1. Speaking of attachments, we design and build more than any other skid-steer loader manufacturer. Depending on model, you can select from some three dozen attachments, each with full warranty and Melroe’s unequaled parts and service support.

2. Our reliable Bob-Tach™ system makes attachment changes fast, secure and hassle-free. A Bobcat loader operator can easily replace a bucket with Bobcat® Pallet Forks, Landscape Rake, Stump Grinder, Combination Bucket, Backhoe, Auger, Grapple and others — all as quick as a snap.

3. Bobcat loaders have drive chains that never need adjustment. We use endless loop, hardened steel drive chains configured in a “bow tie” pattern for longer life even in the most rugged conditions — with no periodic, time-consuming adjustments.

4. You can forget about axle grease. Bobcat axle bearings are self-lubricating — never need greasing. And our hub design offers great seal protection. Most other loaders require lots of grease — both axle and elbow.

5. Serviceability is unsurpassed. Simply open the swing-out tailgate for full access to the engine’s checks and fills, filters and battery. And unlike other brands, the lift arms need not be raised to service the machine. Shop time is spent repairing, not gaining access.

6. The Bobcat belt drive design allows the engine to run slower, resulting in quieter operation, longer engine life and lower fuel consumption — another feature found only on Bobcat loaders.

7. Operator training courses kits and safety videos, available from your Bobcat dealer, let you train new operators and bring current operators up-to-date with the latest safety and operation functions on Bobcat products. (Some also available in Spanish.)

8. Bobcat loaders maintain high resale value year after year because of the Melroe Company’s long tradition of quality-built products and after-sale support.

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17. When you buy Bobcat equipment, you get the advantage of a worldwide network of Bobcat dealers offering industry-leading parts and service support. In fact, there are more full-time, dedicated Bobcat dealers and factory-trained support staff working exclusively to serve your compact equipment needs than any competing manufacturer in the world.


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reinforced guides. The steerable, three-quarter inch axle turns four 16x6.5-inch turf tread tires with zerk. This cart can handle up to a ton. Also available is the 2-axle Super ATV-17, with its 1-inch axle and capacity to haul up to 1,700 pounds at speeds to 20 mph. A 60-inch bedliner is available for either unit.

Circle No. 250

CLUB CAR, INC.
888-227-7925
www.clubcar.com

Both the Turf II and the Turf II XRT from Club Car, Augusta, GA, feature an 11-hp gas engine with pedal start. The Turf II has a 1,200-pound rated capacity and comes standard with antisway torsion bar, synchromesh transmission, neutral lockout switch, fuel gauge, hour meter and headlights. The XRT is built to handle extra rough terrain, with 4-wheel stabilizer bar, synchromesh transmission, neutral lockout switch, fuel gauge, hour meter and headlights. The XRT is built to handle extra rough terrain, with 4-wheel stabilizer bar, synchromesh transmission, neutral lockout switch, fuel gauge, hour meter and headlights. The XRT is built to handle extra rough terrain, with 4-wheel stabilizer bar, synchromesh transmission, neutral lockout switch, fuel gauge, hour meter and headlights.

Circle No. 252

E-Z-GO TEXTRON
706-798-4311
www.egzgo.com

The newest member of the utility vehicle family from E-Z-GO, Augusta, GA, is the Workhorse 800. With a 46x35x10-inch cargo bed and an 800 pound payload capacity, it is ideal for light duty applica-

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HAUL MASTER, INC.
800-848-4285
www.haulmaster.com

The Huskie HD from Haul Master, Mendota, IL, features a 1,000-pound dump box capacity — largest in its class — yet is small enough to fit in a standard pickup bed. This is the new, upgraded version of the original Huskie utility vehicle. It has a 4-cycle, air-cooled, 16-hp Briggs & Stratton engine. Auto torque converter with Salsbury clutch, driven pulley, and heavy duty belt continuously sustain power and speed. Optional features include a front carrier, snow blade, canopy, hydraulic front disc brakes, turn signals and a bed liner.

Circle No. 256

INGERSOLL EQUIPMENT CO.
920-582-5000
www.ingersoll-inc.com

The HC48 pull-behind rough-cut brush Hydracutter from Ingersoll Equipment Co., Winneconne, WI, has a working width of 48 inches. The deck frame is welded 10-gauge steel and the mower rotates at 1,082 rpm. Two steel hardened blades, each 19.25-inches long make quick work of any project. The unit has five adjustments, cutting height from 1.5 to 6 inches, and attaches with a hitch drawbar and pin.

Circle No. 257

JOHN DEERE
800-468-8517
www.deere.com

Two utility vehicles, the Gator 4x2 and the 6x4, are available at your local Deere dealership. The 2WD 4x2 has a 10-hp air-cooled single-cylinder engine and 900 pounds towing capacity. The 4WD 6x4 is powered by an 18-hp liquid-cooled V-Twin engine and has 1,200 pounds towing ability. Both models have two front wheels and a low center of gravity for better stability, a relocated drive train, and maximum ground speed of 15.5 mph. They feature side-by-side seating with raised seat edges and hip restraints. Heavy duty, all-purpose tires offer improved puncture and wear resistance with deep-lug design.

Circle No. 258

GROUND-TEK
407-877-7473
www.groundtek.com

Utility landscape maintenance machine is perfect for large area coverage, spot spraying and fertilizing golf courses and other green areas. Rear utility tray, made of aluminum, carries five 50-pound bags. The GT ProMan from Ground-Tek, Ocoee, FL, has an adjustable spray gun, letting tech spray hard-to-reach areas without leaving the unit. Ornamental gun is ad-

Circle No. 259

Jacobson, Racine, WI, come in a variety of models for any use. The SV-series utility trucks from Jacobsen, Racine, WI, come in a variety of models for any use. These 4-wheel units come with either a 34-hp gas or 23.5-hp diesel engine. They are capable of handling loads to 2,800 pounds. A hydraulic PTO makes changing attachments easy, and the SV has a standard hydraulic lift. Also check out the 1110 Hauler, which carries up to 1,000 pounds and has rear and side cargo box panels which are removable for oversized loads. The 2315/2015 models are 3-wheel units with ei-
Kawasaki  Mule  250 is lightweight, maneuverable, but carries over 800 lbs.

lightweight and highly maneuverable, the 2500 can handle up to 803 pounds of cargo in its 13.5 cubic-foot tilting bed. All have large, low-pressure, high-flotation balloon tires that are easy on the turf. Every unit has a dual-mode differential that can be unlocked to minimize disturbance to grass. Assembled in Lincoln, NE, all units come with continuously variable belt-drive automatic transmission. The smallest, the 550, will fit into the cargo bed of a pickup for long-distance transport. And, the 2520 Turf model can carry over 1,300 pounds and has a maximum speed of 16 mph.

Circle No. 258

KROMER
800-373-0337
www.kromer-afm.com

The Landscape Machine from Kromer, Mound, MN, is a one-vehicle tool for a multiplicity of jobs. Power options include an 8-hp Kohler Magnum M8S, 9-hp Briggs & Stratton, or 8-hp Honda. The unit's hydrostatic transmission, electric start and full fleet of attachments make it a versatile utility tool at any operation.

Circle No. 259

KOYKER
605-647-2811

Zip along in the Raptor Utility Vehicle from Koyker, Lennox, SD. With a top ground speed of 25 mph, three forward gear ranges, and a powerful engine, the Raptor is able to handle rock hauling, bags of fertilizer or seed, and still make its way over hills without bogging down. Available with stake-sides for the bed area, it has all required operator protection features for safe handling.

Circle No. 260

RANSOMES CUSHMAN RYAN
800-228-4444
www.ransomes.com

The 3-wheel 536 Turf-Truckster from Cushman features a 20-hp Kawasaki 4-cylinder, liquid cooled engine. There are 22- and 27-hp models available. All feature rugged hypoid differential with integrated 2-speed transmission and standard quick-connect hydraulic box make it easy to use this workhorse. Units come with two seats and can be hooked up with optional PTO (standard on the 22-hp 633 model) to work with sprayers, spreaders or other units.

The 4-wheel Turf-Trucksters feature a powerful engine. There are 22- and 27-hp models available. All feature rugged hypoid differential with integrated 2-speed transmission and standard quick-connect hydraulic box make it easy to use this workhorse. Units come with two seats and can be hooked up with optional PTO (standard on the 22-hp 633 model) to work with sprayers, spreaders or other units.

Circle No. 261

TORO
612-888-8801
www.toro.com

The Toro Workman Utility Vehicle provides unparalleled versatility, reliability and durability. It offers 3-wheel maneuverability with 4-wheel safety and stability. It is available in 2-wheel drive or 4-wheel drive, with a gasoline or diesel engine. The Workman is designed for carrying heavy loads and performing unique tasks. More than 30 attachments and accessories are available to customize the Workman for specific needs.

Circle No. 262

Yamaha Golf Car
800-843-3354
www.yamahagolfcar.com

The Yamahauler utility vehicle is designed to be two vehicles in one. By unbolting the sides and tailgate, the Yamahauler can be converted from a box application to a flatbed application. The bed is 4x4 feet, has 13.4 cu ft of space and 1,000 lb capacity. The Yamahauler's elongated steel frame is fortified with channel-ove-tube design, and features a 5-mph front bumper that protects against impact damage. These features, combined with the vehicle's special suspension system enhance its reliability. Powered by Yamaha's 10-hp, four-stroke OHV engine, it is available through a nationwide dealer network.
Gettysburg grounds: a battle on many fronts

By JIM GUYETTE & TERRY McIVER/Contributing Editors

The preservation, restoration and maintenance of Pennsylvania's Gettysburg National Military Park present an epic battle for groundskeeping foreman Danny Greever and his staff. In addition to more traditional landscape-oriented duties, they take care of more than 1,400 statues, plaques and other memorials at the historic 6,000-acre site.

"We have the premier collection of outdoor sculpture in the United States here at Gettysburg," says Greever, noting that the ensemble is valued at more than $300 million.

Managing the Gettysburg grounds is a monumental task in other ways, too: They have to "get the lead out," dodge crowds and cope with the Virginia Worm—all the while keeping a constant lookout for buried treasure. "We have problems here that other landscapers don't," Greever observes. "We have such a high visitation; a million and a half people walk through this area every year."

Cannons, old buttons and the "Worm"

As for the Virginia Worm, it's not an exotic new pest, but rather a type of historic split-rail fencing set in a zig-zag pattern that makes up a portion of the various old time fencing styles requiring constant repair. By the time the crews make a fence repair route through the park it's time to start over again.

The lead to be removed involves the cannons. "We have 385 pieces of artillery on the field, and unfortunately, all 385 pieces have lead paint on them, and we have to remediate that," Greever explains. This ongoing restoration process has run up bills of $1,050 for each of the 43 weapons done so far, and the efforts can require welding and other individual touches to keep these artifacts in 1863 battle condition.

Bullets, buttons and other bits of battlefield remnants still lie just beneath the ground's surface. Thus, every task ranging from stump grinding to trimming, pruning and mowing must be plotted and planned with the primary aim of archaeological preservation. Bruce Craig, a preservation officer, has recently been brought on board to assist in these efforts.

Over the years, much work has been done to preserve the general look of the battlefield areas, but a massive plan is being developed by the park to further restore the site to its actual 1863 appearance:

- Modern day museum buildings and latter-day farm structures are to be moved or demolished, 576 acres of woodlands will be cut down and 115 acres of new woods are to be added.
- Some 40 miles of new old-style fencing are being installed, and 65 acres of planted thickets will be maintained at their 1863 height. The thickets were in the thick of the battle. "This was difficult for the soldiers to move through," notes the park's Katie Lawhon, who adds that 278 acres of woodlands are now to be managed as woodlots. Farmers back then had grazing animals that kept these wooded parcels picked clean of undergrowth—thus giving this element a role in the battle's outcome. "The soldiers were able to move through the woodlots, and they were able to see through them," Lawhon reports.
- Farm forage fields and peach production efforts were also involved in the historic onslaught, as throughout the three-

Danny Greever, groundskeeping foreman says the lead-based paint on the cannons is being removed, one cannon at a time.
The monuments, walkways, roads, skirmish sites and trails all require high maintenance caused by thousands of visitors each year.

Many trees and shrubs on Little Round Top were devastated during the battle.

The Gettysburg park is an American institution in a number of ways, both in regard to the event itself and within a greater context: The Civil War has always held a great attraction to many Americans. In addition to magnifying the political issues of the day, the conflict was a turning point in the conduct of warfare worldwide.

Located 50 miles northwest of Baltimore, the small town of Gettysburg was the site of the largest battle ever waged in the Western Hemisphere, by its end involving 160,000 Americans. The Battle of Gettysburg commenced on a beastly hot July 1, and ceased two days later with the climactic "Pickett's Charge." It resulted in a Union victory for the Army of the Potomac, which turned back an invasion of the North by Gen. Robert E. Lee's Army of Northern Virginia.

During the famed "Pickett's Charge" at Gettysburg, the troops in gray lined up in a mile-wide formation to silently march across a wheat field towards an entrenched Union force. As the Southerners got within range, Union cannons using grapeshot (a shell containing iron balls that blew apart when fired) opened fire, as deadly accurate rifle volleys blasted into the line.

They went no further north

"The high-water mark of the Confederacy occurred right here," Greever points out. "That's as far North as they got: Pickett's Charge." Confederate casualties in dead, wounded, captured or missing were 28,000 out of 75,000 troops on the scene, while Union casualties were 23,000 out of 88,000 soldiers, making it the bloodiest battle of the Civil War.

Volumes thicker than big-city telephone books have been written about the ensuing three days of high-caliber combat, but perhaps the battle is best known for what occurred in its aftermath on a brisk sunny day that following November:

The President of the United States was invited to make "a few appropriate remarks" to commemorate the official dedication of the 17-acre "Soldier's Cemetery," which had earlier been hurriedly designed by landscape architect William Saunders. (It had to be done quickly because rainfall immediately following the battle created a sea of bloated bodies; however, Saunders' master plan is still adhered to by Greever and other park personnel.) Abraham Lincoln spoke for just over two minutes in a speech that became honored as among the most extraordinary ever uttered in American history.

Maintaining a national shrine

Danny Greever has spent his entire 30-year career tending to the Soldier's Cemetery and the surrounding battlefields. "I started here five days after I graduated from high school," he recalls, musing that in those days few young people were attracted to working for the National Park Service — unlike today where these positions are in high demand.
At Gettysburg it’s very much a team effort in making sure that the grounds are properly cared for. Duties intertwine as the staff steps up to maintain battle-related areas such as hills, ridges, fences, roads, lanes, open fields, forests, buildings, high points, stone walls, earthworks, battle artifacts, monuments, vegetation and other aspects of the park.

Greever must keep 26 miles of park roads clear of snow in the winter, along with keeping the many walkways passable. Cabs and plows are attached to John Deere tractors, and snowblowers are put to work. “For the roads, we use road salt mixed with antiskid material—which is stone from a quarry. For the walks, we use calcium chloride,” he notes.

During the Great Blizzard of 1993, front end loaders from Valley Quarries were brought in for $1,000 a day and spotters were used to avoid hitting hidden monuments.

Each year, nearly 5,000 horse and rider teams travel over the park’s bridle trails, and Greever quips that “that’s an area that has its own problems with the amount of horses that go through.” Aside from the sweeping tasks that follow horses wherever they go, the maintenance team fights compaction and hoof-induced erosion with geotextile materials and a trail mix brought in from Thomasville, PA, which creates a horse-friendly surface.

Mowing assignments for the bluegrass and fescue grasses throughout the park are carried out on a pattern basis, with a specific crew assigned exclusively to the Soldier’s Cemetery. “We mow the cemetery twice a week and we trim it once a week,” Greever explains. Three Hustler zero-turn radius mowers are on the job here. “The Hustlers go between all the stones,” Greever says.

Smaller mowers are used for severe slopes and other hard-to-reach spots. “In the rest of the park we have two guys using John Deere tractors with Woods rotary mowers, and we have a four-man trimmer crew that follows them.”

Greever points out that “it takes 10 days to make one complete lap of the park, and at the end of those 10 days it’s time to start over.”

Stihl backpack trimmers are the weapon of choice at Gettysburg. “They’re just great,” Greever opines, lamenting that the company is discontinuing this model. Ever proactive, Greever recalls that when the Stihl news hit, “I spent two days on the phone” trying to track down more.

We found out that there are 11 of them left in the country—and I had some money, so I bought six of the 11.”

**Battle site problems**

Certain areas of the park have specialized programs, such as the breastworks that continually fascinate the visitors. Using limbs, logs and dirt, these were snaking mounds frantically constructed by troops seeking cover from the flying lead.

Nowadays, Greever tries to discourage tourists from climbing on the unique artifacts. “These are historic—they were part of the battle—so we just let the grass grow on them, and once a year we go in and trim them. We try to trim the grass a foot high just to keep people off them.”

Erosion brought about by the tremendous foot traffic is always a struggle, particularly on the turf areas surrounding monuments. “They (tourists) walk up to read the monument,” says Greever, and as a result, blotches of dirt are created in the landscape. The team tried a sheeted bio-ring product in an effort to promote turf growth, but the pressure of all those shoes is just too much for any shoots to take hold.

Not surprisingly, the many species of trees at the park receive top priority treatment. A grove known as “the clump of trees” was a major strategic element of the battle, and arborists are still debating whether these standing specimens are offspring or actual elderly survivors from the conflict. Other trees are those specified by landscape architect William Saunders in his November 1863 plan. Diseases and
pests such as the Gypsy moth have wreaked havoc (they took down 1,000 trees 12 years ago), and “right now we’re having a real problem with the ash trees in the park,” says Greever. “There’s an anthracnose that’s killing them off.”

Keeping the trees properly trimmed is an ongoing program, especially in the “Class A” areas most frequented by tourists. It is important that protect visitors from an errant limb or branch. “We do pruning on a regular basis because we have so much foot traffic in here.” Some of the park’s tree care is done on a contract-bid basis by Pennington Tree Service of Gettysburg.

Lightning rods are an electric issue at the park. “Being up on a hill here, we have a lot of lightening strikes when we have thunder storms,” Greever reveals. The tree-based lightning rod system was recently upgraded with assistance from Pennington and the Massachusetts-based Olmsted Center for Landscape Preservation.

**Monumental upkeep**

Greever has long been involved in keeping the many monuments in top gazing shape, although recently, Vic Gavin has been brought on board to oversee this aspect of the groundskeeping.

The bronze figures are sandblasted to keep the finish in acceptable form. “I use the word sandblasting, but it’s not actually sandblasting,” Greever notes. “We actually blast them with ground walnut shells.” The walnut-spitting equipment is designed for cleaning the insides of jet engines, yet it performs a monumental job in removing corrosion, dirt and traces of a previous wax coating. The bronze is then heated and a beeswax-based material is applied to the metal before it cools. The team takes care not to overheat the bronze or apply too much wax. Once the wax is applied, the excess is removed and the finish hand rubbed. The protective coating will protect the bronze and help repel acids which are prevalent in rain and vehicle exhaust fumes.

The preservation and restoration of the entire Gettysburg National Military Park is an effort that is continually under review. Some of the latest fronts being planned are a comprehensive inventory of all the plant materials and a mapping program based on satellite technology. And Danny Greever continues to apply his considerable skills toward keeping the wide-ranging living memorial in tip-top shape on behalf of the American people: “This is a special place,” he explains. **LM**
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Opryland Hotel Convention Center, Nashville, Tenn. Contact: ALCA (800) 395-ALCA, fax (703) 736-9668 or website: www.alca.org; PGMS (410) 584-9754, fax (410) 584-9756 or website: www.pgms.org; PLCAA (800) 458-3466 or email: plcaa@atlcom.net

**17 Building With Trees Workshop**
Tampa, Fla. Call National Arbor Day Foundation at (402) 474-5655

**17-19 Freshwater Wetland Construction Techniques**
Cook College, Rutgers. Contact Brian Szura at (732) 932-9271

**19 Building With Trees Workshop**
Shreveport, La. Call the National Arbor Day Foundation at (402) 474-5655

**DECEMBER**

**1-3 North Central Turfgrass Exposition**
St. Charles, Ill. Call Illinois Turfgrass Foundation at (312) 201-0101 or fax (312) 201-0214

**7-9 Washington Turf and Landscape Show**
Meydanbauer Center, Bellevue, Wash. Call Perry Tripplett at (253) 925-5638

**7-10 Ohio Turfgrass Conference & Show**
Columbus Convention Center. Call OTF at (614) 760-5442.

**8-9 Annual MVTA Law and Turfgrass Conference and Trade Show**
Columbia, Mo. Call (573) 882-2301, fax (573) 882-1953 or email coffmanj@missouri.edu

**9 Annual Turfgrass and Landscape Institute**
Buena Park, Calif. Call (800) 500-7282

**9-11 Rocky Mountain Regional Turfgrass Conference and Trade Show**
Currigan Hall, Denver, Co.

**15-20 Landscape Lighting Institutes**
Hyatt Resort, Scottsdale, Ariz. Contact Dan Frering at (518) 276-2503, fax (518) 276-2999. **LM**

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Century Rain Aid now offers repair and upgrade service for golf course irrigation control systems with a 48-hour turnaround through an agreement with BoardTronics Inc. Available for all Rain Bird and Toro golf control systems call (888) 855-9132 for more information.

E-Z-Go Textron has become the first golf car and utility vehicle company to receive International Standardization Organization (ISO) 9001 registration. The final audit, conducted in August, subjected the company's operations to a rigorous 20-element inspection.

Fiberstars, manufacturer of fiber optic lighting systems, has four new sales representative organizations for territories in southeastern U.S.: CK Lighting in northeastern Fla. and southeastern Ga.; Elder and Associates in central and southeastern S.C.; Palmetto Lighting in northwestern S.C.; and TEAM which has four divisions throughout N.C. www.fiberstars.com

The Gold Ink awards nominating committee has announced the honoring of Lofts Seed's Palmer's Pride line as among the best printing in North America for 1998. The award is open to all producers and creators of printed materials such as: advertising agencies, catalog publishers and public relations firms.

Lumiere Design and Manufacturing of CA was a winner at the 1998 Lightfair. The Hollywood 1701 metal halide imaging projector won the Design Excellence Award and the Outdoor Lighting Innovator award as well as the Design Journal Adex Award for outdoor lighting. www.lumieredesign.com


Rain Bird sponsored a leadership program for 40 high school students from across the country this past summer. The students, who were nominated by their school principals, were part of the 'Step Up To Leadership' program which teaches creative ways to improve leadership, communication and goal-setting skills.

Vince Newendorp has been named Vermeer's General Manager of the Environmental Division where he will oversee all business functions including engineering, manufacturing and parts. www.vermeer.com

Weather-Matic Landscape and Turf Irrigation has hired Kevin Colesworthy as Southwest Regional Sales Manager, to work with distributors to develop and maintain beneficial relationships with professional irrigation contractors and designers. John Garrison and Chris Lallier are additions to the Purely Professional Source sales team. Garrison's territory will be the Great Lakes region. Lallier's territory covers the south central region which includes south Texas and La. www.weathermatic.com

West Ag Irrigation, Calif., has made two recent changes. The name of the company is now Storm Irrigation, a change that coincides with its recent acquisition of certain assets of Imperial Underground Sprinkler Company, Kan. The manufacturing of electromechanical controllers, brass and plastic control valves and sprinklers with be moved to Calif.

Norm Whitworth, president of Whitworth Turf Products, Ltd., was honored for 25 years as a distributor of Turf-Seed, Inc. Whitworth Turf Products was one of the first distributors for Turf-Seed, when it was founded in 1970. Whitworth is a member of the Northwest Turfgrass Association, Western Washington Golf Course Superintendents Association and the Oregon Golf Course Superintendents Association.

SUPPLIERS CORNER

Cargill Salt offers a free weather forecasting service for its deicing customers. Through a new alliance with Strategic Weather Services, an international firm specializing in long-range forecasting, Cargill will supply the information to its key customers, who purchase all, or the majority, of their deicing salt from Cargill this fall. www.cargillsalt.com

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Weather-Matic Landscape and Turf Irrigation has hired Kevin Colesworthy as Southwest Regional Sales Manager, to work with distributors to develop and maintain beneficial relationships with professional irrigation contractors and designers. John Garrison and Chris Lallier are additions to the Purely Professional Source sales team. Garrison's territory will be the Great Lakes region. Lallier's territory covers the south central region which includes south Texas and La. www.weathermatic.com

West Ag Irrigation, Calif., has made two recent changes. The name of the company is now Storm Irrigation, a change that coincides with its recent acquisition of certain assets of Imperial Underground Sprinkler Company, Kan. The manufacturing of electromechanical controllers, brass and plastic control valves and sprinklers with be moved to Calif.

Norm Whitworth, president of Whitworth Turf Products, Ltd., was honored for 25 years as a distributor of Turf-Seed, Inc. Whitworth Turf Products was one of the first distributors for Turf-Seed, when it was founded in 1970. Whitworth is a member of the Northwest Turfgrass Association, Western Washington Golf Course Superintendents Association and the Oregon Golf Course Superintendents Association.

INFO CENTER

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

Instant turf answers on the web... Turfgrass Producers International (TPI) and the Turf Resource Center offer professionals and consumers information about turfgrass. The site is divided into two components, one offering information about turfgrass selection, establishment, maintenance and environmental concerns and the other featuring information about TPI as a world-wide, not-for-profit association for turfgrass producers. Check out the site at www.TurfgrassSod.com

Turfgrass Research Report... from the Ohio Agricultural Research and Development Center and Ohio State University Extension is a 164-page book with the results of 50 research projects on landscape, golf and sports turf. Topics include disease, insect and weed control, fertility, species, culture and management. The report is free from SCT, OARDC, 1680 Madison Ave., Wooster, Ohio 44691 or call (330) 263-3775 or email ct-oardc@osu.edu
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GoldCote Release Rates
% Released/Days/Soil Temperature

![GoldCote Release Rates Chart]
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Working with you.
For decades, LANDSCAPE MANAGEMENT has been a trusted resource for golf course superintendents, providing outstanding coverage of golf/turf practices and products. I’m delighted to let you know that the publishers of LM are about to launch a new magazine just for you.

In late January, you’ll begin receiving Golfdom, a new magazine that’s customer-designed for today’s busy and business-oriented superintendent.

If you recognize the name Golfdom, you probably remember that it was the Bible of the golf course industry for more than 50 years. Under the leadership of the legendary Herb Graffis, Golfdom was the business journal of golf. The magazine was known for innovative technical coverage, articles written by leading industry experts, great opinion pieces and a strong commitment to the betterment of the industry.

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We’ll cover architecture, construction, renovation and restoration like no other publication. And, we’ll have the best opinions and analysis you’ve ever seen in a golf course magazine. Golfdom will be relevant, compelling, great looking, insightful, fast-paced, hip and even (believe it or not) fun.

I’m honored to help bring Golfdom back to life and to finally give you the magazine you deserve. I’m excited to renew my friendships with the many superintendents, architects and others around the industry I worked with during my nine years on the GCSAA staff, and I look forward to hearing your ideas about the new Golfdom. Just call me at 800-225-4569, ext. 126, or send an e-mail to: patrick.jones@advanstar.com.

Look for Golfdom in your mailbox before the GCSAA show. I think you’re going to like what you find. LM
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www.deere.com
Superintendent Dean Gump is working on a plan to restore the rich heritage of this MacKenzie-designed golf course on Monterey Bay.

By BRIDGET FALBO

The legendary Alister MacKenzie designed a golf course in the Santa Cruz Mountains on Monterey Bay in California. Golf greats Bobby Jones, Ben Hogan and Babe Didrickson played here. So did celebrities like Ty Cobb, Jack Dempsey and Bing Crosby. Built in 1929, Pasatiempo has hosted its share of prestigious tournaments too, like the 1986 U. S. Women’s Amateur Championship.

With that kind of heritage, no wonder Superintendent Dean Gump feels like he’s got his work cut out for him. Not only must he maintain the course in excellent playing condition in spite of about 55,000 rounds annually, but he’s committed to preserving and, in some cases, restoring its rich history.

He’s restoring the bunkers on certain holes to their original design. He and architect Tom Doak are looking back over old photographs to reference their efforts. Luckily, many pictures exist of the early years of the course.

Pasatiempo is a long, narrow course built on 90 acres of rolling hills with eye-catching views of the Monterey Bay. Because it’s so heavily bunkered, players must approach each hole with a plan. Oak and Monterey pine separate the undulating fairways with the 395-yard 16th hole recognized as designer MacKenzie’s favorite par four hole in spite (or maybe because of) its blind drive from the tee.

In describing the narrowness of the fairways, Gump says a course would never be built like this these days because of safety issues. Although not envisioned in the original design, the tree placement helps protect players from errant golf balls crossing into the next fairway. Gump must meet a fine line of trimming, thinning and planting so the trees do not overshadow and block the fairways, but offer protection and beauty for the golfers.

The goal of the renovation project is to restore the course as closely as possible to Alister MacKenzie’s original design. But that’s not going to be easy. While the polite description of Pasatiempo would be “old, classic course,” it’s in constant need of lots of tender loving maintenance.

“With a course of this age we’re to the point of the whole infrastructure starting to break down,” says Gump. “With an older golf course, you’ve got a lot of deterioration going on. For instance, the cart paths are deteriorating and old drains that have been there for years are failing.”

Some major improvements have helped the course cope. For instance, 1989 saw the installation of an irrigation system. More recently, it has been computerized. This was a big step in improving the course, says Gump. It greatly improved the course’s
water management and substantially cut the course's water bill.

Gump is working with architect Doak on a master restoration that will include cart path improvements, more tree removal to open up fairways and greens, and bunkering improvements.

Because the bunkers have changed dramatically in the last 60 years, both in size and shape, renovating them is an ongoing project. Gump recently finished restoring bunkers on the 12th and 13th greens. The next challenge is to rebuild the first tee and restore the bunkers on Holes 1 and 9.

"It takes a lot of hand work," says Gump. The restoration requires ripping up and then relaying sod after the shaper is done, upgrading the drainage and filling the newly positioned bunker with sand.

**Too much water**

Since it is an old course, Gump says one of the main challenges is drainage. The climate of this coastal region provides a long, dry summer, but a very rainy winter season. On average, the course receives 40 inches of rain per year, but in this past year of the El Niño it received 70 inches.

To improve drainage, for the past nine years Gump has been constructing sand channel drainage systems on tees and greens, and is now turning to the fairways. The system consists of a series of nine-inch deep, one-inch wide sand columns in a grid system 24 inches apart. Placed under the sand columns is a high-flow, one-inch drain pipe with slits which captures the water from the sand grid system and carry it away. After a winter deluge, the drainage system pulls the extra water out of the soil and helps the course dry faster.

To handle surface and subsurface water, Gump has installed long curtain drains in low-lying fairways. These drains reach five feet below the surface to intercept the ground water that runs off the hillsides and otherwise would surface on the fairways.

**Keeping turf fit**

The alternating dry summers and rainy winters stress turf grasses and superintendents who are trying to keep a course open 365 days a year, including Christmas. To keep the greens in top performance, Gump says they've changed their philosophy of fertilizing. Instead of spraying all soluble fertilizer, they now incorporate fertilizer with more of an organic base with a diminished soluble spray schedule. Once a month the crew applies Nature Safe, an organic fertilizer with 1/2 lb of N per 1,000 sq. ft., supplementing with light applications of Griggs Brothers soluble spray-on fertilizer.

Since the greens are basically 100 percent annual blue grass, which is susceptible to fungus problems, Gump applies preventive broad-spectrum fungicides throughout the summer for summer patch and other diseases, rotating Heritage, Banner Maxx and Rubigan, with applications every 30 days. He also treats the turf with two applications of Scotts FF2 during the winter to prevent pink snow mold.

**Return of the native**

The past five years have seen another change in philosophy of managing this course in regards to plantings on hillsides and landscape borders. Taking a cue from California landscape designers and environmentalists, Gump and course landscape manager Francine Moody have replaced high maintenance annuals with California native plants in borders, on slopes and around creek beds.

"Annuals are high maintenance, expensive and water-loving," says Moody. "We plant more perennials and evergreens and find we actually have more diversity which lasts year round." When choosing plants, Moody pays attention to plants that would be good for wildlife, something that would produce shelter, nectar or berries.

If treated right the first two years (for example,
not giving them too much water) the plants establish themselves very well, says Moody. As she plants a perennial plant like coffee berry, manzanita or ceanothus, she inserts a fertilizer tab in the ground beside the plant to help get it started in its new home. Care after that consists of fertilizing once or twice a year. Native plants are drought tolerant, and require less watering.

On hillsides which have erosion problems, Moody has been replacing introduced species with ornamental grasses and evergreens. "We try to get away from one solid ground cover," says Moody. "When everything is rooted at the same depth like ice plant, it gets wet in hard rains and pulls and caves in the slope."

**People are a plus**

Moody shares a long employment history (over 20 years) at the course with many other employees. The golf course employs 18 people, with over a third of them working there longer than Superintendent Gump, who joined the course in 1981. Both the mechanic, Ramone Artegea, and Gump's assistant, Juan Artegea, have been at the course for 27 years. "There's a lot of benefits working with a great crew that has a good working background knowledge of the golf course," says Gump. Since the course is open all year, he lays off only one or two people when play slows a bit in the winter season.

The bunkered green for the acclaimed 16th hole, which cannot be seen from the tee, was considered by designer Alister MacKenzie to be one of his favorite holes.

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**MacKenzie, a remarkable ‘doctor’**

Dr. Alister MacKenzie was born in 1870 in Yorkshire, England, and died in 1934 in Santa Cruz, Calif., not far from Pasatiempo Golf Course, one of the last courses he designed. Measured by any standard, he was a remarkable man. MacKenzie studied chemistry, medicine and natural science at Cambridge University and built a promising medical career in England but abandoned it in 1918 to design golf courses. This he did with great success all over the world. Among his greatest achievements are Cypress Point, Royal Melbourne and, of course, Augusta National. His "13 general principles of architecture" are still used by top golf course architects.
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Precision turf management is here!

Researchers at Michigan State University say new diagnostic and monitoring tools will help turfgrass managers match programs to specific sites.

By RON HALL/ Managing Editor

The concept of "precision turf management" has been around for many years, but technology has not been in place to make it a widespread reality. New monitoring and diagnostic tools being embraced by agriculture but adaptable to turf promise to make precision turf management a growing part of the vocabulary of turfgrass managers.

This is significant to turfgrass managers at large sites such as campuses or golf courses because conditions are not the same at each particular area within that site. Conditions, in fact, can vary greatly across a site.

Localized problems

Problems such as drought stress, pests, disease, fertility, compaction and drainage are often site-specific rather than uniformly expressed over a management area. While current practices often treat such problems "wall to wall," the spotty nature of management problems raises questions as to how these varying conditions can or should affect turf management practices.

Surprising variability

To illustrate this point at the Michigan Turfgrass Field Day in late August, Dr. Paul Rieke pulled soil/turf plugs from several different sections of the Robert W. Hancock Turfgrass Research Center at Michigan State University. The plugs, even from sites relatively close together, varied dramatically from a high organic soil (almost a muck) to a compacted subsoil. These wide differences probably aren't unusual. MSU turf students earlier this year visited a golf course near their campus and took soil samples of a single golf hole.

What they discovered was pretty dramatic. They charted clay contents ranging from 5 to 30 percent, organic matter ranges from 2 to 9 percent, and water content and field capacity ranges from 12 to 26 percent. Tests for potassium revealed ranges from 137 to 380 lbs. K per acre, and phosphorus from 27 to 260-plus lbs. P per acre—all on a single hole!

"Is there variability out there?" Rieke asked rhetorically. "Of course there is. The question is, when we have variability what do we do with it?"

Tools will help

Traditionally, said Rieke, turfgrass managers rely on visual inspections and their memory of conditions to manage widely varying conditions under their care. However, this will change as turfgrass managers learn about and begin using more precise diagnostic tools.

"With the technology that we're using in agriculture today we can manage anything anywhere," added Dr. Fran Pierce, also at the Michigan Field Day. "The integration of a number of technologies is making this possible. We can assess and manage variability at levels of detail never before attainable and, if done correctly, at levels of quality never before achieved."

Pierce is a national authority on site-specific precision management in agriculture. He's working with Rieke and Dr. James H. Baird at MSU, to bring some of this knowledge to turf.
New management technologies

 ► Computers. "The hardware is way ahead of us, but the software is a little bit behind right now," said Dr. Fran Pierce. Several companies are working on developing hardware and software to help turf managers adapt precision turf management, he added.

 ► Global positioning systems (GPS) to measure location. "If I'm going to measure variability I have to know where I am all the time and where I took the sample or found the problem," he explained. Using GPS technology, turfgrass managers can pinpoint a location within one meter very inexpensively, and down to a millimeter if they can afford it.

 ► Geographic information systems (GIS), which Pierce described as "powerful spatial data analyzers.

 ► Ground-based sensors.

 ► Aerial infrared imaging. Pierce showed infrared images of the sprawling MSU turf research site. Some of the areas showed up green (healthy, growing), some yellow (turf under stress) and some blue (bare). "We can tell a lot about the condition of the turfgrass remotely," said Pierce.

 Does an entire fairway need the same aeration or fertilization? Or does the entire green need the same topdressing or grooming program? Oftentimes the answer is no.

 Precision turf management involves the precise application of turf management practices to localized soil and turf conditions. While many superintendents practice this now, they'll get increasing help from the growing number of tools that will allow them to assess and manage site specific areas.

Deere buys Player Systems; boosts 'precision' turf idea

John Deere boosted the concept of "Precision Turf Care" by acquiring Player Systems, the manufacturer of SkyLinks, a golf course management technology that uses the Global Positioning System (GPS). Deere made the announcement in late September.

Player System's technology was created four years ago and relies on GPS, a government network of satellites orbiting the earth. Player Systems is composed of two major components: Precision Turf Care and SkyLinks.

By combining its recently acquired GPS capability with personal computers, Deere is developing sprayer systems that apply precise amounts of control products at specific, preprogrammed sites.

Pin-pointing treatments where they're needed

"The accuracy of GPS can be leveraged into precision turf management," Shawn Phillips, Player Systems general manager, tells LANDSCAPE MANAGEMENT. "The great application of that would be precision spraying where a superintendent would go in and write a prescription for the course, or a certain area of the course.

"The superintendent knows where the traditional trouble areas have been, or where he has had troubles and where they show up first; for instance grubs," Phillips adds. "So, when the superintendent sees signs of grubs, instead of having to communicate this to everyone who operates a sprayer, he tells his computer to 'talk' to the sprayer, the very next time it goes out, to spray for grubs at those sites. The equipment does it on location."

Phillips says the technology will give superintendents more control and responsibility over their spraying programs. It will also allow them to more accurately track and record chemical product use.

Deere taking one step at a time

Phillips tells LM that Deere is carefully approaching precision turf technology. "We're taking a look at the existing machine population and adapting it to the new technology," he explains. Most of this new technology centers around the sprayer control modules.

In addition to precision turf care, the Players Systems' SkyLinks should benefit golfers and, also, golf course managers. For instance, a SkyLinks mounted on a golf cart acts as an electronic caddie, conveying information about specific holes, including yardage and playing tips. It can also be used to send messages from clubhouse to cart and vice versa.

SkyLinks will retain its brand name but will fall under the umbrella of the John Deere Commercial and Consumer Equipment Division.
Jasper welcomes the natives’ return

One of Canada’s most beautiful golf courses develops unique programs to nurture its native plants and co-exist with native animals like elk and hungry bears.

By LESLIE JAQUETTE

By LESLIE JAQUETTE

Perry Cooper has just taken his second shot on the first hole of the Jasper Park Lodge Golf Course, which is wedged amongst the Alberta Rockies. As the golf course manager strolls back to the cart, a coyote edges out of the rough and trots across the fairway into the tall grass on the opposite side.

While the coyote’s appearance suggests a Disneyland cue, Cooper explains that the course is now home to a mating pair and their four offspring. “The coyote family is successfully keeping Canada geese numbers down the old-fashioned way,” Cooper confides with a grin. “And it’s easy maintenance to clean up a pile of feathers in the morning.”
Given that the 903-acre Canadian Pacific heritage property rests amidst Canada’s Jasper National Park, Cooper says maintenance of the 18-hole, 1925-built course revolves around the restoration of both native plants and animals. Throughout the last decade, the 40-person crew has made tremendous efforts to meet Parks Canada’s mandate to maintain an ecological integrity that calls for a reintroduction of native plants as well as minimal animal control.

The Canadian golf publication, Score, recently rewarded Cooper and crew’s efforts by naming the Jasper Park Lodge Golf Course Canada’s top golf resort. It was designed by Stanley Thompson. Accolades aside, Cooper says since taking over the manager’s position in 1987, the most dramatic changes on the course focus on eliminating nonnative plants. For example, a decade ago the landscapers grew 110 varieties of nonindigenous plants and flowers in greenhouses to populate some 30 gardens.

**Not so tasty natives**

After years of watching the moose and elk learn to eat every variety, they were reduced to only marigolds and geraniums. “Now snapdragons are the only plant they won’t yank out of the earth and spit back out, leaving big, ugly holes,” says Cooper.

Throughout the restoration of 20 tee boxes since 1993, the JPL crew has replanted using only natural materials such as wild roses and a native shrub, golddrop potentilla, in combination with snapdragons. Most of these planters use a maintenance-free ground cover of beautiful, black, lodgepole pine cones. Cooper buys the pine cones from Smoky Lake Tree Nursery near Edmonton, Alberta.

Along a similar vein, Cooper says his biggest headache is keeping colorful planters high enough to keep away from the dozens of elk that roam freely about the property. Again, trial and error has taught the crew that superpetunias are the only flowers that thrive under the semi-arid conditions (16 inches of rain annually), producing perpetual color with little fuss. Cooper says the superpetunias are worth the extra cost due to their “low” maintenance. “Blossoms last longer than regular petunias, they are thick and lush and the old blooms blow off clean.”

**Get rid of the pit**

Another long-term “back to nature” project Cooper has been working on entails filling in an ancient borrow pit that has been an eyesore since the course opened. The pit serves as a terrible scar and as a breeding ground for all sorts of nonnative plants such as toad flax. Cooper regrets that due to a development freeze in Jasper, it will take at least three years to back fill with clean material, grade and plant. Fortunately, Forestry Canada staff contributed 400 native tree plugs for the site, including buffalo berry, poplar, aspen, fir, spruce and lodgepole pine.

While several areas of restored native grasses have encroached too far onto the fairway, slowed down play and have since been pushed back, Cooper supports a return to plants that belong in the region: “We are constantly evaluating what works and what looks good.”

One of the biggest improvements to the dramatic course in the past decade, says Cooper, re-
Canada geese make themselves at home.

mains promoting the Poa annua on the greens. After decades of watching from 50 to 100 percent of the greens die after every harsh Alberta winter, Cooper and colleagues put solid tarps over the greens. These tarps act as greenhouses heating to 90° F. temperatures that force the Poa to germinate.

The "back to nature" mandate creates even more demanding challenges when applied to critters. Cooper, who is obviously very fond of his family of coyotes, says he welcomes their hunting of elk and smaller mammals.

The crew keeps an eye on both an old black bear and an all-too-friendly moose. The bear thrives on buffalo berries and roams the perimeter of the course. Formerly, the crew used milorganite to fertilize greens until it became apparent that the application appealed to the bears' sensitive noses; the scent of sewage sludge causing the bears to dig holes.

**Protecting the animals**

A major problem is protecting the bear from visitors. Recently, the bear wandered out on hole number 12 to be greeted by awestruck Korean and Japanese golfers. Soon four parties were waiting for the bear to amble on. The problem escalated, Cooper reports, when just two holes later, the same golfers followed the bear into the woods to take pictures. He laments that folks fail to understand that a black bear weighs 500 pounds and runs up to 45 mph. The moose is also a problem because he lets people get close for photos.

Another critter issue revolves around fir beetles. Cooper notes that these, too, are protected by park mandate and cannot simply be eradicated. While the fir beetles represent a big threat to some of the fairways' 300-year-old trees, the beetles are food for several species of birds. "Our only option is to keep the trees as healthy as possible so they can survive an infestation," says Cooper, who notes that some of the big firs survived a fire 100 years ago. "We do that by injecting a slow-release liquid fertilizer into the ground and minimizing foot traffic around tree roots."

Finally, the crew at JPL is proud of how they relocated a growing colony of Richardson's ground squirrels. Cooper notes that the rodents had increased to a critical mass, drilling holes everywhere and creating nasty ankle-turners. Outside national parks, products such as strychnine-laced GopherCop would be used to eradicate the hole diggers. In a national park, using poison is illegal.

Cooper's crew baited live traps with little individual peanut butter containers—the kind found in restaurants. This method worked so well that the crew trapped 57 squirrels in one week. The rodents were relocated to the site of an abandoned colony about 12 miles distant. "Fortunately," says Cooper with a laugh, "it will be pretty tough for them to return from across the Athabasca River."

Leslee Jaquette is a freelance writer in Washington State who frequently covers the green industry.
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Soil prep and conditions within the soil will determine how successfully you get rid of undesirable weeds, grasses, nematodes and insect pests with fumigation.

BY T. J. SWAFORD

Fumigation is one of the tools in a superintendent's arsenal to eliminate competition in the turfgrass from weeds, weed seed, nematodes, disease, pests and any undesirable grasses.

Fumigation is generally labor-intensive but, in some cases, it may be the only way to control some weeds such as torpedo-grass or bermudagrass, or to be certain that contaminants have been cleared from a renovation location.

The ideal fumigant should provide effective control of the problem, have rapid toxic action, be low cost and easy to apply, and be effective to a depth of six to eight inches. With all of these attributes, it should also dissipate relatively quickly so the fumigated area can be regrassed.

Methyl bromide faces phaseout

A year-old U.S. House proposal to delay the phaseout of methyl bromide has, so far, attracted 75 legislative cosponsors.

Methyl bromide is scheduled to be banned from use in the United States in less than three years. Reps. Dan Miller (R-Fla.) and Gary Condit (D-Calif.) in Oct. 1997 introduced H.R. 2609. If passed, it would delay the phaseout of the fumigant widely used in agriculture, structural pest control and turf.

In 1992, the Montreal Protocol listed methyl bromide as an ozone-depleting substance, causing Congress to apply provisions of the Clean Air Act to the chemical and forcing its early phaseout in the U.S. While use of the chemical in the United States is scheduled to end in 2001, other developed nations are not due for a full ban until 2005, and developing nations not until 2015.

H.R. 2609 would delay the phaseout of methyl bromide until all parties of the Montreal Protocol have agreed to and enacted a phaseout. Should a reasonable alternative to the chemical be found before the ban is implemented, then the U.S. EPA may begin again to phase out the chemical, regardless of the Montreal Protocol schedule.

Tractor-applied methyl bromide will prepare this fairway for sprigging of bermudagrass.
Addition of calcium to the soil by traditional means is not usually efficient or effective in treating the calcium deficiency of turfgrass. Once applied, the common forms of liming materials can rapidly change to compounds that are insoluble in water and not readily available to the plant. Continuous applications over long time periods are necessary to effect even modest improvements in calcium uptake.

Quelan-Ca is a newly available amino acid chelated calcium product that corrects calcium deficiencies in turfgrass upon application. Quelan-Ca provides readily available calcium chelated with amino acids so that it is easily absorbed by the leaves and/or the roots of the plant regardless of most soil and water conditions. The unique formulation of amino acids used for chelation was developed not only to facilitate absorption by the leaves and roots, but to increase mobility of the calcium within the plant as well.

Quelan-Ca is normally applied as a foliar spray and may also be applied through fertigation. Either way, it is tank-mix compatible with herbicides, soluble fertilizers, insecticides, fungicides and plant growth regulators. It will even help improve the efficiency of most of these treatments by increasing their absorption and translocation within the plant.

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Agriculture Division
Baltimore, Maryland
Alternatives seeking niches

Several chemistries developed decades ago are gaining renewed interest as turf fumigants. Basamid® Granular Soil Fumigant, manufactured by BASF, is one such product. BASF describes it as an "alternative to liquid and gas fumigants." Basamid (active ingredient, dazomet) is applied with a drop spreader, but like other fumigants it must be applied under certain conditions to be effective.

For instance, the soil must be in seedbed condition and free of clods to a depth of 6 inches. The soil must also be above 50° F for seven days, the duration of the treatment. During this time the soil must be watered (follow specific label directions) daily to activate the product. Rolling and watering will also "seal" the treatment.

BASF claims that Basamid can streamline greens building when it’s properly incorporated into the soil blending process prior to greens construction.

Telone II is a product that was used on thousands of acres of golf courses in South Carolina in the early 1980s, withdrawn from the market for additional testing and is returning to the marketplace. It's now registered for use on sod farms and agricultural areas in Florida and may become available to golf courses. The product is manufactured by Dow AgroSciences.

John Russell, president of Soil Fumigants Co., Inc., Sanford, Fla., says that Telone II is injected into the soil by certified professionals with precision equipment that cuts slits into existing turf and deposits the product below the turf's root zone.

"It does an excellent job against any subterranean insects, and a superb job on mole crickets and nematodes," he said.

well in very wet soils and may escape too quickly in very dry soils. For best results, soil should be moist to a depth of 6 inches at least one week before treatment. Maintain that moisture level until treatment. Fumigants should not be applied to dry soil.

Fumigation, the process

A mechanical application injects methyl bromide into the soil at a depth of 6 to 8 inches. The gas rate is determined by tractor speed and flow meter settings. Immediately behind the gas knives is a roll of 1-mil clear plastic fumigation tarp which is secured to the ground by channeling soil around a series of shovels, which actually 'tuck' the edges of the plastic into the soil. Each panel of plastic is joined together using an industrial adhesive.

The tarp is not actually impervious to the gases but it does reduce the dissipation rate of gases into the air, which both decreases hazards to workers and increases efficacy of the treatment.

The hot gas method is considered useful when treating smaller areas, areas with limited access and golf course renovation and construction where tractor damage would be considered unacceptable. This method requires the installation of a series of tubes and irrigation drip tape, approximately three feet apart, secured with sodding staple. A clear plastic 1.5-mil fumigation tarp is hand-rolled across the area to be treated.

The thicker plastic is easier to handle for installation and seam sealing. The seams are hand-glued, using an industrial adhesive and the edges of the tarp are sealed by piling sod or soils around the entire perimeter. Use a leaf blower to inflate the plastic just prior to fumigant application. The methyl bromide is circulated through a heating system similar to a radiator coil and is released through the drip tape. The desirable rate is determined by weighing the cylinder of gas prior to use, based on the square footage to be treated. The plastic must remain on the site for a minimum of 48 hours or until the gas concentrations are below 5 ppm before it is removed and disposed of properly.

Fumigation rates vary from 0.75 to 1.8 lbs. per 100 ft². Renovations and problem areas of fairways are typically treated at slightly higher rates.

This spot-fumigation, using the hot-gas method, was labor intensive, but targeted patches of off-type turf.

John Russell uses Telone II on existing turf against nematodes, mole crickets, white grubs.

T. J. SWAFORD is vice president of Fumatec in Venus, Fla.
We at Landscape Management and sister publication Lawn Care Industry (later incorporated into LM) hosted a reception to kick off the first Green Industry Expo (GIE) in Nashville in 1990.

We passed out several hundred printed invitations to industry friends, but word got around and more than a thousand “friends” showed up. It turned out to be a great party. Thankfully we had enough food for everybody.

Where did the eight years go?

Do you remember mid-November 1990? Iraq’s Saddam Hussein threatened the world with the “Mother of All Wars” weeks after invading and annexing neighboring Kuwait.

In 1990, a Republican was in the White House, a little-known Democrat (outside of his home state of Arkansas, anyway) was dreaming of leading the United States, and Monica wasn’t even old enough to have a driver’s license yet.

The internet was more of a dream than a reality. E-mail, you say? What’s that?

Eight years ago the first-ever GIE took place in downtown Nashville. It wasn’t one of America’s beauty spots. Today’s Nashville is a much different city, particularly the renovated downtown where cowboy boots and rhinestone-studded jackets are eveningwear.

The GIE this year is not downtown, but at the sprawling Opryland Hotel, a 15 minute drive from downtown. For the first time, members of all three sponsoring associations of the GIE will be staying in a single hotel.

Nashville is a good location for the GIE. It’s within driving distance of thousands of lawn/landscape/grounds pros. There’s plenty to do there too, both at the Opryland and in the city.

Returning to Nashville is going to bring back a lot of memories for me and for the others that attended that first GIE.

It was in Nashville that three related but distinct green industry associations —ALCA, PLCAA and PGMS—demonstrated that they could put aside their differences to build something larger and more valuable than any one of them could alone.

The GIE has endured and grown while each of the three associations has retained its unique focus and independence. LM

Environmental Care promotes Hanson

David L. Hanson was promoted to Senior Vice President of Environmental Care Inc. this past September. He will continue to serve as manager for West Coast Operations for the huge landscape contracting firm which has headquarters in Calabasas, CA. Hanson works out of Environmental Care’s service center in San Jose, CA. Formerly with ChemLawn, he specializes in issues concerning chemical technology and turfgrass science.

Stronger in Pacific Northwest

Aalbu Landscape & Maintenance, Inc., Everett, WA., merged with Evergreen Services Corp., Bellevue, WA, on Oct. 1. “It makes us a strong landscape management contractor throughout the Puget Sound region,” Evergreen’s Rod Bailey told LM. “There are a lot of mutual benefits and advantages to this.” With the merger, Tim Aalbu became vice president and manager of sales and marketing for Evergreen.
Plan your sales strategies for success

Successful sales don't happen by accident. They start when you form a strategy based on knowing why you sell and why your customers buy.

By JUDITH M. GUIDO

ike most things that succeed in life, successful sales strategies begin with planning (the work you never seem to make time for). You can avoid unnecessary disasters and missed opportunities by taking a few moments to organize your thoughts and make a clear, decisive plan.

Don't overcomplicate it, but keep it simple. Remember, the KISS principle never fails!

Plan your planning session

The first step of planning is the interrogative phase. By asking yourself these questions; you'll form a good idea of what you want to accomplish and how you will do it. Begin by asking:

• When is the best time of the year to schedule a planning session? In many organizations, planning comes before budgeting. In others, this type of session has no time frame.

• Who should be involved in the planning process? You already know those people who bring the most to the table in terms of participation. Some people try to avoid getting a room full of "yes-men" by purposely inviting employees representing various responsibilities, operating styles and viewpoints. This can foster real creativity and insight, if the sessions are handled properly.

• Where will the planning session be held? It is always best to get away from the office because employees feel free to concentrate on the matter at hand, rather than their day-to-day responsibilities.

• How long should the planning session last? If you are organized, you can accomplish a lot in one day. Go into the meeting with a clear agenda and time limits for various discussion points. This gives everyone the framework to keep their discussions focused.

• Should we seek outside help to facilitate and coach our planning session? If you feel unskilled at running a planning session like this, you might consider using an expert.

Keep your eye on competitors

While planning a sales strategy is an exercise in internal analysis, don't forget to keep a sharp eye on your competitors. Employees, customers, networking and other sources of information can be invaluable in this. Key areas to watch include:

• Movement of competitors in your market. Did they add new products or services? Did they open a new branch?

• Did they "borrow" some of your customers?

• Are they buying or selling certain materials, franchises, types of equipment?

Your best defense to their movements are to make competitive research and intelligence a regular part of your sales planning strategies.

Get to the point

Once you have set the framework for the sales planning session, narrow in on your major points of discussion. By defining these early, you can provide a better structure and focus to the session:

• What are the most painful problems that need solutions? What elements consistently keep your organization from achieving more success?

• Where and how can we leverage our greatest strengths? Defining your key strengths is a major step; it allows you to understand how to use them to your competitive advantage.

• Do we have a company vision? If so, what have
we done in the last year to get us closer to or further from realizing that vision? Is it time to reconsider or restate your vision?

**Build a healthy dialog**

That wasn't so difficult was it? You're more than halfway to enjoying the sweet taste of success. Once you’ve set your planning session date and assembled your team, be prepared to have some healthy dialog on the following subjects. These are key questions that will help you formulate a clear and successful strategy:

- **Who sells in your organization?** It might seem like a simple question but you'd be surprised at the responses you’ll get. Is your telephone receptionist or crew leader the best sales person in your organization? Is it time to rethink your sales methods?

- **How, exactly, do you sell?** Once you’ve determined who sells, analyze how you sell (formally and informally). All the mailers, advertisements and sales calls in the world won’t help you if your best method of selling is something else. You need to track how various types of sales are made in your organization to determine a future strategy.

- **What type of sales tools are you using?** Do you use collateral material like leave-behinds, brochures or direct mail pieces? Do reports, face-to-face sales presentations or simple cover letters convince your customers best? Review these materials, how they’re used and how persuasive they are in your session.

- **Are you conveying the right message and image?** Are your sales methods and tools consistent with that image? For instance, if you are projecting an image of professionalism yet make very unprofessional sales presentations, you’re not consistent. If you are going after “folksy,” yet show up for a client meeting in a designer dress suit, you’re not consistent. You’re confusing to the customer or potential customer.

- **Are your materials professionally done?** That doesn’t mean you have to use an outside advertising or marketing agency. With today’s software packages (Microsoft Office, Microsoft Publisher, Lotus Suites and Power Point, for example), you can create impressive marketing tools in-house. Professional means that it is a piece you can be proud of, and it is grammatically correct. You’d be surprised by how many misspelled words and the amount of poor grammar you’ll find in sales and marketing pieces. Don’t accept any materials that are second class — if you’re not happy with what you see, fix it!

- **To whom are you selling?** Do you really know who is buying your services? Are your materials and presentations appropriate?

**Get your employees involved**

Few organizations rise and fall because of one person. Rather, most succeed because of the combined efforts of many employees. If you’re not bringing your employees “into the loop” on what your sales goals are, you may be missing out on a tremendous resource of knowledge, ideas and connections.

Once you’ve defined your selling style, your market and your methods, get more employees involved in the process. One way to do that is to ask the following questions either during a sales planning session or at another time during the planning process:

- **Do you have a “wish list” of dollar amounts, numbers of customers, percentage increases, specific market segments or target clients?** Have you written
it down and discussed it with key employees?

Do others in the company know who is on the list? Never underestimate the power of your employees. They may have a friend, neighbor or relative who works at or is well connected to a targeted company.

Post your wish list and ask for comments. By offering some type of reward or incentive for comments, you may discover a wealth of new contacts and leads!

Compensation ABCs

If your sales strategy calls for hiring more people or making your sales more professional, you should investigate ways to attract and keep the best salespeople available. Start by answering these questions:

- How do you compensate your sales people? Do you use salary, commission, bonus, referral fees? Ask other landscape contractors or sales people from inside or outside the industry how they are compensated. National organizations like the Associated Landscape Contractors of America, the Professional Grounds Management Society, the Professional Lawn Care Association of America and other national and regional groups are wonderful sources for this type of information.

- How do you monitor and measure a salesperson’s performance? This is known as sales metrics. I have found that it is always best to have the salesperson plan out his or her path, then sit down with them and jointly view the plan to see if the goals are realistic and attainable. Are they "pie in the sky" goals or are they not aggressive enough? Make sure you are both in agreement with the final plan. This is a productive exercise, as it is cooperative, instead of being "top-down."

- Do you have simple reporting systems to track:
  - Customers contacted
  - Customer retention
  - Closing ratio (number of sales you’ve closed compared to the number of sales calls made).
  - Contract termination date
  - Current lawn care firm, landscape contractor or grounds manager
  - Most profitable customers and why?

This information is important for a number of reasons. It analyzes sales productivity, competition and customer operations.

Know your options

You’ll make better decisions if you have a good understanding of your customers and your budget. Good communication goes both ways and your customers can really help you formulate a better strategy. Ask these questions:

- What have your customers communicated to you in the last year (both the positives, negatives and in-between comments, through formal and informal surveys or means)?
  - Are they looking for new services?
  - Are they being approached by your competition?
  - Are they going through downsizing or experiencing budget cutbacks?

If you’ve answered “yes” to any of these questions, what sales strategies do you have to address these issues?

A golden rule is not to assume that you know your customers’ needs, wants or desires. Save time, money and your mind by asking them. For years, I’ve been preaching that one of the most effective sales strategies is to become an “Askaholic”; it’s a socially acceptable disease.

- Consider your budget. How much money will you need to spend on sales tools? Commonly used tools include:
  - SFA (sales force automation) software
  - Sales training
  - Mailers
  - Brochures
  - Advertising.

Perhaps this is the year to purchase a laptop and find out why they are so popular for the business on the grow (I won’t leave home without it!). Or you may want to try a PDA (Personal Digital Assistant) like the Palm Pilot, which is a complete organizer, database and scheduler.

Know what your desired market is so that you can target it. When you know why your customer buys from you, it is easier to make that sale again in the future.
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If your employees know your key customers and sales goals, they may be able to contribute to the effort through their own work and contacts.

I hope that by now, you're on the web and have email. If not, it is one of the best investments you could make with your sales dollars.

Avoid tunnel vision

We all have a tendency towards tunnel vision. Take time to look outside your company. Study trends both inside and outside the industry. Consolidation is a major factor affecting the landscape industry and how are you prepared to deal with it? How will the current economy or political issues affect you? Are there new technologies that can enhance or hurt your sales?

When all is said and done, prioritize the sales issues and select the critical ones that will have the greatest impact on your business. In order to achieve success, your plan must be realistic and attainable. Don't put too much on your planning plate or you'll experience serious sales indigestion.

If this process seems overwhelming, sit back and take a deep breath, grab your calendar book and mark the date for your sales strategies planning session. The hardest part is getting started.

You'll be pleasantly surprised by the amount of camaraderie and enthusiasm that planning sessions can create.

Prior to ending the planning session, be sure that you've devised tactical plans, assigned responsibilities and set deadlines. Make certain that someone is monitoring and measuring the plan. Finally, remember that your plan should be flexible, as it needs to change with your customers' needs and the business environment. Ah, the sweet tastes of success. Bon Appetit!

Judith M. Guido is Director of Marketing & Sales for LandCare USA, a national comprehensive landscaping and tree company headquartered in Houston, Texas.

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GMC
Do one thing. Do it well.
Nature takes millions of years to produce a landscape; it takes Disney three years.”—Michael Eisner, President and CEO of Disney during Animal Kingdom’s grand opening.

Several dozen of us, excited and wide-eyed, are traveling on a narrow winding trail through the heat and this exotic landscape. We’re bumping and swaying along in an open-sided, 32-passenger safari vehicle. The landscape surrounding the trail is unlike anything most of us have ever experienced. Palms. Trees of implausible, non-Midwestern shapes. Savanna grasses. Termite mounds.

Except for some of the grasses, all are newcomers to this landscape. A few years ago it was pasture and scrub. But, from appearances we couldn’t have known this.

Nor could we have known that the vegetation surrounding the tire-rutted road was laid out in beds by an energetic and voluble landscape architect with a penchant for wearing turquoise jewelry, colorful Hawaiian-style shirts, and khaki bush shorts. Paul Comstock, architect and the lead creative designer, motorcycled over this very trail, and marked the future beds with spray paint as he went.

Africa reborn

This is “Africa” in Disney’s Animal Kingdom, the newest theme park at massive Walt Disney World near Orlando. While this landscape seems ageless, it’s both recent and, using Disney language “imagineered.”

The termite mounds in Africa are man-made. So is the road on which we’re jolting along. Craftsmen purposely “aged” the trail by pressing tire treads and twigs and bits of vegetation into the still-wet concrete. The huge time-worn boulders, where lions lazily stare back at our lurching vehicle, are also themed concrete. The tree stumps along the trail? We learn that they’re really

Disney’s GRAND, GREEN experiment
cleverly disguised animal watering stations. So skillfully is this landscape executed that it allows us visitors to believe (if only for 25 minutes) that this is East African plains land. This experience, known as the Kilimanjaro Safaris, is unlike anything in our neighborhoods.

**A massive job**

Planning for the 500-acre Disney Animal Kingdom (of which "Africa" is about 110 acres) began in 1990. The first of 4.4 million cubic yards of earth were moved here about five years later in August 1995. The theme park opened this past April. Disney Animal Kingdom is the fourth and by far the largest theme park at Walt Disney World.

It's also, by far, the most audaciously landscaped. Landscapes here aren't secondary to attractions; they are the attractions.

Disney Animal Kingdom has three main landscaped areas: the tropical Oasis at the entry; the Cretaceous Forest and magnolia grove in DinoLand U.S.A.; and "Africa" with its the riverine environments, grasslands and Gorilla Falls. "Asia," the final large section of the park, will open in

![Small grass plugs, individually planted to create a savanna as habitat for the African animals. Shown here is Chilean Cortideria Pumila.](image)

- The presence of exotic animals challenges the theme park's landscape experts.
This huge oak was saved from a cattle pasture and replanted in Disney's Animal Kingdom. It is now one of the favorite locations for a family of gorillas.

Comstock, who grew up in a family that operates a large plant nursery in California and, for a while, was a rock musician, joined Walt Disney Imagineering (WDI) in 1989. WDI is the design and development company that conceives and creates all Disney resorts, theme parks, and attractions. Comstock is one of nine WDI landscape architects for the Disney Animal Kingdom project.

WDI team members traveled the world for ideas, inspiration and plant material. Comstock himself traveled to 28 countries. Animal Kingdom has about 100 species of trees and shrubs foreign to North America, including the first tree planted at the site in December 1995, an *Acacia xanthophloea*, grown from a seed that Comstock acquired in Africa.

**Close to home**

But like Dorothy in Oz, the WDI team found that what they needed most was close at hand: imagination and lots of plant material.

The landscaping team, in fact, conserved hundreds of native oak trees and much of the natural native planting, says Comstock. Not that you would recognize much of it at a glance. "We like to use uncommon plants in common ways, and common plants in uncommon ways," he says on more than one occasion to make a point.

"Much of what we're trying has never been tried before, so we've loaded up with the plants. The fittest will survive. I'm sure we'll end up seeing certain plants dominating in certain areas," says Comstock, who seems to revel in the profusion of plants and exotic animals.

For instance, the Disney "Imagineers" planted St. Augustine grass, a common lawn grass in the South, along the top of river banks, and it sent long, hanging tendrils over the banks. They learned they could make live oaks appear to be acacias.

**Each tree selected**

"We cast trees as characters into the landscape, taking into consideration size, shade and accent. Then if you can't use your ideal tree, you look around for somebody who can play that part," explains Bill Evans, the landscape architect that Walt Disney hired to landscape his Holmby Hills (CA) in 1951, and who subsequently became director of Landscape Design at WDI. "It's sort of like an 'understudy'. You keep a large cast of characters at hand."

(Now more than 80 years old, Evans has been involved with developing the landscapes at virtually all Disney locations, including serving as a mentor to Comstock at Animal Kingdom. He "officially" retired in 1975.)

The Disney Imagineering team also bought plant material from nurseries in California, Maryland, Oregon, Texas, Arizona and Florida. In some cases it even rediscovered "foreign" plants in its own backyard, like a forest of giant bamboo that had been growing for decades in the back of a cotton field on a Georgia farm.

**Disney's Animal Kingdom landscape at a glance**

**Location:** On southwest portion of Walt Disney World property near Orlando, FL.

**Size:** 500 acres including 110-acre African forest and grasslands

**Description:** Combines close encounters with live, wild animals of all kinds plus prehistoric dinosaurs and animated stars of Disney classic films.

**Animals:** About 1,000, representing 200 species, most acquired from zoos accredited by the American Zoo and Aquarium Association.

**Plants:** About 4 million, representing 3,000 species, including 40,000 mature trees (16,000 grown at the Walt Disney Tree Farm), 850 species of trees; and 2.5 million shrubs representing 2,000 species; 3,000 cycads (third largest collection in North America); and 260 different types of grasses.

**Landscape maintenance staff:** 45 "crafts" workers and horticultural specialists in the field, supported by 7 managers.
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Dennis Higbie says maintaining Disney's Animal Kingdom requires horticultural specialists.

Taming the 'wild' landscape

A lone gray elephant, silhouetted on a small rise about 200 yards away, uses its trunk to grasp a palm tree. The tree is about 20 feet tall. The elephant shakes the palm back and forth until the palm topples.

Rhinos are trampling the vegetation several hundreds yards away; antelope are feeding on the plants in another area.

"All of the other landscapes that I have been involved with are paint by numbers by comparison," says Dennis Higbie of Disney Animal Kingdom. "This landscape is more like an Oriental carpet. There is order to it, but the order may not be immediately perceived by the general public."

"You almost have to get yourself inside a different body to figure out how you're going to take care of this landscape."

Higbie is General Curator of Botanical Programs for Disney Animal Kingdom. He and his office staff of seven and field staff of 45 maintain the incredibly diverse landscapes at the new theme park. Not only are the trees, shrubs, flowers and grasses within the theme park meant to be viewed and enjoyed by thousands of visitors daily; the largest landscapes (like 110 acres of recreated Africa) provide habitat for exotic animals and, in some cases, food for them too.

"There is such a variety of plants. The diversity is mind boggling," says Higbie.

Contrary to the "natural" appearance of the landscapes, they are in fact intensively maintained.

Not even the rainfall is left to chance. Over seven miles of irrigation main lines and 20 to 30 miles of laterals traverse the landscapes in the theme park. There are moisture sensors in practically every bed. The computerized irrigation system uses Disney World's own recycled water.

Equal care was taken in putting together the horticultural staff at Disney Animal Kingdom. It contains an individual specializing in plants like cycads, and another in orchids along with trained general horticulturists.

Often the horticulturists work evenings under portable lights. In some areas of the theme park it's the only time they can work. This is the case in "Africa" where the large animals are removed from the landscape, fed and bedded down in their own special buildings each evening.

"We have to garden in such a way that the public shouldn't look at the landscape and say, 'Wow! It shouldn't look like it's been tinkered with,'" says Higbie.

That's admittedly a tall order, he admits.

"These are not static systems. They are dynamic systems, and these landscapes will not stay the same. We have to be prepared to learn something new every day."

As for the presence of the large animals in the landscapes, and specifically the elephant ripping out the palm?

"Maybe we won't put the palm tree back there. Maybe we'll have to realize that if that's what the elephants are going to do, we'll give them that," says Higbie.

"If that's OK for Africa, that's OK with us."

—RH

cont. from page 14L

ago the USDA experimented with using the bamboo to protect cotton fields from cold winds.

After buying the bamboo from the farmer, WDI hired contractors to literally jack hammer out the root systems. The plants were then transported by truck and installed in the theme park.

The Kilamanjaro Safaris ride vehicle splashes through this section of the manmade Hippo River before continuing through Disney World's recreated African landscape.

Other specimen trees they found in other not-so-exotic sites, perhaps at a construction site or in a yard.

While it's predictable that Disney's Animal Kingdom will be a big hit with vacationing guests, the theme park's landscape is another matter.

"An unpredictability will take center stage," admits Disney President and CEO Michael Eisner. •
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At its annual outing, Bozzuto Landscaping Co. combines friendly competition with camaraderie and community service.

Over $10,000 in services and landscaping materials are donated for the event, which are used in the landscaping competitions.
MEET KEN SILVERS from Findlay, Ohio, “Flag City USA.” Five years ago, he started his own lawn care business after five years of experience in the industry.

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“I will never be too big or busy to service my customers.” —Ken Silvers
Recruiting and training pay off

Bozzuto's safety record is good, thanks to effective training in every aspect of the job. As of Sept. 1, the company's landscape crew had worked 20 days without a lost time accident.

"We do a ton of safety training, including in-house Spanish training for the company's Hispanic workers," says Tom Davis.

"Our workers comp rates have dropped more than 25 percent in last five years," says Davis. "We attribute that to our training and the tracking. That's why we started the lost day program."

BLC training goes beyond safety, of course. It employs 15 trained horticulturists. "We designed the 'BLC Short Course in Hort' for our guys that don't go the college route," he explains.

When it recruits workers, the company relies on a fruitful college base for many good employees. "We do a lot of college recruiting for supervisory level positions," says Davis. "From management up, we try to establish that we are not interested in people coming here for only a month or two. That's why we recruit out of colleges. It's a good resource for us to fill our vacancies."

Those management-oriented students enter the company as crew supervisors.

"We like to promote managers from within whenever possible. We've done that for the last four years," he explains.

A cash incentive program motivates employees to bring in crewmen and assistant supervisors. "We pay bonuses to line-level guys to bring in other line-level guys," says Davis. "They bring in solid candidates. They're not going to bring in people who are lazy. It's a very good program—we've run it two or three years now."

Davis says the ongoing industry consolidation is exciting, but says it's too early to tell how the Landcare and TruGreen/ChemLawn ventures will pan out.

"I think time will answer that question. Some of the things I imagine will happen are based on the synergies within the companies. Landcare and TruGreen/ChemLawn—to name two—are industry leaders. There are synergies there that will make them all improve," he notes.

Can giant landscaping conglomerates maintain quality equal to each of its members?

"I think they will have to," says Davis. "Everybody's going to be looking at them under the microscope expecting them not to [maintain quality]. I would think that the caliber of companies they acquire would not settle for anything less. It's going to be a real challenge. But I would expect them to figure out how to overcome that."

The battle, says Davis, will be fought on the pricing and service fronts. "My guess is that these larger consolidations can operate on smaller margins. It will be a challenge to compete on a head-to-head level on price. Where we will beat them is on customer service and customer loyalty. We have to be creative; we have to move quickly. A smaller company can make decisions, offer new services and improve customer service a lot quicker than the big guys. And that's where you beat them."
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The 27th Annual Professional Grounds Maintenance Awards contest produced 21 winners from 12 states. Six are Grand Awards. The contest focuses on the level of the grounds maintenance for the sites, and not primarily the landscape design or other visual aspects of the site.

Primary judges for the contest are select members of the Professional Grounds Management; final judges are individuals with significant credentials in grounds-related areas, but who are purposefully not PGMS members.

The Grand and Honor winners will be given their award plaques at the annual PGMS Awards Banquet, this year on Sunday evening, Nov. 15, at the Belle Meade Country Club, in Nashville, TN.

The 1998 winners are:

- **Small Site:** Grand, Twitty Residence, Fairview, TN; Honor, 411 East Wisconsin, Milwaukee, WI
- **Residential Landscape:** Grand, Twitty Residence, Fairview, TN
- **Public Work Site:** Honor, City of Chicago, IL
- **Shopping Area:** Honor, Southridge Mall, Greendale, WI
- **Hospital or Institution:** Honor, Alexian Village of Milwaukee, WI
- **Government Building or Complex:** Grand, Idaho Statehouse & Capitol Mall, Boise
- **Cemetery:** Honor, Houston National Cemetery, Houston, Texas; Honor, Greenwood Cemetery, Knoxville, TN
- **Industrial or Office Park:** Grand, Westfield Companies, Westfield Center, Ohio; Honor, Abbott Park, Abbott Park, IL; Honor, Park Avenue Office Campus, Florham Park, NJ
- **Option-Multiple Sites under Same Management:** Honor, The Patterson Club, Fairfield, CT
- **School or University Grounds:** Grand, Illinois State University, Normal, IL; Honor, Multonomah Bible College & Biblical Seminary, Portland, OR; Honor, Dwight-Englewood School, Englewood, NJ
- **Condominium, Apartment Complex or Planned Community:** Grand, Post Dunwood Apartment Homes, Atlanta; Honor, Leisure World, Silver Spring, MD; Honor, Normandy Village, Wauwatosa, WI; Honor Spruce Edge Town Homes, Mountain Lake, NJ; Honor, Stonegates, Greenville, DE. 

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