin bugs and minute pirate bugs, are highly beneficial predators that eat insect pests. Due to limitations of space in this article, only a few groups of suckers that rock the arborist’s world are discussed. This includes aphids, adelgids, lace bugs, whiteflies, psyllids and four taxa of scale insects. Other suckers, including leafhoppers, plant-hoppers, mealybugs and their kin, await another episode. For each pest discussed, a few conventional control tactics are reviewed. My thoughts on several “green” management solutions are presented in conclusion.

**Aphids (Aphididae)**

Some species of aphids feed only on one species of plant while others feed on several. Most common trees and shrubs are susceptible to one or more species of aphids. Many aphid species have multiple generations each year and complex life cycles that include alternating between different host plants in cool and warm seasons. Many contact insecticides including soaps, oils, organophosphates, pyrethroids and systemic chemicals such as the neonicotinoids imidacloprid, dinofeturan, clothianodin and acetamiprid – are labeled for use against aphids.

**Adelgids (Adelgidae)**

Adelgids such as the hemlock woolly adelgid and Cooley spruce gall adelgid are close relatives of aphids. Most species alternate between a spruce host and another conifer. For example, the Cooley spruce gall adelgid moves from Colorado blue spruce, where it forms galls, to Douglas fir, where it feeds externally on needles. For some species, such as the hemlock woolly adelgid, the alternate host is unknown and the pest completes its development on a single species of tree. Contact insecticides directed at immature stages and systemic insecticides provide excellent control of this pest.

**Lace bugs (Tingidae)**

Several introduced and native species of lace bugs feed on common landscape trees and shrubs, including oak, sycamore, elm, hawthorn, birch, walnut, willow, azalea, rhododendron, andromeda, cotoneaster and pyracantha. Most species feed beneath leaves and excrete feces creating diagnostic fecal spots on the undersurface of leaves. Contact insecticides such as soaps or oils must be directed beneath leaves to be effective and several systemic insecticides such as the neonicotinoids are highly efficacious in controlling lace bugs.

**Whiteflies (Aleyrodidae)**

In cooler regions in the United States, mulberry whitefly is often found on holly, mountain laurel, magnolia, maple and mulberry. Maple whitefly feeds only on maple. Both species feed on the undersurface of leaves and occasionally reach levels that cause leaves to yellow and drop. In warmer regions of temperate zones and in tropical and subtropical regions, whiteflies are major pests of trees and shrubs. Across the southern tier of the continental United States and in Hawaii whiteflies, such as the citrus whitefly, spiraling whitefly and giant whitefly, wreak havoc on a wide variety of agricultural crops and landscape plants.
Whiteflies can produce large quantities of honeydew and create problems with sooty mold. As with lace bugs, contact insecticides must be directed beneath leaves to be effective. Many of the new systemic neonicotinoid insecticides are very effective against whiteflies.

Psyllids (Psyllidae)

Psyllids are small sucking Hemiptera that resemble tiny cicadas in their adult stage. The life cycle of some psyllids is closely linked to the production of new foliage. Psyllids attacking boxwoods, eucalyptus, eugenia, acacia and peppertree distort foliage and may cause premature leaf drop. Many species produce copious amounts of honeydew and wax. Contact insecticides applied to new foliage when immature stages are present provide good control. Botanically based insecticides, such as azadirachtin, are labeled for use against psyllids and several systemic neonicotinoids have proven highly effective in controlling psyllids.

Armored scales (Diaspididae)

These small (usually less than 1/8-inch in diameter), sucking insects produce hard wax covers that protect the sessile insect beneath. Covers often have distinctive shapes and colors that are diagnostic. Shed skins of early stages are sometimes visible within concentric rings of wax. Armored scales do not excrete honeydew. They damage plants by bursting cells and removing cell contents. Depending on the species and geographic location, one or more generations occur each year. Several species feed on bark for their entire life. Some of the more common bark feeding armored scales with single generations include obscure scale, winged euonymus scale and some populations of oystershell scale; those with two generations include other populations of oystershell scale and Japanese maple scale; bark feeders with three generations include white peach scale, white prunicola scale, and San Jose scale. Other species of armored scales feed only on leaves and needles. Single generation examples include juniper scale, minute cypress scale and elongate hemlock scale. Maskell scale, cryptomeria scale and pine needle scale have two generations, and tea scale has several overlapping generations. Some armored scales, such as euonymus scale and lantania scale, are found on leaves and bark.

Understanding scale phenology, including the number of generations and appearance of crawlers, is the key to managing scales. Scale crawlers are very susceptible to even relatively benign insecticides such as horticultural oils. Many armored scales can be effectively managed with single applications of growth regulators such as pyriproxyfen. Some systemic neonicotinoid insecticides are effective in controlling armored scales, particularly those that feed on leaves and needles.

Soft scales (Coccidae)

Scales in this family, can be smooth, cottony or waxy, and are slightly larger (usually less than 1/4 inch long), rounder and more convex than their close relatives the armored scales. What you observe on the plant is the body wall of the insect and sometimes an associated egg sac. Soft scales lack the wax cover associated with armored scales.

In temperate zones, there is usually one generation of soft scale each year, but in warmer zones, multiple generations occur. On deciduous plants, most soft scales overwinter as immature stages on bark. In spring and early summer, scales mature and eggs and crawlers are produced. Crawlers migrate to leaves where they feed during the summer before returning to woody tissues to overwinter prior to leafdrop. Exceptions to this general pattern exist with magnolia scale and tuliptree scale, which complete their life cycles on bark and produce offspring in autumn. On evergreens, many soft scales occupy leaves or buds year round.

Soft scales feed in phloem and excrete honeydew. Consequently, the presence of ants, stinging insects and nectar feeders such as butterflies is often an indication of a soft scale infestation. Many contact insecticides including soaps, oils, organophosphates, pyrethroids and systemic, such as the neonicotinoids imidacloprid, dinotefuran, clothianidin and acetamiprid, are labeled for use against soft scales.
Felt scales (*Eriococcidae*)

A few species of felt scales are important pests in landscapes. European elm scale, azalea bark scale and beech bark scale are members of this club. These scales can be smooth, cottony or waxy, and at maturity they are usually about ¼ inch long. Adults are covered with felt-like wax or present a waxy boarder. As with soft scales, felt scales feed in phloem and excrete honeydew. Some, such as azalea bark scale, may have two generations each year and remain on bark their entire life while others, such as the European elm scale, have a single generation with immature stages that move from overwintering sites on bark to feeding sites on leaves in summer. Contact sprays directed at crawlers or overwintering stages can reduce populations and systemic insecticides such as imidacloprid are also effective in reducing populations.

Pit-making scales (*Asterolecaniidae*)

These strange scales are relatively small – about ¼ inch long. As they feed on bark, they induce their host to create a pit where adults and nymphs live and suck fluids from the underlying plant tissues. Several species of eastern and western oaks are attacked by one or more species of pit scales, while holly and pittosporum are attacked by their own unique pit makers. Depending on the species, scale colors vary from green to pink to golden and some stages sport a waxy fringe. Densities can become great enough and damage severe enough to result in leaf-loss and dieback. Several classes of contact insecticides work well against immature stages of pit-making scales and it is important to observe their phenology and target susceptible stages.

Green alternatives for pest control

Fortunately, legions of predatory insects and arachnids, such as ladybeetles, predatory midges, lacewings, spiders and parasitic wasps in several insect families, decimate populations of aphids, lace bugs, scale insects and other suckers, making intervention with insecticides unnecessary in many instances. Many of these natural enemies are native and murder native and non-native pests without prejudice. In some cases, when exotic pests arrived on our shores, the solution to these invasive suck-
ers was found in foreign lands. In 1988, the ash whitefly invaded Southern California and soon reached outbreak levels on street trees and residential plantings. The importation and release of a small parasitic wasp from Europe collapsed populations of the whitefly and relegated this pest to inconsequential status in a matter of a few years. On the west coast several species of diabolical psyllids devastate exotic plants. Imported parasitic wasps have proven moderately to highly effective in reducing psyllids that attack gum trees, eugenia, peppertree and acacia. Several species of predatory beetles have been released to control the hemlock woolly adelgid in the United States and in some locations results of these releases are encouraging. These are some of the finest examples of classical biological control of exotic pests.

Before applying a pesticide to control suckers, see if beneficial insects or spiders are at work and consider giving them a chance to whack these suckers before you spray. Look for the heroes themselves or their signs. For example, parasitic wasps leave behind papery aphid carcasses called mummies. The presence of a high ratio of aphid mummies to living aphids on a plant may obviate the need for a pesticide application. Examine scale covers for signs of parasitoid attack, such as small round holes where wasps have emerged. Before treating scales, remove the covers of several scales and see if they are plump and juicy or dry and flaky beneath the wax. Living scales will be juicy when you crush or poke them. If living scales are not found on a plant, then pesticide applications are unnecessary.

Plant selection and culture can be a highly effective tactic for designing pests out of landscapes and mitigating their impact if they are present. For example, the introduced hemlock woolly adelgid is a devastating killer of native Canadian and Carolina hemlocks, but a mere nuisance to western North American and Asian species of hemlock. Green forms of Douglas fir are less susceptible to Cooley spruce gall adelgids than blue forms.

Use sound plant culture to reduce the likelihood of pest outbreaks. Isolated shrubs planted in full sun are more prone to outbreaks of lace bugs than those planted in diverse, shaded locations; therefore proper site selection goes a long way in reducing lace bug outbreaks.

When it comes to soil amendments, high

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levels of fertilization, particularly high inputs of nitrogen, have been shown to boost reproduction in aphids, scales, adelgids and lace bugs and contribute to elevated populations of these pests. If you have problems with suckers, review fertilization schedules and products and see if you can reduce nitrogen inputs. Many aphids and psyllids exploit the lush production of new foliage that follows shearing of shrubs. By shearing less frequently, damage associated with these pests can be reduced.

Contact insecticides and newer systemics work well in reducing populations of many kinds of sucking insects, but caution should be used in selecting ones that are minimally disruptive to natural enemies and pollinators that may be on flowering plants. Botanically based products with the active ingredient azadirachtin (neem) are labeled for use against many suckers including aphids, whiteflies and psyllids as is the fungal based biopesticide *Beauvaria bassiana*.

In 1994, the Environmental Protection Agency established a program to fast track review and approval of pesticides considered “reduced risk.” To be reduced risk, insecticides must have:
- low impact on human health
- low toxicity to non-target organisms (birds, fish, plants)
- low potential for groundwater contamination
- low use rates
- low pest resistance potential, and
- compatibility with IPM practices

One reduced risk product available for arborists to manage aphids and whiteflies on woody plants in landscapes is pymetrozine. This selective material disrupts normal feeding behavior of these suckers. The reduced risk insecticide chlorantraniliprole is labeled for use against lace bugs.

Several of my arborist colleagues have employed creative physical or mechanical approaches for dealing with suckers. Many damaging infestations of soft scales begin when a vanguard of colonists arrive on a previously uninfested plant. By carefully monitoring plants and observing ants, wasps and other insects attracted to honeydew, incipient problems can be detected and eliminated before serious damage occurs.

Isolated infestations of large soft scales such as magnolia, tuliptree and wax scale can be readily extirpated simply by plucking scales from plants before progeny are produced. Ants are notorious bodyguards for many honeydew producing insects. Denying ants access to colonies of sucking insects by placing ant barriers or traps may provide a window for natural enemies to attack and decimate colonies of suckers. One firm regularly removes armored scales such as white prunicola scale from infested branches with stiff brushes that dislodge the insect but do not damage the bark. On rapidly growing shrubs, such as euonymus and holly, heavily infested branches or plants can be removed, thereby eliminating scales or leaving smaller residual populations that are more easily managed.

So, despite the fact that there really is a sucker born every minute, with careful observation, thought and action you can deliver a timely smack-down to these buggers.

Mention of an active ingredient, or lack thereof, does not constitute an endorsement by the author, Tree Care Industry Magazine or the Tree Care Industry Association.

References used in preparation of this article included:
- Managing Insects and Mites on Woody Plants: An IPM Approach by J. A. Davidson and M. J. Raupp;
- Ecology of Herbivorous Arthropods in Urban Landscapes by M. J. Raupp, P.M. Shrewsbury, and D.H. Herms;
- Insects that Feed on Trees and Shrubs by W. T. Johnson and H. H. Lyon;

Michael J. Raupp, Ph.D. is a professor of entomology and extension specialist with the University of Maryland, and has more than 30 years of experience helping arborists. His two new book titles include Managing Insect and Mites on Woody Plants: An IPM Approach and 26 Things that bug me. Both are available through Tree Care Industry Association at www.tcia.org.

This article was based on his presentation on the same subject at TCI EXPO 2011 in Hartford. To listen to the audio recording of that entire presentation, visit www.tcia.org and click on podcasts on the homepage. Or, in the digital version of TCI Magazine online, click here.

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Some scale-killing ladybeetle larvae produce waxy coats. They are often mistaken for pests and treated with insecticides.

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**Man hurt in struck-by**

A man was hurt December 2, 2011, near Granite Quarry, North Carolina, when a large tree limb hit him in the head while his company was working on the tree. Charles Shoaf, owner of the tree cutting service, was in critical condition after a falling tree limb hit him on the head.

The *Salisbury Post* quoted a co-worker at the scene as saying, “It was too late. I didn’t see him. I don’t know why he walked under me when he heard the chain saw running.”

The employee in the tree had been cutting a series of limbs from a tree, and Shoaf was on the ground taking a rope around to the other side when he was hit, according to the *Salisbury Post* report.

**Man injured in struck-by**

A man was critically injured December 3, 2011, in a tree cutting accident in Winsted, Connecticut. Jose Batista, 52, of Naugatuck, and another man who was not identified, were cutting down a maple tree that towered over a small cottage when a log cut from the top of the tree fell about 40 feet, striking Batista in the head, according to an *American-Republican* report.

**Tree worker injured**

A man was injured while trimming trees December 9, 2011, in North Lawrence, Kansas.

He was injured while working for a private company. His injuries were not life-threatening, according to a *Lawrence Journal-World* report.

**Homeowner killed by cut tree**

A man was killed December 10, 2011, in St. Bernard Parish, Louisiana, when a large tree he was cutting in his back yard fell on him. Troy Braniff, 40, of St. Bernard Parish, was pronounced dead at the scene following the accident.

Braniff, with his father-in-law present, was using a chain saw to fell a large tree in the back yard of the family residence. He had been cutting sections of the tree when a large piece cracked and fell, toppling across his upper chest, according to a *WWL AM 870/FM 105.3* report.

It was speculated that the man did not hear the piece crack due to the noise of the chain saw, according to a *FOX 8 News* report.

**Climber killed in struck-by**

A tree trimmer working for a tree-trimming company was killed December 13, 2011, in Fort Collins, Colorado.

Dustin Greathouse, 34, of Fort Collins, Colorado, was in a tree cutting branches when a branch fell on him. Emergency crews responded to a report of a man hanging by ropes in a tree.

Greathouse was suspended in his climbing harness about 40 or 50 feet above the ground. It was determined that he was dead, and crews used an aerial lift to eventually reach him and lower his body to the ground.

He apparently died of blunt force injuries to the head and neck, and traumatic asphyxia, according to the *Loveland Reporter-Herald* report.

**Tree worker injured when truck tips**

Soft ground caused a tree care service aerial lift to tip over December 12, 2011, in Milton, Indiana, injuring the bucket operator. Thomas L. Kennedy fell with the boom, landing in the brush away from the truck. Kennedy was conscious and alert when he was taken to the hospital, but his injuries were not known. He was listed in fair condition at the hospital shortly after the accident.

The tree service crew was contracted to trim trees back from power lines. While the boom was extended, one of the truck’s outriggers sank into the ground, causing the truck tip onto its side, according to a report in *The Madison Courier*.

**Trimmer killed by car**

A tree trimmer was killed December 19, 2011, when he was hit by a car while working with a crew trimming trees from the power lines on Highway 107 in Unicoi County, Tennessee. The company had set up a work area on the highway and one of the workers was walking down the road, in the work area, when he was struck. The driver of the car said the sun was in his eyes and he did not see the man walking down the road.

A doctor who was passing by the accident just after it occurred stopped and attempted to help the injured man, but was unsuccessful. The man was taken to Johnson City Medical Center and was later

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**December 2011**

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Accidents in the tree care industry that occurred during the month of December 2011. Graphic compiled from reports gathered by, or submitted to, TCIA staff.
pronounced dead, according to a WJHL-TV Channel 11 report.

**Man killed by tree while cutting wood**

An East Tennessee woman found her husband’s body under a huge tree where he had been cutting firewood about a half mile from their home December 23, 2011. Gary France, 59, of Strawberry Plains, Tenn., had been cutting firewood alone.

Emergency personnel arrived to find France face down, dead, with a tree about 30 inches in diameter across his back and neck, according to a report in The Knoxville News-Sentinel.

**Farmer cutting wood hurt in struck-by**

A Fremont, New York, farmer was severely injured after a tree fell on his head December 22, 2011. Bruce Gardner, 55, was chopping wood about 500 feet into the woods on his property when he was struck by a tree that fell onto his head.

Gardner had no feeling below his waist and had laid out in the woods near his home for about three hours before a family member called 911. A conscious Gardner was flown by helicopter to Westchester Medical Center in Valhalla. His condition was not immediately reported, but he had apparent head injuries, according to a Times Herald-Record report.

**Woman injured trimming from ladder**

A 74-year-old Sandwich, Massachusetts, woman was seriously injured December 22, 2011, after falling from a ladder while trimming a tree in her yard. The woman was using an electric saw 25 feet up in a tree to cut a branch when the branch fell, hitting the ladder, causing her to fall.

She was found conscious between a chain link fence and a post at her home when firefighters arrived. The woman sustained injuries to her chest, ankle and shoulder. She could not remember what she was doing at the time of the accident.

She was taken to Boston Medical Center via med flight, but her condition was not immediately available, according to WFXT-TV FOX25 news.

**Man killed while felling trees**

A central New York man was killed December 27, 2011, in what was reported as a logging accident at his camp in West Turin, N.Y.

Terry Planck, 52, of Boonville in neighboring Oneida County was cutting trees at his property in West Turin. One of the trees apparently got hung up on another tree, then hit him on the head when he dislodged it. He was found by his son.

Planck was pronounced dead at the scene, according to a report in The Wall Street Journal.

**Homeowner injured in struck-by**

James D. Harrington, 54, of Parish, New York, was in fair condition at Upstate University Hospital after a tree fell on him December 27, 2011.

Harrington’s father-in-law, told police he and Harrington were cutting trees. They tried to cut one tree that fell partially and became entangled with another. When Harrington cut a third tree, that one fell and disentangled the first tree, which fell and struck Harrington in the back according to a report in The Post-Standard.

(Continued on page 53)
By the time the New Z133 is available for purchase (hopefully June 2012), it will have been six years since the American National Standard for Arboricultural Operations – Safety Requirements has been revised.

The ANSI Z133 Committee formed in 1969, and the first Z133 Standard was published in 1972. Revisions to the standard have been published roughly every five to six years ever since then. Significantly, the Z Committee pre-dates the formation of the Occupational Safety & Health Administration (1970).

Since 2006, the ANSI Z133 Committee – a large group made up mostly of arborists – has diligently met twice a year. The Z representatives have polled their respective stakeholder groups. The committee leadership pulled in outside safety experts for consultation and sent liaisons to meetings for related ANSI standards. Finally, the committee organized itself into a variety of Task Groups, each with a fairly narrow focus, to get more research and development done in between meetings.

The result is a very comprehensive and up-to-date collection of accepted safe work practices for arborists.

It is this simple: if you, your colleagues or your company engages in “arboricultural operations” – tree work – you NEED a copy of ANSI Z133.1-2012, hereinafter referred to as the New Z. You will find ordering information at the end of this article.

We’re going to make the assumption that you are somewhat familiar with the Old Z, ANSI Z133.1-2006. In the remainder of this article, we are going to walk through the biggest changes, chronologically as they occur in the New Z.

Under the General Safety Requirements, the section for Traffic Control has undergone a complete transformation. It explains more fully what is already required for traffic control through OSHA and the Federal Highway Administration’s Manual on Uniform Traffic Control Devices, or MUTCD.

Arborists must also be concerned with the safety of pedestrians and onlookers; and Section 3 of the New Z provides more complete explanation of how to effect this type of “traffic control.”

Throughout the standard, various task groups have inserted language to make the New Z more harmonious with requirements already imposed by regulatory authorities such as OSHA. For example, the “general safety” section adopted a statement, “The employer shall assess the work area to determine if hazards are present, or are likely to be present. This assessment will be used to determine the type of personal protective equipment that might be required for employee protection.”

This requirement mirrors an employer obligation already found in OSHA’s general industry standards. On every job, there should be at least a checklist reminding employees of what PPE needs to be worn. From the standpoint of safety, this constant focus shapes attitude; attitude drives behavior; and repeated behavior becomes habit.

The New Z’s Electrical Hazards Task Group spearheaded the adoption of more stringent requirements for notification of the utility when minimum separations distances cannot be maintained. They wrote a new Annex in the Standard, called Annex H – Electrical Hazard Abatement, which explains several procedures for mitigating an electrical hazard.

Annex H, which is informative, goes hand-in-hand with a new requirement in the electrical hazards section of the New Z: If the minimum approach distance (shown in Table 1 of the Standard) cannot be maintained during the arboricultural operations, the qualified line-clearance arborist shall request that the electrical system owner/operator’s designated supervisor in
charge coordinate communications and operations between the electrical system owner/operator and the qualified line-clearance arborist to mitigate the electrical hazard.

When an arborist cannot safely maintain the applicable minimum approach distance from energized electric conductors, or arborist work cannot be safely completed with the line energized, the arborist must stop work on that assignment until an electrical hazard abatement plan is implemented.

An electrical hazard abatement plan may include a request for the utility to de-energize, test and ground the electric supply lines at the worksite to make it as safe as practicable for the arborist to work closer to de-energized conductors than allowed when the conductors are electrically energized. For non-line-clearance-qualified arborists, the hazard abatement plan may require they hire a qualified line-clearance arborist or contractor to perform the work.

The “vehicles and mobile equipment” section contains some significant harmonization with requirements from various sources, for example:

- FMCSA (DOT) requirements for vehicle post-trip inspection
- Manufacturers’ safe operating procedures
- Use of safety belts by all passengers
- Recognition of back-up requirements for vehicles with obscured rear vision
- Proper connection to units being towed, and adherence to connecting devices standards
- Requirements for rollover protection (ROPs)
- SAE standards for protective enclosures on equipment

The New Z will provide, in section 5.2, a fairly comprehensive checklist of common hazards to assist the aerial lift operator with assessing a potential set-up location prior to lowering the outriggers. Farther down in that section is a new requirement to assure that those outriggers are set on proper pads or some other stable surface.

Recognizing that a handsaw can be used to mitigate or avoid some hazardous cutting situations, the New Z recommends that the aerial lift operator should carry one at all times. It provides procedures for safely transferring out of a bucket into a tree or into another bucket, as circumstances dictate.

Self-propelled, level-terrain lifts, widely available through rental yards, have infiltrated arboricultural operations in a big way since the last Z revision. The New Z contains a brand-new section consisting of five statements, pointing out how to avoid the major hazards that have been associated with their use.

Rounding out the major changes for aerial lift operation are requirements placing greater emphasis on electric hazards when using aerial devices with an “elevator” feature. There is greater clarity that holes as well as cracks above a certain size are not permitted in buckets of insulated aerial devices. The section places greater general emphasis on electric safe work practices.

The New Z ushers in some important new requirements for crane operations, addressing factors commonly associated with the accidents witnessed in our industry. The crane crew needs to have radio communication – preferably that is hands-free – during blind picks. Tree sections shall be rigged to minimize load shifting. Controlled load lowering shall be used. Shock-loading shall be avoided, and free fall is prohibited. The crane operator must be “qualified,” which means that he/she must be familiar not only with the crane but with tree removal operations. Pick weights must be carefully estimated prior to the cut, and after the pick is complete, the crane operator should verify, compare and communicate the estimated weight to the qualified arborist.

There were a few changes for brush chipping operations. The most significant is a much more prescriptive requirement for operator training. It says that only persons trained in safe chipper operation may operate chippers. Training shall include, but is not limited to, inspection, starting, stopping, feeding and shutdown. Training shall be provided for each type of chipper being used.

The chipper-mounted winch is relatively new technology. The New Z requires that each day before being used or where service conditions warrant, the winch line and all fastenings and attachments shall be inspected for damage or defects. Damaged or defective winch lines shall be immediately removed from service.

All requirements affecting climbing and climbing gear were reviewed by the New Z’s Climbing/Cordage Task Group.
ever he/she determines that it is advantageous.

Henceforth, any climber in any climbing situation must carry two means of being secured at all times, and use both whenever he/she “determines that it is advantageous.” One major reason for this language was the recognition of how easy it is to cut through a climbing line with a modern-day hand saw.

The Z Committee has heard horror stories about climbers being pulled into the tree by the climbing system as the tree split below their tie-in; or of climbers’ lines coming off the top of a spar and the climbers falling. To address these profound hazards, the following statement was incorporated:

“Arborists working from a stem or spar without a suitable natural crotch shall select tie-in points or a tie-in method that positively prevents the climbing line from sliding down, up or off the stem during climbing operations. Placing a climbing line around a stem in an area without a lateral limb is not acceptable unless the climbing line is cinched or choked around the stem or runs through a double-wrapped or adjustable false crotch, which is secured/cinched around the stem. The tie-in point selected shall be able to withstand the forces being applied during the pruning/removal operation.”

Finally, there is a new “should” statement, recommending that climbers and aerial lift operators always carry handsaws when working aloft.

The New Z’s Rigging & Removal Task Group worked diligently to incorporate a lot of changes. They are too extensive to review in detail here. Generally, the New Z places a stronger emphasis on the forces that can be generated, depending on rigging design; and on assessing the tree to see if it can withstand rigging forces.

Here’s a specific change: henceforth rigging operations require a handsaw be aloft with the climber, for making or finishing cuts.

The New Z attempts to draw arborists’ attention to the hazards associated with the “drop zone.” It is defined as the area beneath workers aloft involved in arboricultural operations and/or where the potential exists for struck-by injuries from falling objects. The hazards of the drop zone and how to avoid them are discussed in several sections of the New Z.

Changes in the “Tree Removal” section of the New Z, such as the rigging section, are too extensive to allow us to summarize what they are. Highlights of these changes include:

- Addressing the differences between whole tree felling/manual tree felling and piecing down a tree for removal;
- Use of the term “drop zone” to mean the intended fall area when piecing down tree parts – an exclusion zone for non-involved workers is an area with the radius of one tree height;
- An expansive list of items or conditions to assess trees prior to felling, housed in Annex C.3;
- A manual tree felling safety zone for non-involved workers is twice the height of the tree;
- Addressing the hazard of barber chair;
- Greater emphasis on escape path, and getting the feller away from the falling tree;
- Greater emphasis on the importance of the hinge, with a new definition in Annex A and a stipulation that there shall be an adequate hinge when using a notch and back cut.

The Pesticide Application section of the New Z was expanded significantly, making it much more harmonious with most states’ requirements for turf and ornamental pesticide application. The revision addresses applicator training; the use, maintenance and storage of PPE; mixing pesticides; pesticide storage and emergency action plans. Additional sections addressing air-excavation equipment (air spade and compressor) and fertilization/soil management were incorporated.

This short article hasn’t begun to do justice to the many changes in the New Z, and it certainly is no substitute for a physical copy of the entire standard.

There are several options for obtaining the New Z, once it is available:

- If your company is a TCIA Active Member, just sit back and wait. TCIA sends each member one copy of the Z133 for free as a benefit of membership. If you need more than one copy, keep reading.
- The New Z may be ordered from TCIA by calling 1-800-733-2622 or by going to www.tcia.org. Be sure to ask about quantity discounts if you need 10 or more copies.
- The Standard may also be ordered through the ISA (1-800-ISA-TREE). Being the Secretariat and copyright-holder on the New Z, they can offer licensing agreements for organizations that would otherwise need a large number of printed copies.

Peter Gerstenberger is senior advisor for safety, compliance & standards for the Tree Care Industry Association, and a member of the ANSI Z133 Committee.
Using a crane for a tree takedown can often make a job run more quickly and smoothly, but improper communication between climber and operator can impede the progress of the job and, in turn, decrease overall efficiency. There are some very simple steps to better communication that both climber and operator can take to maximize job efficiency and get the tree on the ground safely.

“The demands on a modern arborist can become much more involved than in the past,” says Peter Nieves-Sosa, owner and operator of The Crane Man, Inc., a TCIA member company in Chalfont, Pennsylvania. “They not only have to be proficient in climbing and cutting skills for tree removal, but now, to maximize the efficiency of using equipment such as cranes, they must become expert riggers and communicators.”

“Having a clear understanding of hand signals between climber, ground crew and operator is imperative,” adds Jim Roach, CTSP and veteran climber with John B. Ward and Co., a 24-year TCIA member company in King of Prussia, Pa. “The use of radio head gear has proven to be a very useful tool when the climber and operator cannot see each other, although (it is) somewhat costly.”

The climber and crane operator must work well together, “essentially becoming the left and right hand of a single unit,” says Nieves-Sosa. “One cannot give the other more than it can handle or the results could be catastrophic. Therefore, an understanding of one’s abilities, be it man or machine, must be established in the planning period.”

“Ego must be put aside, and (everyone needs to) work within the framework of the jobsite and its limitations,” says Roach.

“The climber has his own limitations, as does the crane – knowing them is key.” A good climber will do his or her research and learn the uses of the crane just as he or she did with rope, Roach adds.

The operator needs to understand what the climber is capable of and comfortable with, and the climber needs to understand what the crane is capable of. “The climber isn’t expected to memorize the crane load chart, but to use his communication skills to, at any point, ask the operator, ‘What are you good for?’ or ‘How much was that last piece?’ A climber should never, ever, cut more than an operator has OK’d,” warns Nieves-Sosa. “No one has ever died from cutting too small a piece. By the same token, operators don’t need to be cowboys. We are out there to work safely and efficiently, not to put on a show. If an operator does not feel comfortable with a cut, he needs to let the climber know before (the climber) makes the cut. When the crane comes out to the jobsite, tree companies need to understand that it is not a magic wand to remove trees.”

Climbers and operators need to understand that bigger is not always better, and that taking a large pick is not always the most efficient way to take down a tree. Doing so can also be more dangerous and cause bigger problems, such as an overturned crane or someone being injured or even killed, says Nieves-Sosa.

Throughout the removal, consistent interaction will greatly improve the efficiency of both climber and crane. This might include sharing view points or using one another as a second set of eyes, and working for the same goal to put the tree on the ground and through the chipper as safely and quickly as possible.

Nieves-Sosa goes on to say, “A well trained operator should be looking ahead to the next pick, as well as being focused on the current pick, to be able to tell the climber, ‘We can take that lead there and there, that way I can get to the next piece easier.’ Or maybe you have to take a smaller limb first so that your next piece will be better balanced.”

The climber may also request a certain piece be taken out, or left in place, for better movement or a tie-in point. Both measures, through communication, increase overall effectiveness, which in turn promotes an increase in profitability.

The operator also has to realize the reality of the climber’s limits. If the climber has nowhere to tie-in, he or she might not be able to make a cut where the operator would like it. The climber’s position has to be able to afford him or her safety and effective cutting ability.

Some of the understanding between climber and operator is obvious and sounds simple to the guy who does it every day, according to Nieves-Sosa. A crane reaching 100 feet away is not as strong or stable as the same machine lifting at 30 feet. Picking accordingly in both areas is crucial. At the longer distance the crane can’t pick as much, but maybe at the closer distance, where the crane is stronger, the

(Continued on page 52)
Right of Way (ROW) mechanical equipment consists of some of the biggest toys in the tree care industry. Is it possible for these rugged monsters that act more like vegan T-Rexes to be considered “green,” as in environmentally friendly?

The answer is “Yes,” at least according to various equipment manufacturers.

“Mechanical vegetation control equipment clears up to 8- to 10-inch-diameter trees, cuts and mulches them completely, leaving a layer of chips on the ground that helps prevent excessive soil erosion,” says Mike Balkom, national sales manager for Kershaw, based in Montgomery, Alabama. “The sprouts that emerge during the next growing season after the cut provide food for deer and other wildlife.”

“Obviously, we prefer mechanical vegetation control, where we have somewhat better control over the result. However, we recognize the industry’s need to include herbicide vegetation control in areas where best suited, even with the various environmental concerns that come with that,” says Balkom. “It is considered an important part of integrated vegetation management, especially with the introduction of new safer formulations.”

“Maybe it’s a little more aggressive in the beginning, but mowing heavy brush gives the power line right of way a cleaner look and provides better access for vehicles and equipment when needed during weather-related outages.”

His point may certainly foster some debate, and the more recent practice of integrated vegetation management, or IVM, involves using the best of both approaches to manage rights of way. But mechanical ROW equipment manufacturers tout a history of being green.

Kershaw’s ROW rigs earn a few points for sustainability, at least for themselves if not the environment. The Klearway, introduced in 1969, has evolved with newer and better components into the newest model, the Klearway 500, which weighs in at 26,000 pounds.

“It’s a lot more productive. Our cutting attachments today will cut and mulch heavier brush and larger trees than previously possible,” says Balkom.

The Klearway’s shredder-type cutter head reduces vegetation to a fine mulch and can handle trees, stumps, slash, limbs, roots and more. The company’s Sky Trim 75G2 also evolved. The boom now reaches 75 feet and does the job even faster with less environmental impact than its predecessors, while it’s much lighter on the ground – under 25,000 pounds, Balkom notes.

“Now we have one large saw on the sky trim for a precision cut, as opposed to three; it’s much more efficient, uses less fuel. It has a smaller engine, and is able to do more work with a lighter fiberglass boom,” he says.

Kershaw is also meeting federal Tier 3 diesel emissions standards and will be coming out with models meeting Tier 4 standards by the 2015 deadline. That is partly because it buys engines from its larger parent company, Caterpillar, which has greater resources.

The Klearway has the tightest turning radius in the market, Balkom claims, and this helps minimize ground disturbance. All the machines come with mufflers to cut down noise pollution, advantageous when working near residential areas.

“Our engines run much quieter in the new models compared to previous models,” says Balkom. Recently one of the new Sky Trim operators joked that he had to open the cab’s door just to make sure the engine was running.
Regarding hybrid vehicles, “This is something to consider for the future,” Balkom says. “Our engineers are keeping an eye on new developments in this area to determine feasibility.”

Caterpillar is dedicated to being a good steward of the environment, Balkom notes, and that philosophy is embraced by all Cat business units.

“Utilities are concerned with safety and production at the lowest price. They figure it by the mile of line cleared. They also want minimal environmental impact. So they are going to the contractors with the most advanced machines, like these, and it has allowed the industry to maintain steady work levels; 2007 was our biggest year, and we’re not quite back to those levels yet, however, we are thankful for the business we do have,” says Balkom.

Bill Schafer, product manager at Loftness, in Hector, Minnesota, says he likes to make the analogy that you’re just as well off with a compact car than a larger model. So it is with the compact ROW machines Loftness manufactures.

Loftness’ Kwik-Trim compact mobile saw trimmer is a self-propelled machine that does side trimming on the ROWs. This is the only trimmer in this compact size that has the same power and performance as larger competitive units, according to Schafer, and it still boasts a 53-foot, non-conductive boom.

Because of its compact size, you can haul it with a smaller pickup truck and trailer as opposed to a full size skid steer loader that some of the larger machines need. Also due to its compact size, it has much lower fuel consumption, as little as one gallon per hour. And, the lower ground pressure results in low impact on the soil, promoting less erosion and less compaction.

“In mechanical trimming, it conceivably could do the work of multiple units of bucket trucks and crews,” Schafer says.

Just on the market for one year, the Kwik-Trim falls into a niche “that we have to educate people about,” Schafer says, but is off to a good start, with larger national line-clearance companies buying the product.

Another Loftness innovation that it considers “green” is the new Carbide Cutter G3 skid-steer mulching head. With that mulching head, people could get by with a skid steer that weighs 12,000 pounds as opposed to 30,000 pounds, says Shafer. The mulcher delivers chips back to the ground and eliminates the work of hauling them away and paying a disposal fee.

To the carbide knife choices, Loftness has added a heat-treated, steel knife that can be resharpened, making for a finer chip, decreasing use of the power available and increasing fuel efficiency.

From many angles, Loftness is cutting new paths in the green market, Shafer says. “Fecon’s been green before green was cool,” says Mike Slattery, chief product officer and vice president of business development. Based in Lebanon, Ohio, Fecon started in 1992 in the compost business to turn organics into a useful material and minimize waste. In recent years, the push to be greener is leading to greater efficiencies through tooling and drive-line technology, he says.

With the company nearly 14 years, Slattery comes from a background of compost management and auto mechanics (his parents ran a service station), two businesses that fit the company’s interests.

Four technologies contribute to Fecon’s fuel efficiency in its brush cutting equipment, Slattery notes.

First, the industry traditionally runs carbide cutting tools. In the early days, the cutting tools were very boxy looking, and now they are more rounded, so you’re getting a more efficient cut for the same fuel consumed.
Second, “if you’re not working in areas with a lot of rock or very hard soil, you can use a knife tool, which provides 30-50 percent more production for the same fuel used. So if you burn 30 gallons for, say, a half-acre cleared, you might now get two-and-a-half to three acres cleared for that same amount of fuel consumed. A contractor can be out fewer hours or get more work done for a lot less fuel,” he notes.

Third, Fecon is moving more toward variable-speed hydraulic motors in mulchers. This technology optimizes speed and torque to prevent the motor from stalling, and faster recovery if it does stall. “The benefit there is that you will see 20-30 percent more productivity using that kind of a motor,” says Slattery. “In short, it’s optimizing torque to increase performance for the same amount of fuel.”

Fourth, Fecon’s Power Management System uses computer technology to manage the driveline’s peak torque ranges. “This is producing about 20-25 percent better fuel economy as well as a performance gain that can be in excess of 15 percent,” says Slattery.

These four factors combine to increase production while using the same or less fuel.

The FTX600 is Fecon’s latest Power Management System mulching tractor. “If you’re doing a job with bigger timber, such as power lines, the tractors can do a lot and have good (low) ground pressure. That one tractor gets hauled to the job, driven to the site, takes down the trees, and mulches them. It reduces the number of machines you bring and run on the job, and reduces fuel use, air and noise pollution,” says Slattery.

“We do a lot of things with just one machine with one touch. It saves fuel, hauling, labor,” says Slattery.

As with Balkom at Kershaw, Slattery points out the more general green advantages to mulching. Mechanical ROW maintenance is commonly accepted as an alternative to chemical use, more importantly the only alternative in places where chemicals are not allowed. Mulchers are used fairly extensively now in wetlands rehab and erosion control, he says, adding that mulching is an environmentally friendly solution to cutting down trees without wasting all the material.

Fecon is also involved in biomass collection. The Bio-Harvester, a combination mulcher and blower, provides one-stop harvesting for 6-inch diameter forest material and smaller. The FCM22 Chipper module for 22-inch diameter trees can be mounted on a trailer or tractor. Both turn forest material into chips that are loaded
into a trailer that you haul out for use as a biomass fuel source.

“We look at the ROWS as underutilized fiber farms,” says Slattery. “If we can find a way to cut that vegetation down and harvest it for energy, all the better. The leaders in our industry are very talented and know the business and are watching it closely, trying to figure out how to make the numbers work.”

Jarraff Industries, based in Saint Peter, Minnesota, is another company with a long history of being green.

“Overall, the Jarraff All Terrain Tree Trimmer is a conservative piece of equipment, with low horsepower that runs on diesel and has always been fuel efficient,” says Heidi Boyum, Jarraff president. “We keep it a very simple machine, easy to fix, maintain and service.”

Jarraff’s primary customers are right-of-way maintenance contractors, co-ops, municipalities and government agencies all around the world, including Europe and Australia. The company’s idea from the start (34 years ago), says Boyum, was to be a highly productive ROW maintenance company, to take the crews out of a bucket truck, and to get to the site, set up in no time, with no outriggers, and go right to work.

Jarraff recently unveiled a new engine option for its All-Terrain Tree Trimmer. The new Jarraff will be available with a Tier III Cummins liquid cooled, 130-horsepower, electronic-controlled engine. The increased horsepower will improve the unit’s grade-climbing abilities and current emissions rating. A Tier II engine option, a 97 hp Deutz diesel, is still available in both wheeled and track configurations.

“For us, we’re always trying to stay on the cutting edge of technology, and trying new things and listening to what the operator has to say as far as comfort and service. We have to maintain certain emissions regulations, and we’ve done that, and we’re sliding into the next tier,” says Boyum.

Jarraff is also improving the rotating cut-
ter head, to get more of a proper collar cut, unheard of for mechanical trim trimmers, says Boyum.

“We also have a smaller machine that will come out for more residential areas and not leave any footprints,” she adds. In addition, one of the track versions has a lighter footprint and is designed to work in swampy areas, with an ability to take biodegradable oil, for more sensitive areas, such as in work for U.S. Fish and Wildlife or the Department of Natural Resources.

TerraTech of Houston, Texas, is a new player in the ROW trimmer market with its Integrated Tree Trimmer, which it says ranks high in the green zone due to its versatility and elimination of several trucks to do the job.

Put on the market just a few months ago, the Integrated Tree Trimmer’s boom-mounted, multi-tool head performs several functions. It can grab a tree limb with its Limb Clamp, cut up to 8-inch-diameter limbs with the Saw Bar, make precision cuts with the Limb Shear, and spray chemicals directly onto fresh cut surfaces with a Chemical Spray Head; the truck is also equipped with a 100-gallon spray tank. The operator controls the functions from the cab or from a wireless remote control pack outside the truck.

It’s designed to do everything that a contractor can do manually, says Steven J. Terrell, TerraTech vice president. Terrell should know. The now patented Integrated Tree Trimmer was his idea.

“From an emissions and fuel standpoint, if our machine takes the place of three bucket trucks, you’re eliminating those other trucks, including extra fuel,” says Terrell. “The contractors can trim 5,000 miles a year, but if they can do 7,000 miles using our equipment, they can reduce costs significantly. The contractors can reallocate their labor and equipment resources to do more work,” he says.

Furthermore, Terrell says he is keen on having the industry evolve for safety reasons.

“The tree trimmer takes a man out of the bucket, which reduces the safety risk of having a person up near the power lines,” he notes, adding that there is also the cost savings on expenses such as workers’ comp with the fewer employees needed on the job.

Regarding the innovative concept of the Integrated Tree Trimmer, he says, “We’ve all thought the same way for so long. It’s an educational process to think outside the box and become more efficient.”

Regarding green practices, Terrell says, “Contractors have to be led to the concept. They’re not lying awake at night wondering if they’ll reduce emissions. But if there is a tax abatement or credit, then they’ll get interested.”

Clearing and maintaining utility lines and railroad lines has been the traditional business for ROW equipment. It is now evolving to include clearing fields for solar panels and wind turbines. As one famous little frog puppet once said, “It’s not easy being green.” In fact, it can be a lot of work. But these ROW equipment companies are meeting the green challenge while, in many cases, increasing safety and profitability for the industry.
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Dick Kiefer is manager of the Arborist Division at Weaver Leather in Mount Hope, Ohio. He has been with the company since 1988.

What is your newest product for tree care?
We are currently working on a few items to accommodate throwing lines and throw bags. We’re field testing a new positioning saddle to meet the needs of today’s arborists. We are also developing a leg pad for tree climbing leg irons. On existing products, we do a fair amount of contract work for customers, some of it a minor tweak with their logo, but we also get requests to build products for this industry that are a little bit different.

In addition to positioning saddles, we sell a large amount of throw weights used in positioning climbing lines and leather and belted saw scabbards, pruner pouches used by ground personnel, chain saw lanyards, and a variety of other accessories.

What have you done to go green?
Leather tanning companies have been challenged by the green issues and some have had to close their doors or comply. We use those companies that comply. Recently we have developed a relationship with a state-of-the-art company in Mexico.

We recycle just about everything including tons of cardboard that comes with the raw material we buy. We are committed to safety and compliance in all areas of the business. We have a safety committee and director who deal with these issues.

The vast majority of our workers live within a few miles of the company, reducing commuting time.

What image does your company look to portray?
Honesty, integrity and providing quality, innovative products. Paul Weaver has always prided himself on education and finding the right people for the task and continuing training. That translates into trust from our customers. Weaver operates on the philosophy of having a product available when the customers want it. We have a very substantial warehouse with the inventory to support the needs of our customers. We have maintained competitive prices that provide tremendous value.

What is the greatest challenge your business is currently facing?
Over the last five to 10 years, a lot of new providers have come on board, most notably from Europe – from the rock climbing field, and are bringing a lot more education and training about materials and techniques. We have continued to be successful, given all these new companies. We do have quality products and ship in a timely manner. Over the last several years we’ve had sustained growth in the Arborist Division. I’ve been able to focus on the Arborist division and help our customers benefit from the quality and value of our product. We’ve also had some new customers coming on board. Part of it is circumstance. Maintaining trees is something homeowners tend to avoid until pressured into doing so. Recent weather events and natural disasters, such as the one in early November in New England, have forced people’s hands to do something.
Is there something your company does that few people know about?

We use Character First (www.character-first.com) as part of the company’s monthly training. This is a way for people to learn valuable character lessons and become better individuals and better serve the company. Paul Weaver has spent a great deal of effort on the personal growth of his employees and putting them in a position to succeed. The company is very nurturing, something I don’t think a lot of companies are. In 1988, the company had about 30 employees. Now it’s around 300.

One of our employees, Lori Miller, has been an employee for 22 years. She started in manufacturing working on a machine and now she is the vice president, chief operating officer.

Does your company use social media for marketing?

We expect to have a new website up by midyear, with some additional social media aspects launched.

If we interviewed your customers, what would they say about Weaver?

They can rely on consistency and quality, and prompt shipping at competitive prices. Also, our customer service department is premier.

Does your company do anything to promote social and environmental responsibility?

A great deal of our workforce is made up of Amish or Mennonite faith. They like to work out of their homes if they can and are very craft oriented. We’ve set up our manufacturing so that the company opens at 6 a.m. and they go home early, so our workers have plenty of time to deal with their needs at home and we get a full work day here. They’re very dependable, caring people.

Why does your company support TCIA as the industry’s trade association?

(Continued on page 52)
MO Coal plant goes biomass

I was enjoying the article in the December (2012) issue of TCI about biomass fuel (“Are You Prepared for the Green Gold Rush?”) and couldn’t help but catch a quote made by Jerry Morey about wanting to do a survey in an urban area that has a biomass plant. It just so happens that there is an old coal plant in the heart of downtown (Columbia, Missouri) that has been under new construction. If my information is correct, that is going to be a biomass plant.

If anyone interested in this idea would like any more information, please feel free to contact me.

Jake Prescott
Asplundh Tree Expert Co.,
Columbia, Missouri

Boxwood blight found in three states

In October 2011 the Animal and Plant Health Inspection Service confirmed the first U.S. detection of a fungal pathogen, Cylindrocladium pseudonaviculatum, in Surry County, North Carolina. Subsequent detections were confirmed in Middlesex County, Conn., and Carroll County, Virginia.

Crane Communications

(Continued from page 39)

...drop zone isn’t big enough to fit a capacity pick to the ground safely. Both scenarios have limiting factors. As long as the limits are recognized and respected, maximum efficiency can be accomplished.

“Communication is the key to efficient use of cranes in tree work. It is important that arborists understand how to coordinate the crane placement, the chip truck (position) and where the logs will be located for pick up,” adds Gene McMillen, CTSP, president of the Penn-Del Chapter of the ISA and production manager for Shreiner Tree Care Specialists, Inc. in King of Prussia, Pa., a 21-year TCIA member company.

There is always more than one option, and knowing all of your options enables you to make the best decisions for the application, according to McMillen.

“The ability to put into practice skills that you have been trained to do only comes by doing just that – practice,” suggests Nieves-Sosa. “It has been said, ‘practice before you perform.’ No one wants to be stuck in a situation where they need to make a crucial pick and have to use a skill they have not been practicing, or are using for the first time. Climbers and operators need to think it out, balance it, or hinge it up on pieces that aren’t so crucial, and practice the specialty picks before they are in a situation where they need a pick to go just right. That is not when you want to try something for the first time. You need to be able to visualize your options, and say definitively, ‘This will work!’”

Kimberly Nieves-Sosa is the wife of Peter Nieves-Sosa, president of The Crane Man, Inc., a second-year TCIA member company located in Chalfont, Pennsylvania.

The Crane Man, Inc. and the Penn-Del chapter of the ISA will host their second annual Advanced Climber School, with a focus on Crane Takedown, March 15-17, 2012, at the Saint Charles Borromeo Seminary in Wynnewood, Pennsylvania. For more information or to register for the class, visit www.penndelisa.org and click the link for The Advanced Climber School, or contact April Hutcheson at (717) 412-7475 or via ahutcheson@penndelisa.org. You can also find updated information for the class at www.thecranemaninc.com, or on Facebook.

Weaver Leather

(Continued from page 51)

As a manufacturer selling exclusively to dealers and distributors, we wanted to support an organization that provided training and education for the consumer. Also, TCIA gives us a chance to show our product at TCI EXPO and get feedback from customers and end users whom we might not see regularly.

What TCIA programs is your company involved with?

Weaver Leather is a 15-year TCIA Associate Member and a Seed level TreeCare) partner, an annual TCI EXPO exhibitor and a TCI Magazine advertiser. We are also a TREE Fund supporter.

Closing thoughts?

Weaver Leather has become a fairly large company. In 2008, Paul Weaver sold Weaver Leather to Capital Partners in Connecticut. Capital Partners allows the companies that it buys to manage their business while they oversee the company. Paul wanted to assure the longevity of Weaver Leather.
A man was cutting down and removing dead trees from privately-owned land December 28, 2011, in Washington, New York, when a falling limb landed on another dead limb, which came down on his unprotected head. Todd Croshier, 41, of Pleasant Valley, N.Y., was listed in critical but stable condition with severe head trauma including a skull fracture.

The homeowner, who was also working in the woods, witnessed the accident called 911. State Police and firefighters were able to free Croshier from under the limb and he was transported to the hospital, according to a MidHudsonNews.Com report.

**Homeowner killed by burning tree**

A man was killed December 29, 2011, in Waskom, Texas, when a tree he was burning prior to cutting it down fell on him. Nathaniel Fletcher, 61, of Waskom, was pronounced dead at the scene.

Fletcher’s son reported hearing what sounded like an explosion, went outside and found his father under the burning tree. The son rolled as much of the tree as he could off of his father, but was unable to remove the largest portion from the his legs.

Deputies and fire personnel were able to remove the tree from the victim. It appeared that he had multiple lacerations and burns, broken legs, and was killed by the burning tree falling on top of him, according to KTBS Channel 3 report.

**Trimmer electrocuted in bucket**

Firefighters spent an hour trying unsuccessfully to revive a southern Utah man who was electrocuted while using a hoist to trim tree December 30, 2011, in St. George, Utah. James Bradley Meinert, 56, apparently hit a 39,000-volt power line.

Meinert was working as high as 25 feet trimming trees on private property when he was electrocuted. Firefighters had to work around power wires they thought were still hot to bring Meinert down from his basket, according to a Deseret News report.

**Man dies in fall from ladder**

An off-duty Coventry, Rhode Island, police officer was killed December 30, 2011, while trimming trees from a ladder at his Coventry home. Wayne French, 55, a detective, was cutting trees when an extension ladder either collapsed or he fell from it. The officer’s fiancé found French on the driveway. Rescuers performed CPR. He was pronounced dead at Kent Hospital, according to NBC 10 WJAR news.

**Resident killed cutting trees**

Clayton Hunt, 51, died December 31, 2011, while cutting trees at his brother’s house in Thomasville, North Carolina. Witnesses said Hunt was on a tractor when a tree fell on him, according to a WFMY News Channel 2 report.

Send your local accident reports to editor@tcia.org.
**A Walk in the Woods**

By Neal D. Reilly

During a down economic time, we as arborists need to listen more attentively to our clients’ needs and wants. If we are truly listening, they will let us know their lifestyle, hobbies and long-term goals for their properties. And those discussions could turn into a some nice, and profitable, work for us.

Recently very good clients of mine purchased a two-acre lot of woods next to their existing property. They bought the property for privacy, i.e. to deter anyone else from purchasing it.

On a property review meeting they expressed to me that they had no idea what they were going to do with the two acres and were looking for suggestions. The time of year was November and we as a company, were getting ready for the winter months, which in New England can be challenging. My client and I walked the property several times and decided at very least we should pick up all the downed trees on the property and start to weed out the weaker trees, so as to allow more nutrients and room for the larger native trees to flourish. The area had a lot of coarse rock outcroppings in the middle of it and the topography changes where rolling and in some spots steep. The main species of trees were oak and pine, due to the dry rocky soil conditions. So our decision making on what trees to keep was easy – oaks and pines.

That winter we spent a few weeks thinning, cutting and making room for the key trees on their property to thrive and at that time we started to that think this property could take on a resemblance to a nature park-like area, with paths, large trees and focal points of interest along the walking paths.

Time moves fast: the holidays had come and gone, the woods were cleaned up and safe. During the winter my clients had obtained a puppy named Rockie, a dirt bike named Yamaha, and their daughter had taken an interest in cross country running.

By Neal D. Reilly

**Business of Tree Care... From the Field**

By Neal D. Reilly

The woodchips were recycled back into the path and along its edges to help create an environment for mycorrhizae, which would benefit the remaining trees.

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**After the client decided a path would make the acreage more useful, the first course of action was to ensure that the trees that were left would be protected during the course of construction.**

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TriTech™ Flipline featuring a sewn eye and three-stage snaphook.

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