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summer**

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Doing business in the green industry this year will be greatly influenced by the cost of materials and availability of good labor.

These issues remain from last year, when readers we surveyed admitted that the 'traditional' labor force no longer exists in the industry.

At that time, we reported that half of all employees were either foreign, female or 65 and up.

Now, whatever the makeup of the 1997-98 green industry workforce, it's just plain harder to fill the ranks. Especially with good workers.

This year we've found that 38 percent of those surveyed credit their success to reliability of their work force. Even ahead of customer renewals or new customers. Affordable wages were named by a scant five percent as being related to success. Pay what you must, just find some good help!

Near full employment doesn't help the dearth of able bodied bodies. And then there's the ones who disappear from sight after six months on the job.

"In our industry, we can't pay them enough to compete with others around here," says Paul Guthrie of Tuscaloosa, AL.

"Some of these contractors are paying \$12 per hour for someone to push a wheelbarrow. In our business, we can't compete."

As far as competition, we're told it's fierce, and not always "fair." Contractors we surveyed were divided over whether or not competition was fair. Either low-balling companies were to blame, or companies stayed away from jobs they knew they'd eventually lose in a bidding war.

Others hold out against low pricing guys, and/or accept the situation as it exists.

"There are companies out there that [price too low to cover cost of materials]," says Jeffrey Sheehan, president of Confidence Landscaping,

Campbell, CA. "They're out of business in a few years. Many of our potential clients, a significant percentage, are just price shopping and they really don't care [about quality], as long as they can get something...There's always a market for the low-price guy."

"You get inexperienced people popping up in our industry, and that drives the price down," says William Canon of Canon Russeau Landscape, Carleton, MI. "We look for customers who know who we are and that we can perform. We look for projects that have limited bid access."

Forty-two percent of landscapers expect revenues to increase in 1997. Twenty-two percent expect revenues to stay the same.

Golf course supers are concerned over the availability of mechanics with know-how.

"We're finding out that an equipment manager is probably more important than an assistant superintendent, just because equipment is so expensive, it's so sophisticated now, you have to have good maintenance for equipment," says Bob Foes of Lake Shore CC, Rochester, NY.

Superintendents are playing it smart in areas they can immediately control, such as safety. Jobs like tree climbing are subbed out. It's also less expensive that way.

On the athletic turf front, budgets continue to be the big penalty managers face. To get the dollars you want, you have to get the people who hold the purse strings, "to look at it from a safety standpoint and an aesthetic standpoint," says Roger Bowman of the University of Delaware.

The green industry is far from being a sleepy-eyed business that just gets by. It's as active as ever, and the challenges are great in every sector.

How are you getting through the current green industry year? To get in touch, call 800/225-4569, x709.

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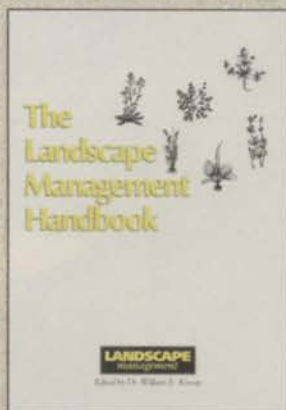
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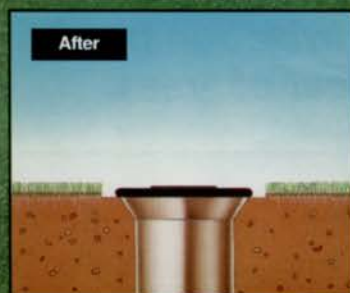
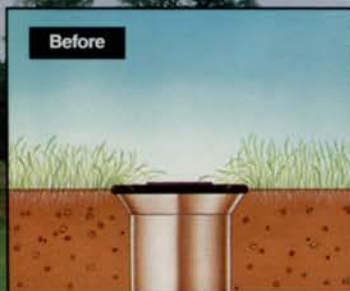


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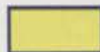
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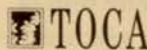
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Balled birch struggles

Q. I allowed a balled river birch to go dry for almost a week before I planted and watered it. It had already budded and less than five percent of the leaves survived. Will this tree find a way to put out new leaves or is it toast?

—WISCONSIN

A. Plants store energy reserves produced during photosynthesis the previous season in the root system. These stored carbohydrates help produce the new root and shoot growth that occurs following transplanting. Depending upon the maintenance practice of the nursery where the river birch was grown, the energy reserves may vary. However, many absorbing roots are cut off during the process of digging and balling/burlapping a tree. Only a few large roots remain with the plant.

In addition to loss of stored carbohydrates, root loss reduces the amount of water absorbed. The resultant water stress has a negative impact on all plant functions including photosynthesis, which further depletes carbohydrates. Water, either too much or too little, is the single most common cause of transplant failure.

However, trees have good recuperative potential, and will often reestablish from the transplant shock. Depending upon the reserve carbohydrates in the root system and available water, your tree may produce new leaves. In doing so it will further deplete the nutrients in the root

system so the tree must produce more carbohydrates to survive. During this recovery period maintain the health of the tree through proper mulching, watering and fertilizing. Water deeply and infrequently. Generally two inches of water per week is sufficient for clay soils while sandier soils may require more water. Be aware that stressed trees will be prone to other insect and disease problems. Monitor for pests and diseases and provide appropriate treatment.

Borer larvae eat pine terminals

Q. In our nursery we found some borer activity on Scotch pines and white pines. Most of the damage is on their terminals. From outside we don't see frass. In most cases there are some small holes right above the end of the discolored damaged terminals. When cut open the terminals had tunnels which are packed with sawdust-like frass. It is on both ends of the terminals. What is the problem? What is the remedy?

—PENNSYLVANIA

A. The pest problem sounds like Eastern pine shoot borer. This pest, since it feeds on the pith of terminals, can cause extensive damage to both Scotch pines and eastern white pines. They can also damage all two and five-needle pines, Douglas fir and white spruce. While feeding, the larvae first tunnel downward along the pith area, and then go upward. In the pith area the frass pellets will be

packed very tightly on either end of terminal tunnels. The frass is not pushed out by the insect. By late June larvae chew oblong or oval holes just above the base of the lower end of the feeding tunnels. Look for the packed frass with red brown bark tissue in the pith area on both tunnel ends. This is characteristic of Eastern pine shoot borer. By contrast, the pine shoot beetle also makes tunnels, but it produces circular holes which may have sap flow but not frass. The European pine shoot moth and Nantucket pine tip moth generally burrow into buds and stems and do not restrict their feeding to the pith. Normally, there will be only one larval feeding per terminal.

The Eastern pine shoot borer overwinter as pupa in duff, and adults emerge around late April or early May when pines break buds. They lay eggs on needles. The eggs hatch into tiny larvae which tunnel into the pith. After feeding, the larvae drop to the ground and overwinter as pupa in cocoons. Generally, by July the infested terminals will be empty. The damage from Eastern pine shoot borer is limited to main terminal leaders and lateral terminals. This deforms and stunts the tree.

Generally, insecticidal treatment is not needed unless more than 10 shoots per tree are damaged with three years of harvest. Shear or selectively remove infested branches to manage this insect. **LM**



BALAKRISHNA RAO

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The Kansas City Aviation Department's recent controlled burn at the Kansas City International Airport should enhance the appearance and health of the native grasses there. The program involves planting and cultivating native grasses, forbs and flowers to foster a natural environment and improve wildlife habitat. Lower maintenance costs and less fertilizer and herbicide use are other benefits.

Taking care to gauge wind speed, airport workers started the controlled burn along the inbound parkway at the airport during off-peak airport times. Air traffic controllers used the airport's three runways to prevent aircraft from taking off and landing in the smoke. Workers used leaf blowers

to "corral" the fire, and keep adjacent "regular" grass from igniting, while water supplies were ready if the fire spread too far.

"Fire has always been a factor determining which plants grow in prairies, and it can control most woody plants and herbaceous weeds," says Jerry Brown, field maintenance superintendent for the Aviation Department.

"At the same time," adds Brown, "[fire] can stimulate desirable plants by reducing competition from cool-season grasses. These grasses use large quantities of soil moisture and nutrients that could be available for native warm-season grasses, which are more productive and moisture-conserving."

Aviation Department Field Maintenance personnel determined that it is likely that the typical method of contending with the grass produces more pollutants than the actual burning. When smoke is produced from grass fires, it is composed mostly of water vapor, carbon, carbon monoxide, carbon dioxide and very small amounts of nitrogen oxides and hydrocarbons. There is little long-term effect on air quality because of the low levels of possible pollutants, says the Department, which suggests that mowing the grass, raking, baling and hauling the bales to storage produces pollution from the internal combustion engines. □



Pest forecast 'decision support' tool released

Pest Forecasting Group Inc. (PFG) of Wilmington, DE/Falls Church, VA, and Data Transmission Network (DTN) of Omaha, NE, have combined to offer PFG's new turf pest forecasting service, PestForeCast, to DTN's subscribers via their satellite information delivery system.

The first of PFG's three new turf management decision-support tools, PestForeCast-Turf Insects, premiered with DTN in June. PestForeCast-Turf Diseases is scheduled to be released this summer, and PestForeCast-Turf Weeds will be available in the spring of 1998.

PFG's PestForeCast-Turf Insects advisory service provides subscribers with a

series of weekly national maps forecasting the likely presence and activity of each of 16 major turf insect pests. Each map represents PFG's estimate of the likelihood that a damaging stage of a particular insect species is present and can be found by scouting at any site in each of the 344 U.S. climate zones.

Using current weather data, degree-day modeling, and insect growth phenologies, PFG employs Geographic Information System technology to color code each zone to show four levels of estimated risk for turf damage and the growth stage of the insect posing that risk. PFG monitors the annual develop-

ment of such well known turf insect pests as chinch bugs, sod webworms, mole crickets, and Japanese beetles, along with lesser known but equally damaging species like masked chafers, black turfgrass ateniens, and cutworms, so turf managers don't have to waste valuable time record keeping and calculating the accumulated degree-days needed to best employ some of today's new environmentally friendly biological or biology-based control materials.

For all industry categories

PestForeCast-Turf Insects can be used by all levels of turfgrass management from innovative IPM strategies on environmentally sensitive highly managed

DowElanco gets go-ahead for Conserve SC

DowElanco's new product, Conserve SC turf and ornamental insect control, has received an accelerated registration for sale in the U.S. under the Environmental Protection Agency's "Reduced Risk" registration program.

Conserve is derived from a naturally occurring organism and offers excellent control of sod webworms, cutworms and army worms, as well as many ornamental insect pests. Conserve, the first turf and ornamental product in the new spinosyn chemical class, combines the efficacy of synthetic insecticides with the benefits of biological insect pest control products. Because of this, Conserve offers numerous features and benefits to lawn care and landscape operators including:

- ▶ excellent efficacy on target insect pests;
- ▶ quick activity. Insect pests exhibit symptoms in minutes and turf and plant-feeding damage ceases immediately.
- ▶ a caution label. Studies on Conserve show very low impact on mammals, the environment, birds and predatory beneficials;
- ▶ a low dose rate. Conserve is highly

active at very low use rates

- ▶ low odor;
- ▶ activity on pests by ingestion and contact exposure;
- ▶ no plant phytotoxicity according to current tests;
- ▶ a unique mode of action which makes it compatible with resistance management and Integrated Pest Management programs.

In addition to providing control of lepidoptera such as Eastern tent caterpillars, gypsy moth larvae and bagworms, Conserve also controls sawflies, thrips and pod gall midges.

"We know Conserve will be a great product for lawn care and landscape operators who are currently battling sod webworms, cutworms and armyworms. This is because, above all of the product's other attributes, it is highly efficacious on these pests," says Mark Urbanowski, new products marketing manager for DowElanco.

"Professionals involved in Experimental Use Permit testing of Conserve in 1996 had great results at very low use rates," says Urbanowski. □

fine turf sites to customer responsive curative treatments at low maintenance lawn care locations. Each map's easily understood graphics can be used by golf course superintendents to alert course personnel to the possibility of insect infestations in their daily scouting activities. The 16 weekly maps can help busy sports and facilities managers to schedule scouting sessions when they are likely to be most productive.

Landscape and lawn care operators can let the service calculate the likely progress of insect infestations while they take care of the pressing needs of running a business. Further, they can use the maps to help their application personnel

master the often complex tasks of deciding if insects are present and if sites need to be scheduled for follow up actions.

PestForeCast-Turf Insects' development is the result of a collaborative effort between the principals of PFG, Christopher Sann and Robert Weinland under the supervision of Ohio State University turfgrass entomologist Dr. David Shetlar.

PestForeCast-Turf Insects is available through DTN's Optional services, and is priced at \$45.00 per quarter. For further information, contact DTN Weather Center at (800) 610-0777. □

Christian's PDC Associates Inc. is "open for business"

Phil Christian is reopening his landscape management consultant business under the name of PDC Associates, Inc. In 1995, Phil entered into a short-term venture with The Davey Tree Expert Company to develop PDC's landscape management software. That concluded, Christian says he's again consulting with landscape management contractors and real estate management companies. He can be reached at (770) 893-2080; e-mail pdc@mind-spring.com.

Environmental buys U.S. Lawns

Environmental Care, Inc., Calabasas, Calif., the largest professional landscape management and horticultural services company, just got larger with its acquisition of U.S. Lawns of Orlando, Fla. U.S. Lawns reports current annual sales of \$8 million through a network of 24 companies in Alabama, Colorado, Florida, Maryland, Pennsylvania, Texas and Connecticut. ECI, a subsidiary of Environmental Industries, Inc., reports annual sales of more than \$90 million. ECI service centers are located in Arizona, California, Colorado, Florida, Georgia, Nevada, North Carolina and Texas.

38 pass Penn State program

Thirty-eight students were awarded certificates from the Golf Course Turfgrass Management Program of Penn State University. Coordinator Heather Treaster says most students enroll in the two-year program with an eye to a career in golf course management. "Our program prepares them for that, in four, eight-week terms," says Treaster. Curriculum includes turf/tree/shrub identification, establishment and maintenance; drainage equipment; irrigation; and insect and disease control. Treaster says up to 80 students apply for the program each year. For more information, call (814) 863-0129.

[CLIPPINGS]

AgrEvo North America realigned its Professional Products Group to include the company's Green Industry Group. The Group is based in Montvale, N.J., as part of the AgrEvo Environmental Health business team, and includes a full line of turf and ornamental products. The new management team includes Curtis Orrben, national sales manager for the Green Industry Group; Jim Widman, national accounts manager for the Professional Products Group; and George Raymond, marketing manager for the Group.

RohMid L.L.C., a joint venture of Rohm and Haas Company and American Cyanamid, has named Fred Belledin and Chris Shaddy to its board of directors. Belledin is sales manager for Rohm and Haas agricultural chemical products in N.A.. Shaddy is the company's new turf and ornamental product manager for N.A.

The **Data Transmission Network** Weather Center this spring sold its 10,000th subscription, to Sand Barrens Golf Club in Swainton, NJ. The DTN service features 48-color Doppler radar maps, updated every 15 minutes, and includes

more than 100 weather maps, including four satellite maps and 20 regional radar maps. DTN is based in Omaha, Neb. Visit DTN's web site at www.dtn.com.

DowElanco initiated the second year of a two-year Experimental Use Permit (EUP) for Conserve SC Turf and Ornamental insect control. Conserve is derived from a naturally-occurring organism and offers control of many insect pests. It will be the first turf and ornamental product in the new spinosyn chemical class. The EUP for Conserve is being operated in the golf, lawn care, landscape, nursery and arborist markets. DowElanco anticipates federal registration by the third quarter of 1997 under the EPA's "Reduced Risk" registration process.

Kubota Engine Division says all current diesel engines it sells in the U.S. market (E-Series engines) comply with EPA Tier 1 Emission Regulations. The regulations go into effect on January 1, 1999, for diesels ranging from 25-50 hp. One year later, the regulations expand to include diesels below 25 hp.

Novartis Turf & Ornamental

Products is expanding its product line into new insecticide markets. Novartis recently purchased Merck & Co.'s global crop protection business. Novartis will sell Merck's Avid miticide/insecticide in ornamental, nursery and landscape markets, and plans to develop new uses and formulations for abamectin, the naturally derived, active ingredient in Avid.

The Scotts Company is building a 450,000 sq.ft. warehouse at its Marysville, Ohio headquarters. Construction began in May on the facility which will house an average monthly inventory of \$15 million in products. Robert Inman, company vice president of distribution, says the added space will consolidate much of the company's central Ohio inventories. "That will, in turn, improve our ability to service our customers," says Inman.

Dr. Charlie Rodgers, turfgrass plant breeder, joined **Seeds West, Inc.**, Roll, Ariz. Dr. Rodgers will work in the company's warm-season turfgrass breeding program with Dr. Arden Baltensperger.

The Toro Company has signed a letter of intent to ac-

quire Exmark manufacturing Company, Inc. Exmark employs about 190 people in a 164,000 sq. ft. facility and projects sales in 1997 of about \$50 million. Steve LaNasa is new national sales manager for Toro's Landscape Contractor Group.

Valent promoted Jeff Cole to manager of marketing services, responsible for monitoring supply and distribution of company products. Anita Dale became senior marketing manager for the Walnut Creek, CA, company, and Sandi Jacobsen product manager for Select and Cobra herbicides.

Rohm and Haas Company received EPA registration for revised labeling on Eagle turf fungicide. The revised label adds over 90 landscape ornamentals on which Eagle may be applied, for control of diseases such as powdery mildew, rust and others. For turf, the label adds instructions for using higher application rates for certain diseases, with correspondingly longer application intervals, up to 28 days. For a specimen label write to Rohm and Haas, Turf/Ornamental Market Manager, 100 Independence Mall West, Philadelphia, PA 19106. (800) 987-0467. Or, via the Internet at <http://www.rohmmaas.com>.

American Cyanamid Company named Ed Gajewski business director, marketing services for the Speciality Products Department. A graduate of the University of Wisconsin, Gajewski has been with the company for more than eight years. **LM**

Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

Retaining wall reference... VERSA-LOK Retaining Wall Systems is pleased to announce the release of a new Specifier's Reference which includes a system overview, application bulletins, details and specifications, technical documentation and more. It's a valuable reference for any architect, landscape architect or engineer involved in designing segmental retaining walls. Call (800) 770-4525.

Industry healthy, but costs rising

Results from LANDSCAPE MANAGEMENT'S 1997 reader survey show that rising costs for both materials and labor are forcing turf and landscape professionals to become more budget conscious than ever before.

On-going issues like pesticide use and government regulations remain, but concerns, such as the need for reliable labor, have come to the forefront as new challenges. The green industry, like about every other industry in the United States, is screaming for honest, reliable labor, but at a price it can afford to pay.

There is also a concern about the growing shortage of skilled and experienced equipment technicians.

The survey was conducted by Readex, Inc., and is based on 574 usable responses from a sample of 1000 recipients, for a 57 percent response rate, in line with accepted standards for representative survey response.

—The editors



More than half of landscapers surveyed by LANDSCAPE MANAGEMENT say cost of materials influenced pricing, and they had experienced trouble finding dependable help.

by SHARON CONNERS/Contributing editor

For landscape contractors, preparing a bid is not as easy as a stroke of the pen. Project cost is a mixture of issues. A LANDSCAPE MANAGEMENT reader survey by Readex Inc., Stillwater, Minn., indicates that 52 percent of landscapers are concerned with the cost of materials while another 27 percent are taking competitor pricing into consideration.

Most landscapers interviewed by LM say that the cost of plant materials have risen the fastest. Materials that are highest in demand are the ones experiencing the highest increase.

"Architects tend to design in a trend towards particular plant materials," says William Canon, president of Canon Russeau Landscape Inc., Carleton, Mich. "Then those plant materials will get in a short supply and that will cause the cost of those materials to shoot up."

"Certain varieties (of plants) that are very high in demand have gone up 10 percent," adds Tim Korte, vice president of operations, The DiSanto Companies, Inc., Cleveland.

According to Korte, ash, pears and locusts increased the most because of lack of availability. Most shrubs were available, but larger, 36-



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STATE OF THE INDUSTRY

inch and up, were quite pricey.

"Certain trees such as Japanese maples are always a hot item, but again it's more of a cost factor because of the

Half of the landscapers surveyed expect their overall prices to increase in 1997.

periods they take to grow," says Garry Ward, owner of Tropical Decor Inc., located in Cincinnati.

Some stone products have risen as much as 30 percent. Equipment costs have increased by about 10 or 15



Richards: efficient supply operations, product applications.

percent as a result of conforming to noise and pollution regulations.

Other materials that incurred price hikes include irri-



Canon: high demand, high cost of plant materials.

gation materials, PVC and wood, and some hardscape products—by a few percent. Insecticides and herbicides have also increased six or seven percent.

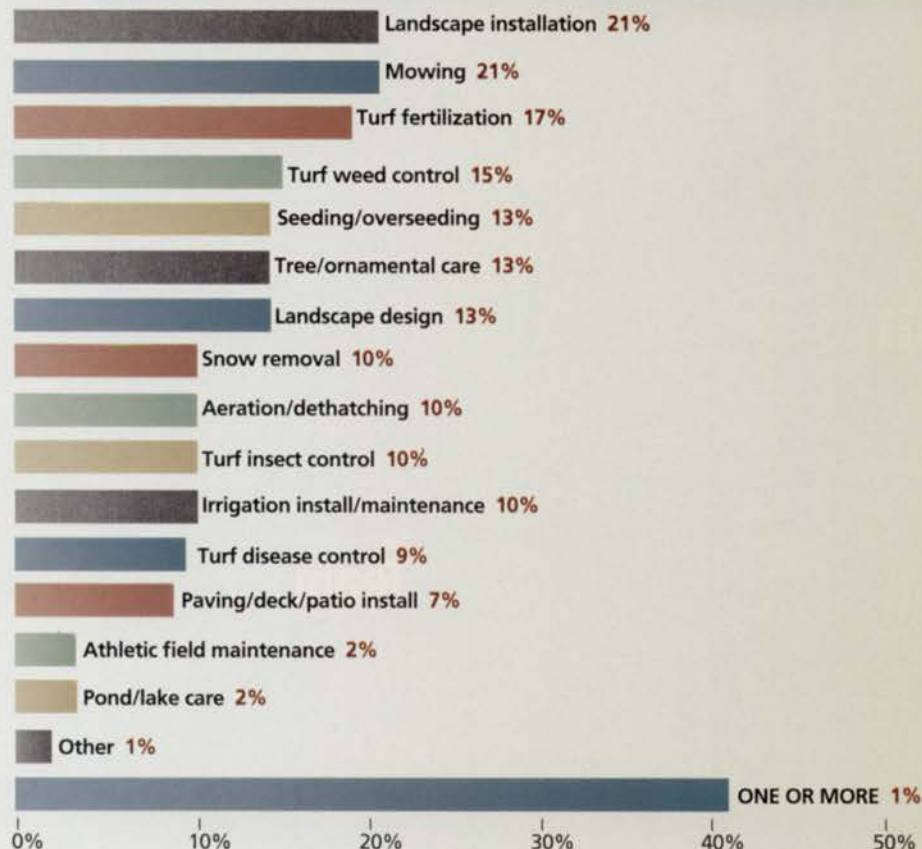
When to pass cost along

Half of the landscapers surveyed expect their overall prices to increase in 1997. They have found that when their prices increase the easiest thing to do is to pass the cost along to the customer. Some were unable to pass cost along to customers due to the competitive nature of their market. In some cases, those that talked to LM were able to offset costs in other areas.

"One of the things that we're doing now so that we don't have to pass anything on to the customer is working with the suppliers to see what we can do to streamline their operations and reduce their costs of processing," states Wayne Richards, principal owner and CEO of Cagwin & Dorward Landscaping Contractors, Novato, Calif.

"Secondly, we're looking in-

LANDSCAPE-RELATED SERVICES ORGANIZATIONS LIKELY TO RAISE PRICES FOR IN 1997



ternally at our usage of those materials and getting more efficient with the applications," says Richards.

Bruce Bachand, vice president & COO, Carol King Landscape Maintenance Inc., Orlando, Fla., stays current with the "how-to" aspect of the business.

"We've tried to stay abreast of the technologies and utilize herbicides for weed control instead of manual weeding," says Bachand, "and we also use bigger mowing equipment where possible and zero turn equipment which is coming out more prevalently in the marketplace and does increase productivity in some cases."

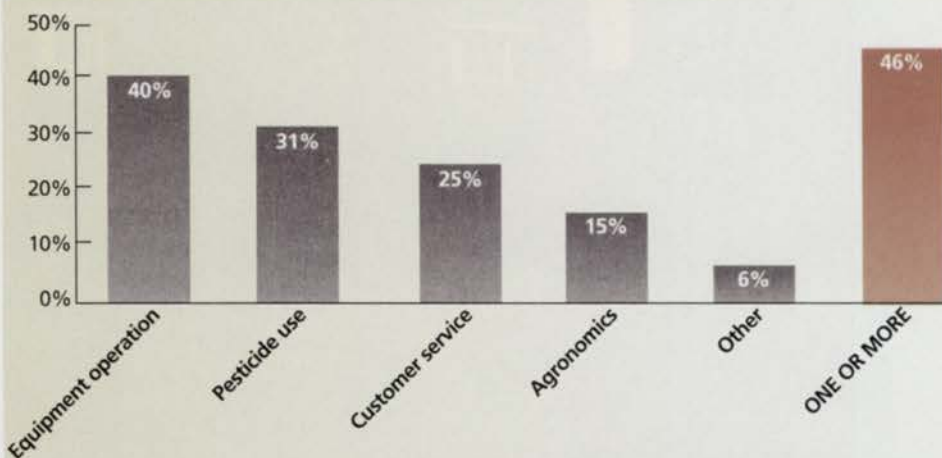
Many markets are made up of hundreds of landscaping



Erbesfield: Hispanic labor most reliable worker group.

companies, but the contractors say they don't compete with all of them. In most cases there are anywhere from six to a dozen that they compete with. They don't consider the "mom and pop" operations competition. But competition continues to grow.

AREAS IN WHICH ORGANIZATIONS OFFERED LANDSCAPE-RELATED TRAINING PROGRAMS



base: 574 LANDSCAPE MANAGEMENT recipients

"This is one of the if not the most competitive market in the United States. When the Olympics came to Atlanta, it brought a lot of competition for us. We had no national companies prior to the Olympics, now we have all of them," says George Morrell, CEO, The Morrell Group, headquartered in Atlanta.

Contractors seemed to be split as far as whether or not competition was fair. The ones that felt it wasn't said it was because of the unprofessional companies out-pricing them. The ones that felt it was fair said they stayed away from open bidding situations and only bid where customers knew them.

Because of the newly-built Mercedes plant the area around Tuscaloosa/Birmingham area is growing like crazy. There's a lot more competition, and most of it is poor competition.

"There's one other contractor, probably two, in the

Tuscaloosa/Birmingham area that price like I do and the rest drop the bottom out every bid. I've got a chance when I bid against those two fellas, but anybody else I don't even have a prayer," explains Paul Guthrie, owner of Guthrie Landscape, Tuscaloosa, Ala.

"There's so much work in our area, that contractors are working tremendous hours just trying to keep up," exclaims Guthrie "Everybody has gotten greedy after many lean years. We're still main-



Morrell: everybody's in Atlanta thanks to Olympics.

The ones that felt competition was not fair said it was because of the unprofessional companies out-pricing them.

taining quality. Instead of working 10 hours we're working 15 hours," according to Jeffrey Sheehan, president of Confidence Landscaping Inc., Campbell, Calif.



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Recruitment tips

Sometimes recruiting help is not just as easy as placing a newspaper ad.

"If we're looking for a more experienced job title worker, we'll go to the paper and run ads and conduct interviews. If we're looking for just general labor, we have a sign that we put out in front of our office or referrals," comments Sam Benson, vice president of Southeastern Landscape Inc., Huntsville, Ala.

Tim Korte, vice president of operations of The DiSantos Cos. Inc., says, "We found the best recruitment is through our own people. . . We've had no luck at all with newspaper ads. We also go through various college programs—both at Ohio State and the Agricultural Technical Institute in Wooster."

Bruce Wilson, president of Environmental Care Inc., Calabasas, Calif., says, "This year the competition has gotten pretty stiff for employees and the unemployment rate is fairly low so we've gone to more national advertising in trade magazines and 800 numbers for telephone interviews."

Nick Dennis, owner of Pro Lawn Plus, Jacksonville, Fla., explains, "We have even gone so far as to go out of state with national magazines and then pay for their expenses to move down here. We've had them get into Florida and they take off. Twice that's happened to me."



Wilson: national ads, toll-free calls for job applicants.

Digging for help

Fifty-five percent of those surveyed said that their organizations experienced difficulty in finding dependable workers over the past two years. Many seemed to be in agreement as far as what made a worker reliable. Honesty and trust were high on the list. Other characteristics included dependability, work

interest and pride. Many were looking for a worker who has experience, no police offenses, and a decent driving record. At the technician level they look for someone who has technical abilities.

Mark Erbesfield, owner of Greenmark Landscaping, Atlanta, has an almost 100 percent Hispanic workforce. "I got completely tired of the unreliability of the worker force that I was dealing with. We could not get any of the locals to show up. If we did they were not sober or clean."

One Fairfield, Ohio, landscaper offers a headhunter reward for employees. If a new employee lasts 60 days, the person who brought him in gets \$50.

The ways of recruiting new help varied from company to company, but one consistency stood out in most cases. The best workers were the ones that were recruited by existing employees or word of mouth. Most agreed that the newspaper is the worst and least productive way to find employees. Some have found other methods that work such as university job fairs, participating in local schools on advisory councils and supporting institutions that are training future employees. Another source is the state unemployment office.

Mike Glowacki, owner of Albert Glowacki Landscape,

Nantucket, MA, is in a unique situation because of his island location. "We have to recruit people from other areas and bring them here. There is no labor force where we are. We scout around, beat the bushes, go to colleges, tech schools and resort areas during seasonal changes," says Glowacki.

Frequently landscapers will call people back for a second and sometimes third or fourth interviews. Many spend at least an hour in the interview process. Most seemed to have a probation period whether it

was two weeks or 90 days.

Most actively search for career employees.

"That's why the company goes to the colleges to recruit. We've got a really good shot at having a really good quality employee as opposed to somebody who just wants to work outside as a summer job," says Korte.

Landscape contractors hire about two to three workers per year. Those companies that are in cooler climates with harsh winters hire anywhere from 5 to 40 summer employees.

Room for growth

Many companies try to promote from within. Train-

ing programs and opportunities for advancement are often times part of employment. Help with continuing education and time off from work to attend class is often an option. Richards says the current president of his company started out as a gardener and is now his partner.

However, most workers don't stay more than six months. "In our industry we can't pay them enough to compete with others around here. Some of these contractors are paying \$12 per hour for someone to push a wheelbarrow. In our business we can't compete," states Guthrie, who

points to an average labor cost in his region of \$7 to \$8 per hour as the ceiling rate.

Customers pay the price of increases

Many contractors are passing the cost of materials on to customers.

"If the cost goes up, the price goes up. . . We're in a pretty tight competitive business and there isn't a lot of room for absorbing cost," according to William Canon, president of Canon Russeau Landscape Inc., Carleton, MI.

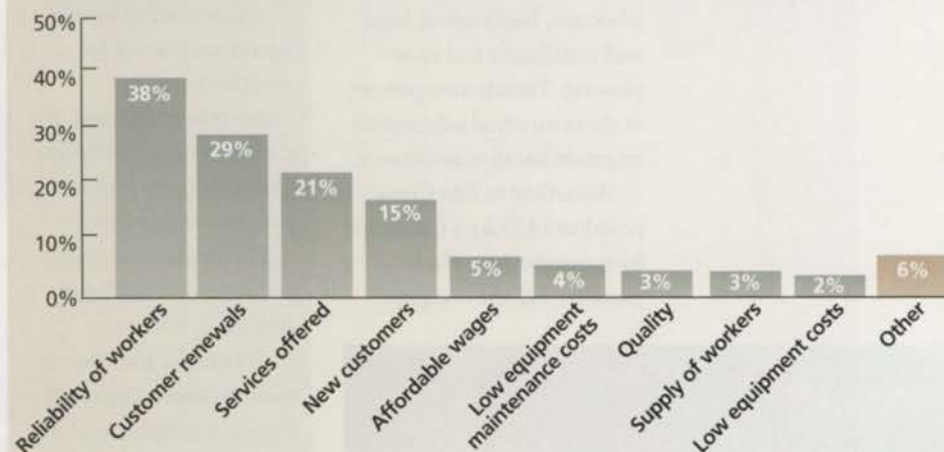
Fred Anderson, owner, Anderson Landscape Const. Inc., Lancaster, MA, says, "You can find other vendors that might get (material) for less money. You can pay for the material up front that saves money.

Nick Dennis, owner of Pro Lawn Plus, Jacksonville, FL, says, "From just cancelling the alarm service to just canceling the cable and weather. I've nickled and dimed this place just so we don't have to increase the cost on to the consumer.

Bruce Bachand, vice president and chief operating officer of Carol King Landscape Maintenance Inc., Orlando, FL, commented, "We've cut costs by trying to be more efficient in how we route our maintenance division and in our equipment purchasing practices.

Garry Ward, owner of Tropical Decor Inc., Cincinnati, OH, says, "You don't want to cut salaries on your employees because if you want quality employees you've gotta pay the employees. You've gotta give them benefits.

AREAS MOST RELATED TO SUCCESS OF ORGANIZATIONS' OPERATION



base: 265 landscape service providers

"To keep people punctual and reliable we have a monthly bonus program," says Bachand. "We also have an employee-of-the-month award in each division."

He says there is a downside to the makeup of the green industry culture.

"The pressures of our industry still do not lend to a good career. Many of the companies work very long hours

Twenty-two percent of landscapers surveyed subcontract irrigation installation and maintenance.

and pay low wages."

Branching out

Most landscapers that LM interviewed describe themselves as full-service. They provide services like design/build, installation, property management, snow plowing and de-icing.

Some of them subcontract

STATE OF THE INDUSTRY

services such as landscape maintenance and irrigation, arborcare, hardscaping, large wall installation and snowplowing. Twenty-two percent of those surveyed subcontract irrigation install/maintenance.

According to Eric Cross, president of Duke's Landscape Management Inc., Hacktstown, NJ, the company



Cross: subcontracts tree work, snow removable to avoid large investment in equipment, training.

subcontracts a small amount for snow and for major tree care work.

"It wouldn't be feasible for me to buy 20 front-end loaders so it's really out of necessity. To have an experienced climber and invest in a bucket



Drake: an 'awesome' year.

Subcontracting services

Subcontracting services is common practice for some landscapers.

Joe Drake, president, JFD Landscapes Inc., Bainbridge Township/Auburn, Ohio, says, "We're capable of doing everything in house, but we're pretty jammed with work."

Mike Rorie, president of Groundmasters, Cincinnati, states the company subcontracts, "Typically because it's a specialty area. Something that we don't feel that we can either do a volume in or do well."

Sally Griffin, human resources manager, Gibbs Landscape, CO, Smyrna, Ga., says the company subcontracts irrigations and fertilization of the lawns. "Those people are experts in those areas. Irrigation is just not something that we specialize in."

Gary Kinman, president, Kinman Associates Inc., Plain City, Ohio, says "We sub out the big heavy equipment like a big dozer that might cost \$150,000 because we don't have to work with it all the time. We sub out for specific uses with more expensive equipment and unique situations."



Kinman: sub out the big jobs.

truck wouldn't be feasible," says Cross.

Brighter days

Revenues are expected to increase in 1997 for 42 percent of those surveyed by LM, 22 percent expect them to stay the same and three percent expect a decrease.

Joe Drake, president of JFD Landscapes Inc., Bainbridge/Auburn Township, Ohio, feels that 1997 will be an awesome year.

"The backlog that we have is probably the biggest that we've ever had. There's a number of factors. This is our eighth full season of business.

We finally established a reputable reputation. I don't even have time to chase all the leads coming in."

Dave Rykbost, president and owner of Dave's Landscape Co., Hudson, Mass., says, "We're swamped pretty much as always in the spring. It'll be a good year landscaping-wise. It was a terrible year for snowplowing. We're very busy and I expect it to be a good year."

Landscapers rely on good weather, but whether or not some landscaping businesses thrive in 1997 is just as unpredictable as that next rainstorm.

STATE OF THE INDUSTRY

Edging the competition

Company acquisitions and tough markets are keeping lawn care companies from raising their prices and passing cost to the consumer.

by SHARON CONNERS/Contributing Editor

In some cases material costs have increased as much as 100 percent over the previous year, but contractors' hands are tied. They are having to absorb those costs. The industry has grown more cut-throat as acquisitions take place causing contractors to think twice before passing cost along to customers, which could hurt their business.

Only 21 percent of those surveyed for Landscape Management by Readex Inc., Stillwater, Minn., say they will increase mowing prices in 1997. Seventeen percent say they will increase fertilization prices. Competitor pricing af-

fecting 27 percent of the companies' pricing structure.

"One of the big concerns that I have as a fairly small company is the acquisitions and buyouts that have taken place in recent years. I'm not really sure where that will take the industry," says Craig Martin, vp of Greener Lawn Care, Cumberland, Md.

Jack Robertson, owner of Robertson Lawn Care, Springfield, Ill., explains, "A small company has to do what it can to make a profit. A larger company that has significant funds behind it can actually put pressure on the smaller companies because of that. They can control prices more



Pool: spot apps to cut costs.

than a small company can."

Sam Lang, owner and president, Fairway Green Inc., Raleigh, NC, says, "Unfortunately, in a market like Raleigh there's been some acquisitions made by the bigger companies. As we get into more intense competitive mode, we see the price soften some with the larger companies trying to buy a piece of the market."

"It's very difficult to compete with the competition," says Gene Pool, vice president of Emerald Green Lawn Care, Van Wert, Ohio.

"As it is now, we use a quality product which means we're already higher than our



Lang: prices soft with big guns.

competition. If we passed a 14 percent increase along to our customers, the cancellation rate would just be exorbitant. Right now, we're just trying to bite the bullet and make changes in the program as the year goes on. Hopefully we can just run spot insecticide on an as-needed basis and hope to recoup some costs. We have down-sized a little on labor and tried to get more out of what people we have."

Mixing cost and customers

Most told LM that their costs have gone up 2 to 4 percent on fertilizer, seed and weed control products. However, some have seen increases as high as 100 percent, for ex-



Munie: work harder in the interviewing process, make effort to find the best workers.

At least she insists

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If it doesn't say Dursban, it's not.

STATE OF THE INDUSTRY

ample, on seed. Fertilizer has increased as much as 14 percent. Many are absorbing those price increases.

"I don't see that we can really pass on more than 3 to 4 percent to the client. Contracts are set for the year. Therefore, if we see any cost increases, we've got to internalize it and make up the difference on our margins," according to John Debell Jr., president of Clippers Inc., Chantilly, Va.

"If you start cutting costs, the perception that you give is you're cutting services or scrimping on product," adds John Buechner, director of technical services, Lawn Doctor Inc., Marlboro, NJ.

Jon Cundiff, president of

21 percent of lawn care companies surveyed say they will increase mowing prices.

Turf's Up Lawn Service, Lee's Summit, MO, says, "part of the increase in price comes from the latest technology and the latest products that give us better results. By doing that we are able to get them better results and better service, which enables us to justify the slight increase."

Worker woes

Not unlike other areas of the green industry, lawn care employers are having a hard time finding employees.

Nineteen percent of those employers surveyed said it was due to lack of a readily-available supply of labor.



"The pool of available workers has shrunk to nothing. It's extremely difficult to get good people," says Lang. "When you get them you have to pay them more and give

them better benefits."

Joe Munie, president of Munie Outdoor Services, Belleville, Ill., says, "we've had a tough time finding the right people. One of things we're doing is working harder on interviewing and taking more time and effort trying to find those people."

Adds Nick Dennis, Pro-Lawn Plus, Jacksonville, Fla., "we had a good year hiring this year. We kept most of our people. But we hired two extra people this year just to make sure that we had backups."

Buechner of Lawn Doctor suggested hiring more people

on a part-time basis or fewer people, but paying more money—hoping to attract a more reliable employee.

In his 17th year of business, Pool said, "Now, if you hire someone 18 to 25, it's my experience that they want to walk in the door and make more money than I do and

late 40s early 50s. They walk in the door with a benefit package," says Pool.

Lang says, "We have benefit packages that only much larger companies could afford to offer. We're having to do those things to attract employees and keep them. In the summer when it's so hot, we shut down at noon on Friday."

This year lawn care contractors will be searching for that special formula to combat overgrown competition they face when it comes to hiring and pricing. Trimming back some of their services or applying good marketing techniques might help them stay in business.

Buechner adds, "it's the age-old struggle, you have low price and poor service. Or, you try to provide good service at a competitive price. Hopefully the marketplace makes a decision to buy quality, not price."



Dennis: hires back-up help.

want to have as much authority and power as I do. My philosophy is not to hire anyone under 30. I'm having excellent luck with finding people that work for factories taking early retirements or buyouts in their

Golf course equipment care a growing concern

Golf course superintendents are becoming increasingly aware of the importance of equipment managers and mechanics. Equipment operation is so important that 40 percent of those surveyed for LANDSCAPE MANAGEMENT by Readex Inc., Stillwater, Minn., said they run equipment training programs.

"It's very difficult to find good people who are trained in the green industry as mechanics. Good mechanics are not hard to come by, but good mechanics that are trained in the golf course business are very hard to come by.

Typically when they find a job, their superintendents pay them well enough that they don't want to leave where they are," says Steve Cook, CGCS, Golf Course Manager, Oakland Hills Country Club, Bloomfield Hills, Mich.

"We need mechanics in the industry and technicians as much as people with degrees trying to get superintendent's jobs," says W.P. Montague, MG, CGCS, superintendent, Oakwood Club, Cleveland Hts., Ohio.

Bob Foos, superintendent of Lake Shore Country Club, Rochester, NY replies, "At our club we're real big on educa-

With good golf equipment mechanics in short supply, rough turf may be ahead for golf course superintendents.

by SHARON CONNERS/Contributing Editor

tion so any time we can send somebody away to a seminar or a school we like to do that. We're finding out that an equipment manager is probably more important than an assistant superintendent just because equipment is so expensive, it's so sophisticated now, you have to have good maintenance for equipment."

According to Dave Radaj, superintendent of Wokanda Club, Des Moines, Iowa, "The majority of the mechanics I see are coming from other parts of the industry. Our mechanic came from working on farm equipment. . . . The biggest asset to the mechanics are the manufacturer schools for their education."



STATE OF THE INDUSTRY

Although most say their equipment is maintained on site, occasionally it is sent out for repairs such as grinding.

Drive for support

Some superintendents speaking to LM are dissatisfied with manufacturer/distributor support.

"The people that sell the (equipment) are weak in technical support or in support after you buy something. They spend more money at selling something than making sure it's right after they sell it," says Dan Williams, golf course superintendent of Riverview Country Club, Appleton, Wisc.

"Parts availability is really getting tough. Nobody stocks the parts that we used to be able to get pretty quickly a couple years ago. We've got a cart sitting on the hoist right now that's been here almost two weeks."

In contrast Radaj says, "There's probably three or four major players as far as equipment goes and they're all fighting for our business. They all have good equipment. They know that service will make the difference. For the amount of money that you spend on most of the equipment they should do what you need to have the equipment work right. I've found that all of them that I've worked with will bend over backwards to get the job done right."

No putts about safety

Many golf courses subcontract tree planting and large landscape projects like railroad tie walls. Some subcontract pruning and spring prep on ornamental beds. The top reasons for subcontracting are safety and cost.

Corey Eastwood, CGCS, Stockdale Country Club, Bakersfield, Calif., says, "I don't



Superintendents such as Daryl Decker, CGCS, of Arrowhead CC in Canton, Ohio, help out in a pinch, but they still need good help.

want my guys up in a high lift or climbing trees. It's a combination of expertise and safety. The workman's comp rate on a tree man is pretty high. He would have to have a helper. So we contract out between

\$15,000 and \$25,000 a year to a tree service."

Mark Wilson, CGCS, Valhalla Golf Club, Louisville, Ky., says, "You don't have the expense of gearing yourself up with some of the equipment that these (contractors) use. Usually you're getting an operator that uses this equipment every day."

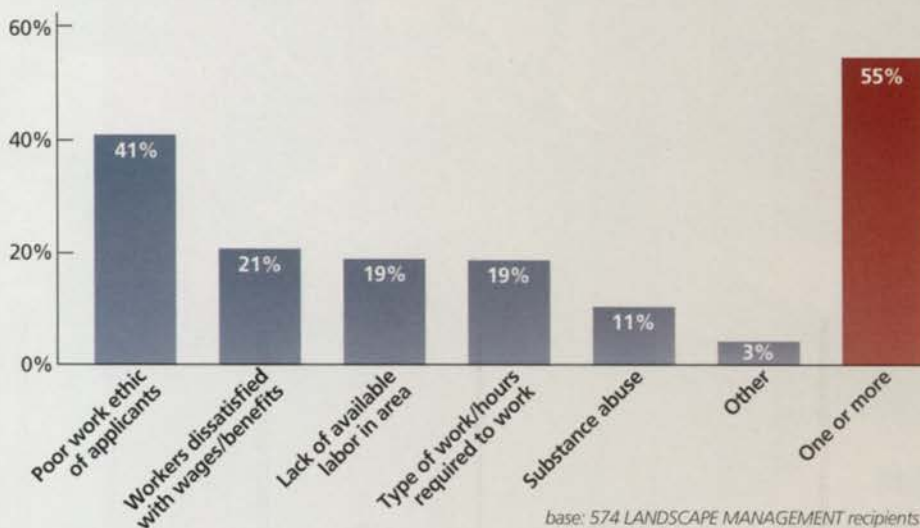
Teed off with wages

Trouble finding good help was a complaint for more than half of those surveyed by LM. Twenty-one percent say it is because workers are dissatisfied with wages and benefits.

Williams says its a problem finding reliable workers. "As the market's dried up, it's so competitive. It's not just wages that's the issue, it's benefits that go with it." Beginning pay is \$6 or \$7 an hour.

Montague says, "In our job market they would rather go

REASONS FOR EXPERIENCING DIFFICULTY IN FINDING DEPENDABLE WORKERS



work for McDonald's and Wendy's where they can work their own hours and be around their friends and not have to deal with [the weather] like we do outdoors."

In contrast, Wilson doesn't find getting reliable workers hard. "I created a system of working a lot of college interns whereas they want to get a career in turf management. The other reason is, I got a pretty strong full-time staff. Also, my third group of people is retirees that have been returning every year."

When asked what their secret to success was, most credited their employees. It's also a matter of managing their time. Radaj says it's important to make sure that employees know what they're supposed to do. "To know what's going on you have to be out on the course a lot during the day," says Radaj.

Budgets are fair

On average superintendents received a three to four



With near full-employment, the need to find workers who take direction well and follow through on the job is especially great.

percent cost-of-living budget increase. They seemed to be content with that.

Eastwood has the same budget as last year. "It's never enough. But, we can work with that to the satisfaction of most members."

LM's survey revealed labor costs accounted for 41 percent of total operating budgets. "The biggest part of any budget is the labor and that is the hardest part to control," says Radaj.

Wilson says he has less

money to work with than last year. "Last year, we hosted a major championship, but we also had a new clubhouse and a lot of construction. We're

different from the average course in several ways.

"A high-caliber golf course is much more artistic, as far as in the maintenance. It's really not

LM's survey revealed labor costs accounted for 41 percent of total operating budgets.

doing less major projects and doing more just maintenance." Wilson feels that Valhalla is

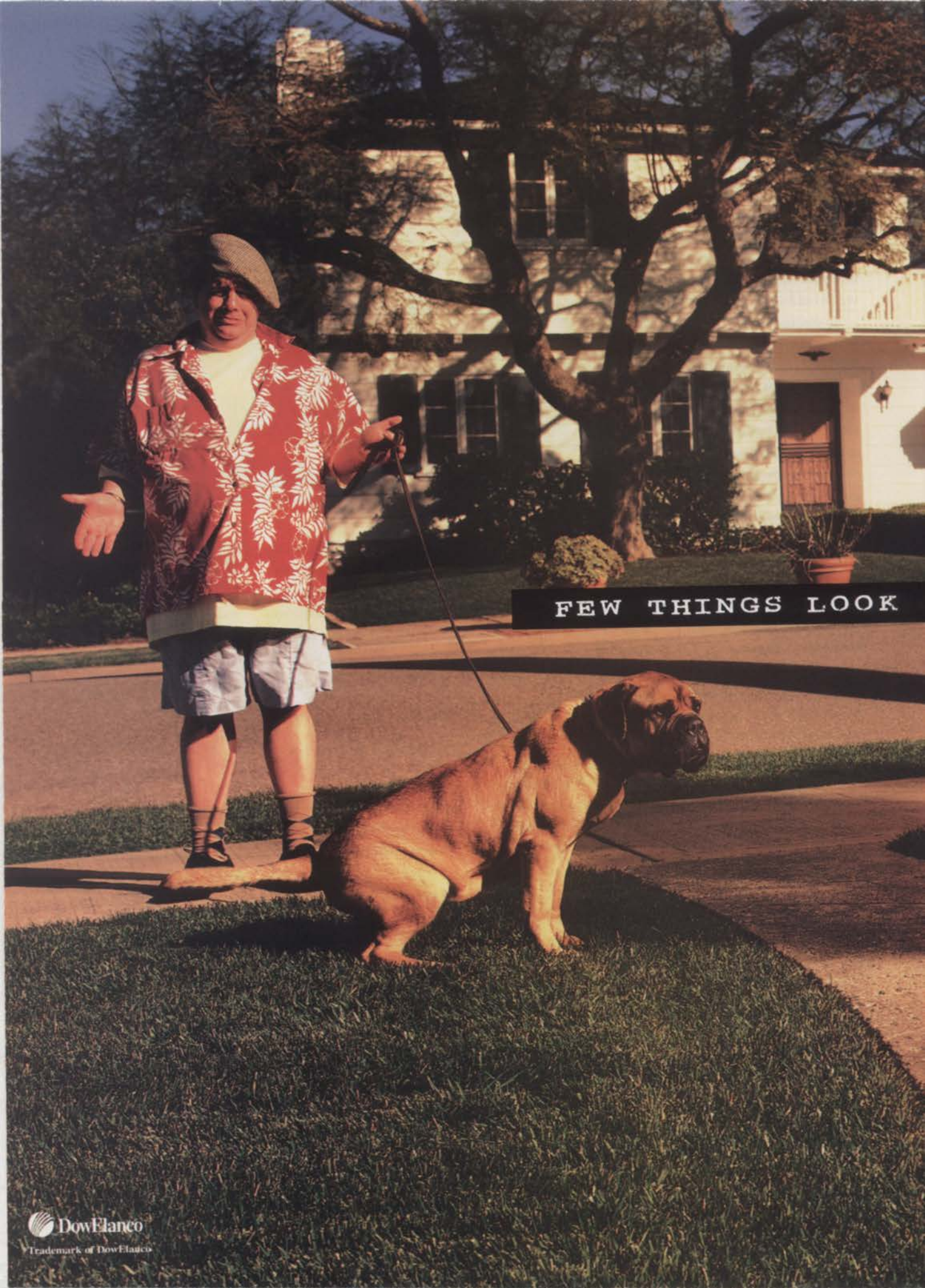
a job, it's more a compassion, a competitive nature, to be good.

"The average golf course doesn't get the support from the committees they're involved with or the financial backing to be competitive. It's in major sports where you have general management that backs it," says Wilson.

With budgets finally up to par with what they need to be, superintendents will likely be spending more time trying to find good mechanics. Who knows there could be a good mechanic out there who is training right now to be a superintendent.



Equipment care is especially crucial in light of high equipment costs.



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STATE OF THE INDUSTRY



Playing the budget game to win

With the same amount of money or less in their budgets compared to last year, athletic field managers told LM they are stretching their dollars to make it work.

by SHARON CONNORS / Contributing Editor

In the field of budget increases, athletic managers struck out. Annual operating budgets for 1997 are the same as in 1996 for 36 percent of LM's readers polled by Readex Inc., Stillwater, Minn.

Six percent said their budgets were cut.

Some field managers were forced to postpone new equipment purchases while others reduced seasonal help. Whatever the case, they wanted to make sure that their fields did not suffer.

Although Mike Andresen, athletic turf manager at Iowa State University, Ames, Iowa, had a budget cut he remains committed, "Because I'm dealing with athletes and coaches, recruiting is a big issue. Good game fields and good practice facilities are vital to getting good athletes in here," says Andresen.

"Iowa State took a big step a year ago and took out the artificial turf and put in grass. Once you get good athletes, you have to take care of them and make sure that they're

playing on fields that don't have holes"

Pitching for dollars

The number one argument that field managers used to get as many dollars out of the budget as possible was need for safe playing surfaces. They tried to point out to management the severity of any unsafe field. Aesthetics was another reason to push for money.

"You've got to be able to show (management) what it's going to be used for and how it will look," says Todd Whitrock, sites maintenance technician at Sierra High School, Colorado Springs, Colo.

"You can show them what the safety factors are. You have to have safe fields for playgrounds and athletic fields."

Gil Higgins, parks foreman for the City of Prescott, Prescott, Ariz., adds that, "If you've got liabilities out there,

spending \$20,000 to fix something instead of having a \$5 or \$6 million lawsuit against you, it's pretty easy to convince people."

Roger Bowman, grounds supervisor at the University of Delaware, Newark, Del., believes it helps to pair safety concerns with appearance factors.

"You have to look at it not only from a safety standpoint and the importance of maintaining safe playing surfaces but, also you need to convince them from an aesthetic standpoint. With a higher level of funding not only do you increase the safety of the field, but you also increase the appearance of the field."

Time out for aerating

Many sports turf pros maintained anywhere from five to 52 fields ranging from



Andresen: athletes depend on field crews.

soccer, football and softball to multi-purpose. No matter the sport, managers emphasized the need for core aeration. Most stressed the cooperation of coaches was vital to successful aeration.

"Springtime is our difficult

time of the year," says James Flynn, superintendent of parks and grounds, Wilton, Ct.

"We'll try to take a field or two out of service every year and give it a season to rejuvenate itself. We aggressively aerate it and seed it, let it grow back and keep people off of it for a while."

Tom Burns, director-major league field operations for the Texas Rangers, Arlington, Texas, says work on that major league field is set for when the team is out of town.

"This is a brand new field, we just replaced it last year," says Burns. "A lot of times at the end of a home stand we'll have a day game. The last few weeks, as soon as the game's over we're out there with the aerifiers and the verticutters. That gives us that much more time before the next home stand."

Pat Boyer, superintendent of parks/city forester for Morgan Parks Department, Fort Morgan, says soccer fields are the toughest to maintain.

"We do a core aerification twice per year," says Boyer. "We developed a sports blend turf mix with two Kentucky bluegrasses and three perennial ryegrasses. We will overseed the entire area twice a year. We try to look at those areas that receive the most wear such as in front of the goals and around the goals. If possible we move those goals on a weekly basis so that wear goes into other areas. We try to overseed those areas on a continual basis," he adds.

Bowman explains the reasoning behind a recent equipment purchase as one of saving time.

"We've just purchased a plug pulverizer so that when we aerify fields we can come back and pulverize the plugs. We can put that field back into play within a day and the coaches don't even know we've been on there."

Most of the athletic field managers that spoke to LM do not subcontract work out because they liked having

one high school are under construction. "It gives us a chance to get geared up for the following year for manpower and equipment," Fordyce says.

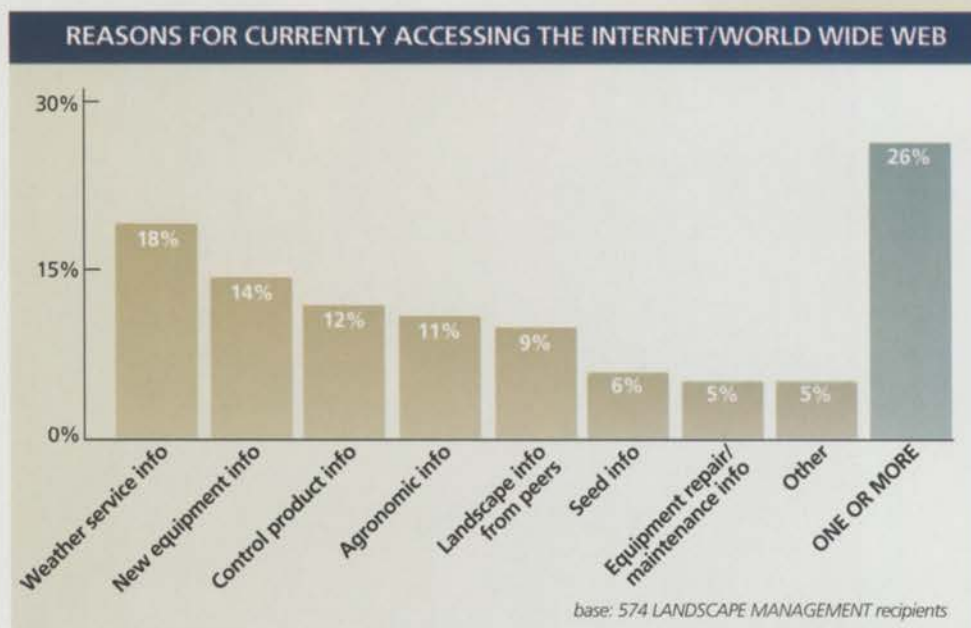
"Right now I have two sites that are under maintenance contract and I'm going to have one more."

Good catches

Unlike most other areas of the green industry where employees are concerned, sports facilities are finding employees with relative ease. Most

sity and taken an intern," says Andresen, who also employs athletes who have student aid that needs to be used up, or work/study people. There's always good hardworking students at the university looking for jobs."

Adds Higgins, "Where we're at, as hard as it is to find a job, if we post an opening for a permanent full-time position, regardless of the pay, we have anywhere from 50 to 250 applications for that job. A job with vacation, benefits



control of it themselves. One did subcontract because of new construction.

Bill Fordyce, grounds foreman for Douglas County School District, Castle Rock, Colo., has been subcontracting for the first year only on new sites. Located between Denver and Colorado Springs, his is the fastest growing school district in the nation. Three elementary schools and

comes from word of mouth from other employees.

"We're able to get a lot of people who have day jobs to work for us. A lot of times you end up getting better quality employees because of that," says Mike Boekholder, head groundskeeper for the Durham Bulls Baseball Club, Durham, NC.

"We've gone to the turf grass program at the univer-

and sick leave is pretty attractive to a lot of people."

While concerns for finding reliable workers are low, athletic field managers concentrate on getting budgets where they need to be. With more money to work with, fields are bound to be safer, better looking, and in the long run, will require less maintenance.



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Staying competitive in changing times

by DICK HOLZSCHU/general manager, Urban Pest Management, DowElanco

With continued growth in the turf and ornamental industry comes change. Newer products, label and formulation changes, and novel ways of accessing information all require your attention.

However, tending to the daily tasks of hiring employees, maintaining equipment, and dealing with erratic weather can make keeping abreast of changes challenging at best.

For consumers, the demands of everyday life lead them to outside sources—such as lawn care professionals—to not only get the job done, but to answer their questions about products and services.

In turn, lawn care and landscape companies look to manufacturers for information and support for the products that meet their customers' needs.

It is up to manufacturers, such as DowElanco, to educate, inform and provide informational training—not just in response to crisis, but to help our customers survive times of change and thrive.

Our stewardship efforts are concentrated in three areas including: developing new products, continuing support for current products and providing information.

New products for the millennium

First, we press forward with new products that respond to current needs. In that vein, I'm proud to announce our newest product—Conserve® SC turf and ornamental insect control. Conserve just received an accelerated federal registration for sale in the United States



under the Environmental Protection Agency's Reduced Risk registration program this past June.

Conserve is the first turf and ornamental product in the new spinosyn chemical class and offers professionals a "Caution" signal word. It uniquely combines the efficacy of synthetic insecticides with the benefits of biological insect pest control products. It's highly active at very low use rates and offers excellent control of sod webworms, armyworms, cutworms and a variety of ornamental insect pests.

The launch of Conserve is just one result of our continuous and extensive research designed to stimulate innovation. Currently, several other new products are nearing the final phases of the 10-year introductory development process.

Customer support immediate

Developing new products isn't enough. In today's fast-paced world, busy professionals need information about products, packaging, and applica-

tion techniques.

With that in mind, we support our current products with over 20 sales and technical representatives dedicated solely to the turf and ornamental marketplace, and we reinforce this team with corporate-based research and development specialists. Together, these people work to create a support structure that provides technical and research information, and training. They also serve as a liaison between our customers and our 400 scientists and researchers at corporate headquarters.

Reaching out to the industry

Educational support is also a part of our work. To that end, DowElanco maintains a strong presence in industry-wide associations, such as Responsible Industry for a Sound Environment (RISE), The Professional Lawn Care Association of America (PLCAA), Golf Course Superintendents Association of America (GCSAA) as well as many other associations that work to educate the public and the government about the proper use of specialty pesticides in the environment.

By fostering the innovation and discovery of new products, supporting our current products and cooperating with others in our industry to educate consumers and legislators, DowElanco plans to help raise the service standard throughout the 21st century. Our goal is to not only foster change, but rather, help make the transitions necessary for change a little smoother.

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Summer stress affects insect timing

By R. L. BRANDENBURG
/North Carolina State University

Summer challenges landscape managers. Turf often suffers from heat and drought and possibly even increased traffic and activity.

Employee morale can suffer, and of course, some pest problems peak in the heat of summer. Extreme weather conditions often make the timely deployment of pest management strategies difficult.

Since insects are cold blooded, we assume that warmer temperatures speed insect development and thereby increase the likelihood of pest outbreaks. Generally this is true because certain pests do seem more common when it's hot and dry. Turf damage from pests such as some of the billbugs, mites and chinch bugs can be more severe when it's hot and dry.

Warm springs may cause various caterpillar pests (cutworms, armyworms) to appear earlier than normal. However, popu-

lations of some white grub species may be reduced under hot, dry conditions due to poor survival of the eggs and small grubs.

Although we have no control over the weather and how it affects pest problems, we do have insight into how weather can influence pest control and can take advantage of opportunities to adjust our program accordingly. This area of knowledge is becoming increasingly important with the arrival of a wide variety of novel new insecticides and biological control strategies.

Since the weather affects development and behavior, a good understanding of this relationship for the key pests in your area is important and can pay big dividends in time, money, turf quality, and customer satisfaction.

Products like Merit (imidacloprid) and Mach 2 (halofenozide) have increased our awareness of the importance of timing for insect control. Directed against the early instar or small grubs these products give excellent control. As grubs grow larger, the level of control seems to decline proportionally more than for some of the

other conventional insecticides. Some of these newer products, including many of the "natural" products, act as insect growth regulators and their impact is most profound on the earlier stages of the insect. Since weather can influence the rate of development, close monitoring of insect development is critical. Hot, dry weather can also influence insect behavior by moving below-ground insect pests deeper into the soil. This



The close relationship of pests to their environment makes monitoring and scouting critical during periods of hot and dry weather.

may make them less susceptible to insect control strategies. Pre- and post-irrigation of the affected area can be beneficial in improving control by moving the insects closer to the surface.

Pesticides may be rendered less effective by hot, dry conditions by increasing the amount of volatilization or loss to the air. The hot, dry soil, organic matter, and thatch may also bind or "tie up" the pesticides so that much of the material never reaches its site of action.

Biological control strategies are also challenged by hot, dry conditions. Insect-attacking nematodes, bacteria, and fungi are adversely affected by these conditions. A general rule of thumb is to apply after the sun is low in the sky. Pre- and post-irrigation also help. **LM**

—The author is a turfgrass entomologist at North Carolina State University.



Summer weather may consist of extremes which can dramatically influence pest abundance and behavior such as forcing white grub populations deeper in the soil.

FOR A CLEAN SWEEP

Whether it's construction or maintenance, most turf and landscape jobs require some type of clean up.

By CURT HARLAR



Brouwer - Vac 138 is suited for large-area collection of debris.



SweepEx Mega Series features 11 brush rows on 48-inch or 60-inch frame.



Smithco Sweep Star re-engineered with more power, features.

In the war against unkempt grounds, the front-line troops turn to lawn sweepers and vacuums. A good power unit can handle anything from sand—which is all but impossible to sweep clean with a hand broom—to animal droppings.

Grounds pros also use power sweepers to remove aeration cores, rake leaves and pine needles, sweep water from golf greens, and remove light snow.

When clearing a large area of debris, engineers with Shindaiwa recommend starting at one corner of the area to be cleaned and proceeding up one side. The idea is to create a windrow, just as one would with a hay rake. In all but the most difficult situations one pass should do the job.

Choose the correct type of broom to make work go faster. Brushes are available in all-polypropylene, all-crimped wire, or a 50-50 mix. Engineers with Guest Industries say the 50-50 mix is the best choice for cleaning up dirt, small stones, rubble. A straight polypro brush is best used for snow and small fines.

When working with a hand-held power broom, experiment with shaft angle. Generally, the shallower the angle of the handle, the easier the units are to use. There is no reason to bear down on a power broom, as you would with a hand broom, while sweeping. In most cases, the spinning action of the drum paddles causes a vacuum effect which lifts debris from the grass or walk into the sweeper.

Engineers at TrynEx, note that a sweeper is good for snow removal on delicate paving stones where you don't want a blade.

The big time-consumer with power sweepers generally is the time it takes to empty the unit. Match capacity to the task. In other words, "Don't send a boy to do a man's job."

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Mean Turfgrass Quality Ratings of Kentucky Bluegrass Cultivars for Each Month Grown Under **High Maintenance** at Seventeen Locations in the U.S. & Canada 1991 Data

Turfgrass Quality Ratings 1-9; 9=Ideal Turf: Months 1/

NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
Midnight	5.3	5.7	5.2	5.2	6.4	6.4	6.3	6.3	6.3	6.6	5.9	5.0	6.2
Unique	6.3	6.7	6.3	5.6	6.2	6.3	6.4	6.3	6.4	6.5	5.5	5.2	6.2
Glade	3.0	3.8	5.1	5.5	6.1	5.9	6.0	5.8	6.4	6.6	5.7	4.7	6.2
RAM-I	4.7	4.7	5.3	5.5	5.8	5.8	5.9	5.7	6.3	6.5	5.9	5.5	6.1

Under high maintenance, Ram I ranked fourth out of 125 entries.

Mean Turfgrass Quality Ratings of Kentucky Bluegrass Cultivars for Each Month Grown Under **Low Maintenance** at Sixteen Locations in the U.S. 1991 Data

Turfgrass Quality Ratings 1-9; 9=Ideal Turf: Months 1/

NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
Midnight	5.3	4.7	6.0	4.8	6.7	5.7	5.3	5.6	6.5	5.7	5.6	6.0	5.7
Barmax	6.3	5.0	6.0	6.1	6.8	5.8	5.0	4.9	5.5	5.0	4.9	5.0	5.7
RAM-I	5.3	5.3	4.0	5.1	6.4	5.7	5.1	4.9	5.3	5.6	5.3	4.3	5.5

Under low maintenance, Ram I ranked third out of 62 entries.

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> LM REPORTS

collection of leaves, litter, grass clippings, and thatch from vertical mowing. Unit unloads quickly with high-angle hydraulic hopper tilt.

Heavy-duty dual impeller fans power two adjustable suction nozzles which can be hydraulically raised for easy transport. Optional hand-held hose attachment is designed for easy cleanup of ditches or fence rows. Dust reduction tarp is standard.

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Circle No. 251

Bag up to 11 cubic feet of clippings with the LV-30, from Clarke, Chesterfield, MO. Side-zipper disposal makes bag easy to empty. Powered by a 6-hp Tecumseh engine, the LV-30 has large wheels for easy maneuvering over tough terrain. Heavy duty impeller picks up cans, sticks, leaves and more. For jobs on adjoining areas, consider the 91-WS. Its 36-inch sweep path cleans 19,000 square feet per hour—five times faster than a man with a broom. With optional dual side brooms, which get in close to curbs or brickwork, it handles a 45-inch path. Available with battery power, gas or LP-gas.

Eagle Power Products

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Circle No. 252

Battery-operated rider sweeper, the TK1000 from Eagle Power, Minneapolis, features a 36-inch cleaning path. This unit can clean 75,000 sq. ft. per hour and works on both hard and soft surfaces. It includes a 5-micron dust control system. The TK1000's large capacity hopper keeps the operator on the go and not tied up with emptying the unit. All controls, maintenance checks within operator's easy reach.

Excel Industries, Inc.

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Circle No. 253

Dump a load right into a waiting truck or bin with the Hustler's Extra Hi-Lift BAC-VAC. This 10-bushel hopper box, made by Excel, Hesston, KS, can raise and dump 75 inches high. The fabric hopper bag will not rust or corrode. A lock-up pin holds the hopper up in fully raised position for access to the engine compartment. The lift is based on hydraulic cylinder with a hand lever control. Similar Hi-Lift BAC-VAC has 15 bushel capacity to keep the mower running longer before dumps.

Guest Industries

(800) 243-5390

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Quick attach sweeper attaches to bucket loaders in about two minutes. The three DM 25 (with 25-inch diameter brush) units and 10 DM32 (32-inch brush) Power Broom offerings from Guest Industries, Torrington, CT, all attach to the bucket lip and angles 30 degrees to either side. Options include dirt deflector, marker flags and storage stands to protect the bristles when not in use. Units require 9 to 35 gpm hydraulics at 2000 psi to operate the broom.

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(800) 354-4587

Circle No. 255

Powerful brush-drive system is the key to performance in the RS-365 from Hilts & Co., Hickory, NC. The chain-driven brush system eliminates belts. A 36-inch wide brush sweeps straight, left or right. Zero-degree turning radius makes this self-propelled unit quite maneuverable. Unit weighs 230 lbs. and powered by a 5-hp Quantum engine.

Ingersoll Equipment Inc.

(414) 582-5099

Circle No. 256

The SW38 tow-behind sweeper from Ingersoll, Winneconne, WI, is designed to be used with any lawn tractor that is 8 hp or larger. The sweeper incorporates two brushes, one to pick up and the other to propel the material deep into the hopper. The sweeper offers six sweeping positions plus one for transport. The rot-resistant hopper has a full 11-bushel capacity.

Jacobsen

(414) 635-6711

Circle No. 257

Clean a five-foot swath at every pass with the 720 line of sweepers from Jacobsen, Racine, WI. All three sweepers have rubber-finger pickup system that removes wet or dry leaves, paper, cans, glass or other debris. Up to 5-cubic yards can be handled. Models include a PTO-driven sweeper and two units with self-powered pickup systems for use behind a variety of towing vehicles. The 720-EHL has a hopper lift that extends to 9 feet for unloading into a dump truck. Optional thatcher-thinner allows combining of two jobs.

Alfred Karcher, Inc.

(908) 356-1199

Circle No. 258

The KM 700 from Karcher, Somerset, NJ, has a height-adjustable main brush to move litter and dust into the 11 gallon container. Powerful air flow sucks dust up into the dirt container and through a specially designed replaceable filter, ensuring dust-free operation. An adjustable side brush lets unit clean in corners and other hard-to-reach places. This manual unit is 28" wide with a side brush.

Lambert Manufacturing Corp.

(513) 337-3641

Circle No. 259

All sweepers in the Lambert line feature mildew-proof hampers, semi-pneumatic tires and waterproof brushes. Made in Ansonia, OH, the pull-behind Challenger MH-481 has a 38-inch swath and 12 bushel (15 cubic feet) bin. Wind apron keeps leaves and grass in the hamper and not blowing back onto the lawn. The smaller Capricorn handles 31-inch swath and 10 bushels. Several push-type sweepers available, including the 20-pound 26-inch R-368 and the deluxe 26-inch B-369, which features a lift-out hamper for fast unloading. Also, check out the three trailing vacuum system models HDV-340, HDV-350 and HDV-360 all with mow and mulch feature and top-filling hamper for maximum fill.

Parker Sweeper

(630) 627-6900

Circle No. 260

Full line of sweepers and vacuums is available from Parke Sweeper, Addison, IL, to handle jobs of all sizes. Six tow-behind lawn sweepers, with four rows of polypropylene brushes, handle sweeping needs. There also is a full line of power vacuums including the Vac-CS, a self-propelled chipper/shredder vacuum that reduces debris 11:1; the Scavenger line, with 5-hp Briggs & Stratton engine and 30-inch sweep width; and the eight models in the Vac-35 series which features the Spin-Pak deflector that packs debris down into the bag for more efficient filling. The Vac-35s, available in gas, propane or battery power.

Shindaiwa, Inc.

(503) 692-3070

Circle No. 261

The new PowerBroom PB230 is lighter and lower-priced than the original PB270. Manufactured by Shindaiwa, Tualatin, OR, it is a gas powered sweeper attached to a splined solid-steel drive shaft like those found on hand-held gas trimmers or brush cutters. Drum of tough Alcryn material equipped with rubber-like fins pushes debris ahead of operator. Rotating sweep action, combined with unit's excellent balance, makes for fast removal of lighter material. The 1.1 hp PB230 can handle pea gravel, bark chips, sand, snow or water. The larger 1.5 hp 270 can move small and large material up to three inches deep.

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(610) 688-4009

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The Sweep Star 60 dedicated turf sweeper has been re-engineered to increase its power, performance and operator comfort. The unit is powered by a 25-hp Kohler Command OHV twin-cylinder engine. Its exclusive full-floating sweeping reel can be engaged and operated at any height to better pick up wind-rows. All four wheels have larger, high capacity drum brakes and the rear wheels are now equipped with larger, softer tires for maximum turf protection. New heavy-duty cylinders have been added to the separate hydraulic lift system to provide a higher

reach for the hopper dumping to trucks. This unit sweeps up cans, grass clippings, leaves, pine needles, butts and all other debris in one pass.

Sweepster, Inc.
(800) 456-7100
Circle No. 262

Collect all kinds of debris with the 26-inch diameter brush on the brand new Sweepster HBB. Larger broom lasts longer, too, with up to 15 percent more serviceable life than the Dexter, MI firm's HB Series. Quick attach mounting. Workers

spend more time on the job, less time in the shop. The HBB series includes the 4-foot HB48B; 5-foot HB60B; and the 6-foot wide HB72B. The machines are fitted with 12, 15 and 16 cubic foot hoppers, respectively. All units are a compact 29 inches high and 58 inches long. The optional dual gutter brooms let the operator get in close to curbs, parking blocks and other vertical surfaces. The cutting edge of the bucket is perfect for scraping packed dirt off driveways or lots; sweep the area clean with the brush.

Tennant
(800) 553-8033
Circle No. 263

The Tennant line of sweepers, made in Minneapolis, MN, ranges from the push-behind 186 to the larger riding models like the 385. The 186 is designed for picking up sand, litter and related materials. The unit's filter system controls dust. The 385 features heavy-duty hydraulics and retracting side brush.

Terracare Products, Inc.
(608) 429-3402
Circle No. 264

Electronic winch makes the Terra Pick-Up Sweeper from Terracare Products, Pardeeville, WI one of the easier units to unload. As the hopper opens, a rake pulls material out of the front end. The wheels are 15x6:00-6 (one on the front and four on rear axle), giving this unit the flotation needed to operate on the finest turf or greens. Rear axle drops out for easy maintenance. Brush height is easy to adjust and the clutch can be engaged from the tractor seat.

Toro
(612) 888-8801
Circle No. 265

Dual, counter-rotating reels provide uniform 48-inch coverage with the 4800 Turf Sweeper from Toro, Bloomington, MN. Hydrostatic drive features Sundstrand pumps and Parker-Ross wheel motors. Reel height is adjustable for light or heavy conditions. Self-propelled with a 18 hp Kohler engine, the unit sweeps at 5 mph and has a transport speed of 8.6 mph. Hopper holds a full bushel. Wide tires provide good traction on uneven terrain.

TrynEx
(800) 725-8377
Circle No. 266

The new SweepEx series from TrynEx International, Royal Oak, MI, generates minimal dust and flying debris, protecting the operator, machinery and environment. Mega Series has 11 brush rows on a 48-inch or 60-inch frame. The Pro Series offers 8 brush rows on 48, 60 or 72 inch frame. Brushes are replaceable polypropylene. Mounting kits available for skid steers, fork lifts, tractors, bucket loaders, pickup trucks. **LM**

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New weeds, new woes

Once you control one pest species,
another may be ready and able to
fill the niche.

By BERT McCARTY, Ph.D

Turf managers have seen an increase or shift of new weeds in the last five to 10 years. Many of our traditional troublesome weeds now have adequate control measures, but new weeds seem to have taken their place. Possible explanations for this shift include:

► Significant increase in the use of preemergence herbicides, especially on fertilizer carrier. These herbicides do an excellent job on most grass weeds, but allow other weeds such as sedges and many broadleaves to escape and thrive.

► Significant reduction in the use of traditional postemergence herbicides which provided adequate control of most weeds. Examples include MSMA, DSMA, and 2,4-D. These materials provided good general weed control at very reasonable prices. With the reduction in their use, many previous non-troublesome plants have now become major weeds.

► Overwatering of many turf sites favors the presence of certain weeds such as sedges and annual bluegrass. In moist soils these weeds have the natural ecological advantage over the turf. This has been further aggravated by recent hurricanes and tropical depressions in the South which have led to higher than normal soil moisture.

Some weeds that have become problems for turf managers in recent years include:

Spreading dayflower (*Commelina diffusa*): summer annual; fleshy, smooth stems; flowers with three blue petals; reproduces by seed and stem fragments; prefers moist habitats.

Torpedograss (*Panicum repens*): perennial grass; robust, sharply pointed, creeping rhizomes; reproduces primarily by rhizomes.

Doveweed (*Murdannia nudiflora*): summer annual; fleshy, creeping stems rooting at nodes; leaves alternate; small, inconspicuous blue to purple flowers; reproduces by seed.

Smutgrass (*Sporobolus indicus*): clumping perennial grass, leaf blades flat, very thin; seed often infected with black fungus, smut.

Mat Lippia (Matchweed) (*Phyla nodiflora*): mat-forming perennial broadleaf with prostrate growth habits, hairy stems; stems rooting at nodes; leaves opposite with large teeth towards the tip; flowers rose-purple or white, in a head at tip of a long stalk resembling a match head; reproduces by seed and stolons; prefers sandy coastal plains.

Chamberbitter
(Niruri, Gripweed)



Dove weed



Lawn burweed

(*Phyllanthus urinaria*): small, erect summer annual broadleaf weed, escaped from ornamental industry; leaves oblong, arranged in two rows; flowers inconspicuous; fruit green, warty, without a stalk, attached directly to underside of branch; reproduces by seed.



Annual blue-eyed grass



Spreading day flower

Thin (Bull) Paspalum
(*Paspalum setaceum*):

clump-forming perennial grass; leaf blades flat, hairy to almost smooth with a fringe of stiff hairs along margins; common in sandy soils; reproduces by seed & clump fragments.

Annual Sedge (Water Sedge) (*Cyperus compressus*): summer annual sedge; seedhead is a cluster of flat greenish, glossy spikes, at top of bare stems with a few long leaves; tolerates close mowing; reproduces by seed.

Annual Blue-eyed-grass (*Sisyrinchium rosulatum*): winter annual, member of iris family; mistaken as goosegrass, has zigzag-shaped stems; leaves flat, light green, all clustered at the base; flowers pale purple to with with a rose-purple eye ring; reproduces by seed; other *Sisyrinchium* spp. occur.

Longstalked Phyllanthus (*Phyllanthus tenellus*): erect perennial broadleaf weed, escaped from ornamental industry; leaves arranged in two rows; flowers inconspicuous; fruit green, smooth, round on long stalks from the leaf axils; reproduces by seed.


Lawn Burweed (Spurweed) (*Soliva pterosperma*): low-growing, freely branched winter annual broadleaf weed; leaves opposite, twice divided into narrow segments of lobes; flowers small and inconspicuous; fruits have sharp spines; reproduces by seed.

Annual bluegrass (*Poa annua*): several biotypes now exist including triazine-tolerant (atrazine/simazine) biotype; perennial biotype; pronomide-resistant/tolerant biotype.



Torpedograss runner

—the author is an associate professor at Clemson University, Clemson, SC. To learn more about weeds in the Southeast, he suggests the publication *Weeds of Southern Turfgrass* available from Clemson University, Extension Service, Room 82, Poole Agriculture Center, Clemson, SC 29034-0311. \$8 per copy.



Learn the 3-minute equipment check

Weekly peeks

Save time at the end of the work week to check these systems:

- ▶ Remove the engine shrouding and clean out the cylinder cooling fins. Dirty cylinder fins will hamper a unit's ability to cool itself and can reduce engine life or even cause seizures, because heat won't dissipate as well from the unit.
- ▶ Check the grease in the gear head to make sure it's at the proper level. If necessary, add grease until it reaches the level recommended by the manufacturer.
- ▶ On trimmers, inspect the starter rope for frays.
- ▶ Remove spark plugs; clean and replace if necessary.
- ▶ Check the fuel lines for cuts, deterioration, other damage.
- ▶ Remove the fuel filter and inspect it for any physical breaks or cracks and replace the filter according to the manufacturer's guidelines.
- ▶ Use a tachometer and check the engine's RPM at idle and at wide-open throttle. When checking your unit at wide-open throttle, refer to the manufacturer's guidelines to determine if these should be done with the line extended, or if so, with the recommended line size.
- ▶ If the unit features anti-vibration systems, check the rubber or spring mounts to make sure they're secure and free of cracks.
- ▶ On trimmers, inspect the string head and the bump knob. Check the knob and the eyelets for wear. Also, inspect the spool and housing for breaks or cracks. Never use a string head or blade with a visible crack or break.

M.M.

It's easy to talk about ergonomically sound equipment selection and maintenance and quite another to find the time to manage the process.

by MARK MICHAELS

Atention to basic service will keep your equipment and crew running at peak efficiencies during the busy season. Whether you have a well-

staffed service department or a do-it-yourself approach, there are a few ongoing preventive maintenance tips that will get you through the summer.

Take time to look over and adjust your equipment, to prevent lost work time. Remember that even the simplest piece of equipment needs some fundamental maintenance which can be accomplished in less than three minutes.

Even how you treat your equipment when it's not in use can contribute to wear and tear.

"This type of equipment doesn't require a lot of mainte-



With regular equipment checks, the operator saves time, and the company saves money.

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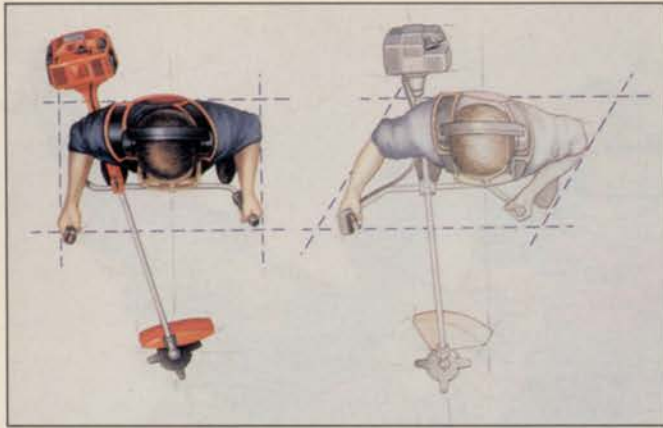


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With the trimmer shaft mounted at seven degrees to the left, the cutting head automatically rests in front of the user, for comfortable working position.

nance," says Bruce Wilson, president of Environmental Care Inc., Calabasas, Calif. "A key issue for us is how equipment is transported on our trucks. If trucks and trailers are well-designed, the equipment isn't piled on other equipment, and debris

bags aren't piled on equipment.

"Significant damage can occur when equipment is in transit," says Wilson. **LM**

—The author is senior forestry product manager for Husqvarna Forest & Garden Co.

The daily check list

- ▶ Clean the air filter.
- ▶ Inspect the engine shrouding for any problems that could interfere with the flow of cooling air.
- ▶ Check the air filter cover and air filter box for any broken or missing pieces that would allow unfiltered air to enter the engine and cause damage.
- ▶ Do a complete check over the unit and tighten any hardware that may have come loose the day before.
- ▶ Blow debris off the housing around the engine. Inspect for grass and debris between the gear housing and string head. Neglect here can create heat that may possibly cause loss of power and damage the gear box or cutter head.
- ▶ On trimmers, check the string guard for any broken or missing parts. Many users risk damaging the trimmer when they take off the string guards. Not only is this a safety concern for the user, but a unit without a shield can allow too much line out and may overload an engine not designed for such a heavy load.
- ▶ Lastly, inspect the throttle and operating controls for proper operation and visually inspect the shaft for damage or cracks.

M.M.



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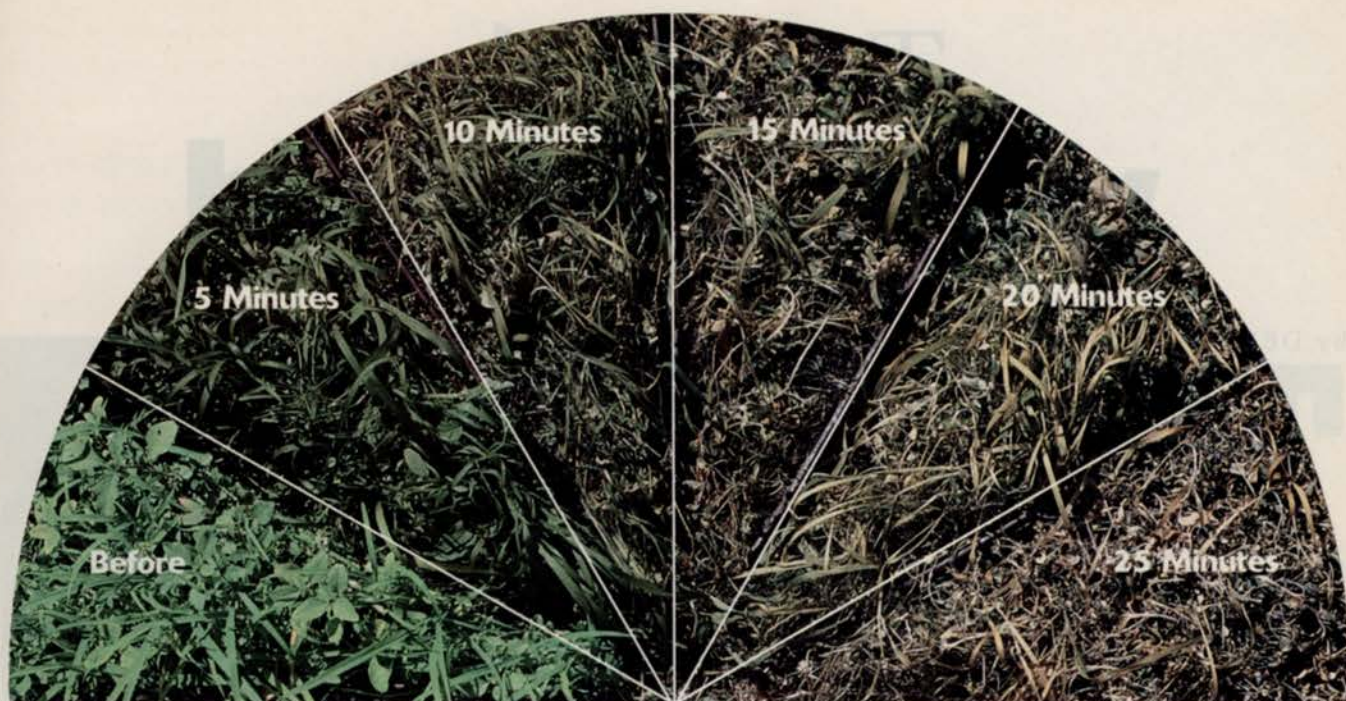
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Taming the woolly adelgid

by DEBORAH SMITH-FIOLA

The Hemlock Woolly Adelgid (HWA) is an aphidlike insect that is a serious pest of Eastern hemlock and Carolina hemlock. It was introduced into the United States (Oregon) from Asia in 1924 and discovered in Virginia 40 years ago. It's since spread throughout Pennsylvania (1960s), Connecticut and Massachusetts (1980s), killing forests and landscapes from New England to North Carolina.

Symptoms

The HWA prefers to feed on new twig growth of hemlocks, feeding on sap, and, theoretically, injecting a toxic saliva. HWA usually attacks lower branches first. Feeding damage first appears as needle discoloration, from deep green to grayish green to yellowing; followed by premature needle drop/defoliation, branch dessication and loss of vigor. Eventual death of the tree occurs after four to eight years, depending on the size, stress level and site of the tree. Even seemingly healthy, mature trees in good growing sites may succumb to this pest. Trees of all sizes and ages are attacked. Mature trees in native settings or landscapes that are large and tightly packed together may be severely attacked.

Monitoring and life cycle

HWAs reach maturity between late winter and early spring at the base of individual needles, covering themselves with white, cottony wax, resembling the tips of cotton swabs, for protection. All HWAs are female. Brownish orange eggs are laid under the cottony wax and hatch during an extended period from February through June. Wind, birds and animals spread the eggs from tree to tree during the spring.



Mature trees tightly packed together in large, native settings may be hit hard by the woolly adelgid. Wind, birds and small animals can disperse their eggs.

Newly hatched woolly adelgids (immature crawlers) are black, oval and flat. They emerge from the cottony egg mass with new hemlock growth in May and June. Use a hand lens to look for crawlers; they are barely visible to the naked eye. Crawlers migrate to new growth, molt, lose their legs, and settle down at the base of needles and begin to feed. These immature nymphs remain where needles attach to twigs until maturity. In the summer, nymphs enter a hibernation stage (aestivate) before resuming feeding in early fall. By October, nymphs begin covering themselves with white, cottony wax, initially secreting it along the outer edge of their bodies like white fringe. This wax often remains firmly attached to hemlock branches long after the insect dies. There is

one spring generation a year plus a partial fall generation.

(Black nymphs are exposed on new growth for a long period, from June to October, before beginning to secrete their white protective wax. They are susceptible to pesticides at this time.)

Cultural controls

There are ways to reduce HWA populations on hemlocks by managing trees properly.

► Do not place birdfeeders in hemlocks as birds pick up eggs/nymphs in their feathers and transport them to other trees and other areas.

► Do not fertilize HWA-infested hemlocks. Nitrogen fertilization enhances the survival and reproduction of HWAs. Research shows that twice as many HWAs

survived on fertilized hemlocks as on unfertilized ones. This was true whether the fertilizer was soil broadcast, micro injected, or implanted. (McClure, 1991)

► No effective natural enemies are known for reliable biological control. Several native predators may help to lower HWA populations.

► A winged population of HWAs is produced each spring which leave hemlock and lay eggs on spruce. It has yet to be determined what type of spruce may act as an alternate host.

► Western hemlock species (*T. heterophylla*, *T. metersiana*) tend to tolerate or be more resistant to HWA. However, these species may not be adapted to Northeast conditions.

Biorational pesticide control

The settled nymph stage is extremely sensitive to control treatment for a long time period, June-October.

► Sprays timed between September-October have less potential impact on beneficial insects, and landscapers/nurserymen tend to be less busy this time of year.

► Research in Connecticut and New Jersey has shown excellent control using either insecticidal soap or horticultural oil. Read the label directions. Do not spray oil if temperatures are over 90 F. and hemlocks are under drought stress. Thorough

Tree injections look promising

Tree injections and implants give good control of adelgids, say researchers in Connecticut. Fertilizer and insecticide treatments were applied using the Mauget system; a combination of both was applied using the CSI Medicap system in late May.

Pesticides injected or implanted in May in a forested site significantly reduced HWA levels within four weeks: Metasystox-R by 98.6 percent; Bidrin by 94.3 percent, and Orthene by 93.4 percent.

Intermediate control occurred on trees treated with combinations of insecticide and fertilizer (acephate/Orthene and 12-4-4). After four weeks the average control was over 88 percent even with the fertilizer. Applications of fertilizer alone (Stemix Hi Volume 0.5-0.7-0.6) significantly improved HWA survival.

DSF

coverage is necessary, using a high-pressure sprayer. Use of insecticidal soap will remove most of the white wax, which is an eyesore. Target sprays to the underside of new growth.

► The developing females in early spring are also vulnerable to dormant oil (2%) applied in March or April.

Chemical controls

► The exposed, settled nymph in June and July is vulnerable to most sprays. Diazinon and malathion have shown excellent control during this period. (McClure, 1991)

► Fluvalinate (Mavrik) is also labeled, using the same timing. However, preference is given to the less toxic soaps and oils for control of this pest. Spray coverage must be thorough.

► A recent study at Longwood Gardens, Pa., looked at the effect of Morestan (Joust) on HWA survival. A September spray targeting nymphs provided excellent control with thorough foliar coverage. This treatment (and timing) could also control hemlock rust mites and spruce spider mites.

► Also, many landscapers and nurserymen are awaiting research results using imidacloprid (Merit) for control of HWA as both a foliar spray as well as a soil injection.

Merit is used at a very low rate, has a long residual and may take weeks to months to translocate and control pests in large trees. Research by the product's manufacturer, Bayer Corp., determined that soil injections gave 96 percent control—after 153 days.

► There is also a new product on the market, called the Wedge, which essentially is a large hypodermic needle injector system. The manufacturer, ArborSystems, Inc., (402/571-9786) claims that Merit can be injected at waist height in a simple process with minimal tree wounding. Additionally, the pesticide will be uptaken within the tree in a matter of hours versus weeks. Research trials on this new product are underway.

Injecting insecticides is most effective in dense stands of trees that are inaccessible by spray equipment, or when thorough drenching by sprays is impossible or undesirable.

(Mention of any product in this article does not constitute an endorsement by Rutgers Cooperative Extension, and does not imply approval to the exclusion of other suitable products.) **LM**

Deborah Smith-Fiola is associate professor and extension agent with Rutgers Cooperative Extension.

Egg masses of overwintering adelgid adults



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“Fish tore up the grass on your golf course?” I asked, trying to envision how that could be. For some absurd reason I kept seeing walking catfish pulling themselves out of the nearby river, chomping off mouthfuls of turf and then slithering back into the brown water! No that’s, well...a little too crazy.

But the small, grey-haired man insisted.

“You bet they did,” he fairly shouted. “The fish were everywhere, everywhere. These weren’t little fish. These were big fish.” The man, the owner

and superintendent of this golf course, arose from the snack counter stool and spread his hands about 18 inches apart to show the size of the fish.

“No, no, many of them were bigger, much bigger,” scolded his wife, stepping in front of him and holding her short, plump arms another foot wider anyway. “They were carp. Carp can get much, much bigger. There were so many we couldn’t do anything.”

The thought of fish, even “big, big fish” destroying turfgrass on a golf course didn’t register, and the look on my face must have said so, because both of them kept up a running commentary of just how their 9-hole course had, temporarily at least, become a 7-hole golf course.

Who would have thought it? Not me, not until I stopped late that afternoon for a quick 9 holes while on a husbandly errand in an unfamiliar part of the county. Hey, why not? There were just a handful of golfers on the course, and at least another hour or so of daylight.

When I handed the owner a ten he immediately apologized that I couldn’t play the 4 and 5 holes. I could play numbers 8 and 9 twice to make my 9 holes, he explained before handing me back 3 bucks in change. That was good

This fish story meant trouble for golf turfgrass



Ron Hall

RON HALL
Managing Editor

GOLF

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This putting green is a laboratory

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Where every drop of water counts

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How to make dry spots vanish

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Is equipment leasing for you?

enough for me. Even so, I wasn’t going to tee off until I heard the rest of this fish story.

The man and wife took turns explaining how a storm in mid May caused the nearby river to “back up” and overflow its banks onto the course. The storm also apparently damaged some nearby cribs in the river. The pens held thousands of carp. The suddenly-free carp spread out over the shallow water of the fourth and fifth holes on the course. It was spawning season. Whoopee! They wiggled and thrashed in the shallow water until they’d destroyed almost all the grass on the two golf holes, the two that paralleled the river.

When the water receded after eight or nine days, it left behind thousands of stranded, dying carp. The owner said he couldn’t reseed the two holes until he and his wife gathered the dead fish up and hauled them to a landfill. They did a lot of the work themselves. It was a nasty business.

The man said he’d owned the golf course for years and it had flooded before. But this was the first time it had ever suffered such severe fish damage. **LM**

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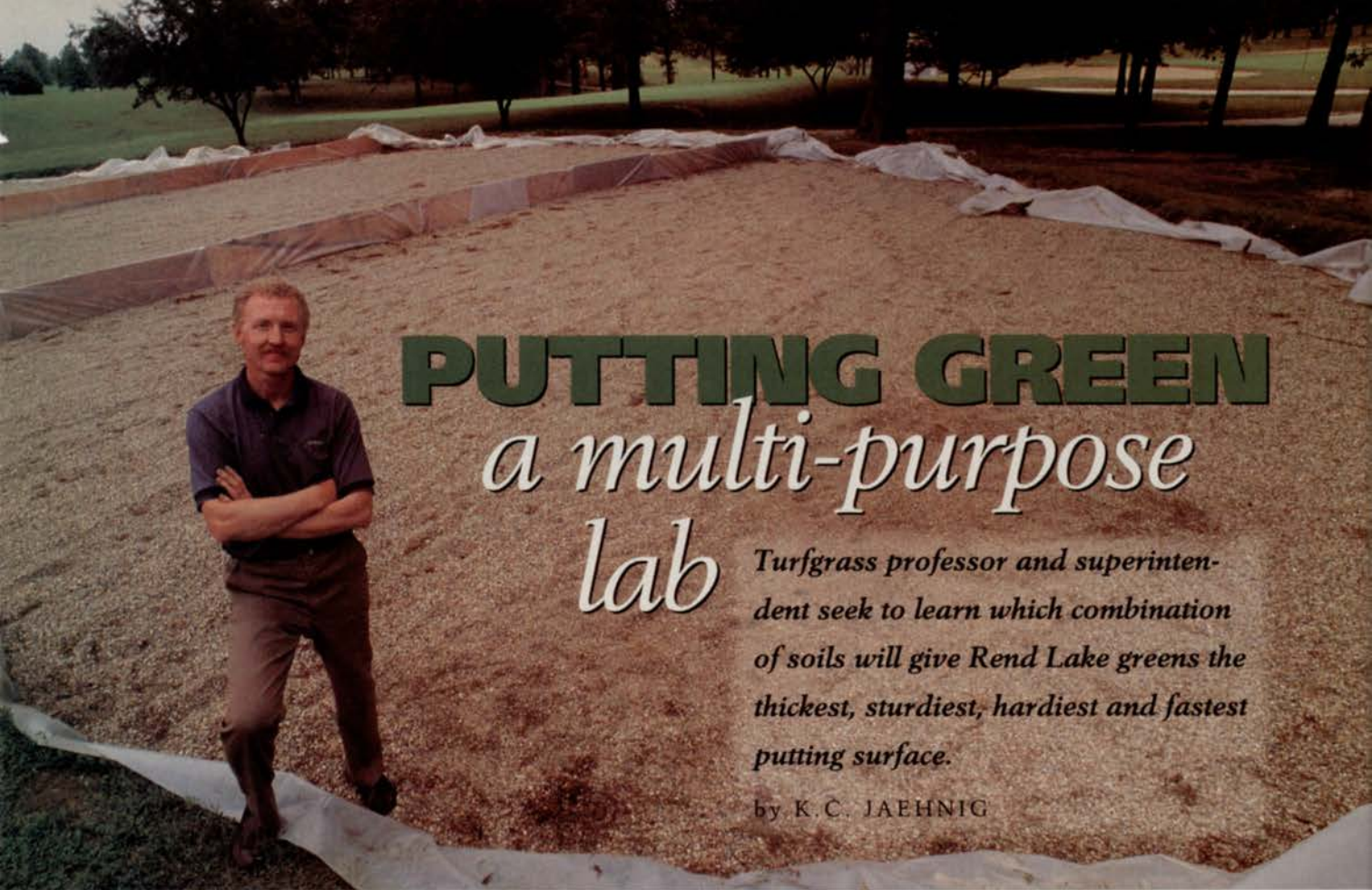
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PUTTING GREEN

a multi-purpose lab

Turfgrass professor and superintendent seek to learn which combination of soils will give Rend Lake greens the thickest, sturdiest, hardiest and fastest putting surface.

by K. C. JAEHNIG

Ken Diesburg's newest research lab is a putting green at Rend Lake Golf Course, Carbondale, Ill. "There are probably a few, but to my knowledge, this will be the only golf course green in the country with the dual purpose of being used for play and for research," says Diesburg, turfgrass professor from Southern Illinois University at Carbondale, who has set up shop at Rend Lake to come up with solutions to putting green problems.

Traffic wear solutions

Diesburg has been at work with regional superintendents since he came to teach at SIU seven years ago. They encouraged Diesburg to follow through on their idea to conduct research on a working green.

Rend Lake superintendent James Ashby, says how practical the notion was.

"We'd go to turf field days and see research plots that look fantastic, but there's no wear and tear on them," says Ashby.

"You can't simulate what ball marks will do, or spikes or someone taking a divot out

of a green when they miss a putt. Traffic is a huge problem for greens, and so is daily maintenance. Field plots may be mowed every two, three, even four days, but on a course you have to do it every day, which makes wear patterns from mowers.

"We want to see what happens to a green that is in play daily."

Tracking leachates

Work on the putting green began last fall, when Belleville resident/business owner Joe Munie of Munie Outdoor Services, Inc., provided the equipment and crewman to dig out the green space.

Kenneth Diesburg with the first stage of his research putting green. Wooden boards between plastic liners separate the soil/grass mixes. They will be removed after the turf takes hold.

The rough grading created a 7,000 square-foot, 16-inch deep 'tub,' elevated and sloped for better drainage. Diesburg lined the tub with heavy-duty plastic, and formed three compartments in the hole. Then, with four-inch plastic pipe and gravel, installed a separate drainage field for each compartment.

Research benefits

The putting green project combines education, industry, management and research, and is also a service to the public, says Ken Diesburg, who will use the green as a teaching tool for his turf management students. When two more identical greens are built at other courses, the results of comparing cultivars and rootzones will hopefully be published in scientific journals. The Southern Illinois Golf Course Superintendents Association will gain valuable information through field days at the green, and through the experimentation. Eventually, the golfing public will have more vigorous greens during the heat of the summer.

"Each rootzone is completely separate from the others, with its own drainage field, to monitor the leachate contents," says Diesburg. "This will enable us to determine the movement of nitrates or pesticides from the rootzones. We will also be able to calculate infiltration rates and water retention. Any water that drains through the root zone has to go out one spot, through the drainage field, where we can collect it," explains Diesburg. "The point is to collect what gets through the root zone."

What's wrong with sand

Diesburg, a 14-year green industry researcher, theorizes that most of the sands being used in his part of the country are comprised of particles that are too small, and, he says, barely meet USGA standards.

"The bulk of the particles are at the smaller end—0.020 to 0.030 millimeters—of the recommended predominant distribution range, which is 0.250 to 1.00 millimeters. Additionally, there is 8 to 16 percent of fine particles, less than 0.020 millimeters."

Diesburg says something must be done to the rootzones to increase water retention in the top inch while increasing the infiltration of excess water.

To test his theory, Diesburg will compare mixtures of sand and peat as rooting media in two of the green compartments. A third will contain a mix of sand and "Profile" porous ceramic.

"We're looking at two rootzones and a sand commonly used in the area. In those two root zones we're looking at two different types of peat. One is from Canada. It's got larger particles, and is more of a sphagnum peat. The other is from the Dakotas. It's more mature, with darker, finer granules.

Diesburg says the "Profile" product

Lots of help

Ken Diesburg was hopeful we'd be able to mention the various contributors to the green construction project, and we're happy to oblige.

► First was the Rend Lake Conservancy District, owners of Rend Lake Golf Course.

"Jim Ashby was going to build a practice putting green anyway," says Diesburg.

"Contributions from other entities simply reduce his cost. He contributed the bulk of manhours from his crew, as well as most of the standard materials."

► The Southern Illinois Golf

Course Superintendents Association contributed \$2000 and backing. SIGCS member Ashby says that if this project is a success, two more identical greens will be built.

► AIMCOR, Buffalo Grove, Ill., donated the "Profile" Rootzone amendment.

► Munie Outdoor Services, Inc., of Belleville, Ill., lent a grader operator to shape the rough grade for the green.

► Modern Distributing of Maryland Heights, Mo., contributed irrigation sprinklers for the green.

► John Wear of Texas contributed a biological derivative from steer manure.

T.M.



From left, Rend Lake Superintendent James Ashby with Ken Diesburg and Todd Thomas, assistant superintendent, in early stages of the research green project.

won't crumble, and is durable like sand.

Diesburg says he often finds greens drying out too fast in the top inch of the rootzone during summer. They're saturated with water just below that top inch.

"Even if the bentgrass would be vigorous enough to grow deeper roots, the roots cannot grow into a water-saturated zone,

and there is no oxygen for respiration."

"It looks like [Profile] has potential as a replacement for peat," says Diesburg. "It adds to the construction cost of a green, but if it works, the savings in green management during the next 20 years would far exceed the initial cost."

Diesburg seeks a turfgrass cultivar with nice green color, quick fill-in capacity, high leaf growth and shoot density and good all-around hardiness. He also wants to observe the differential response of these cultivars to the three rootzones.

The green is seeded with Penn A-4, Crenshaw and Penncross bentgrasses. □

—Additional reporting and contributions by Ken Diesburg and Terry McIver

ROOTZONE SOIL PROPERTIES FOR RESEARCH GREEN

	Sand	Sand/15% Canadian peat	Sand/10% Dakota peat	Sand/15% 'Profile'
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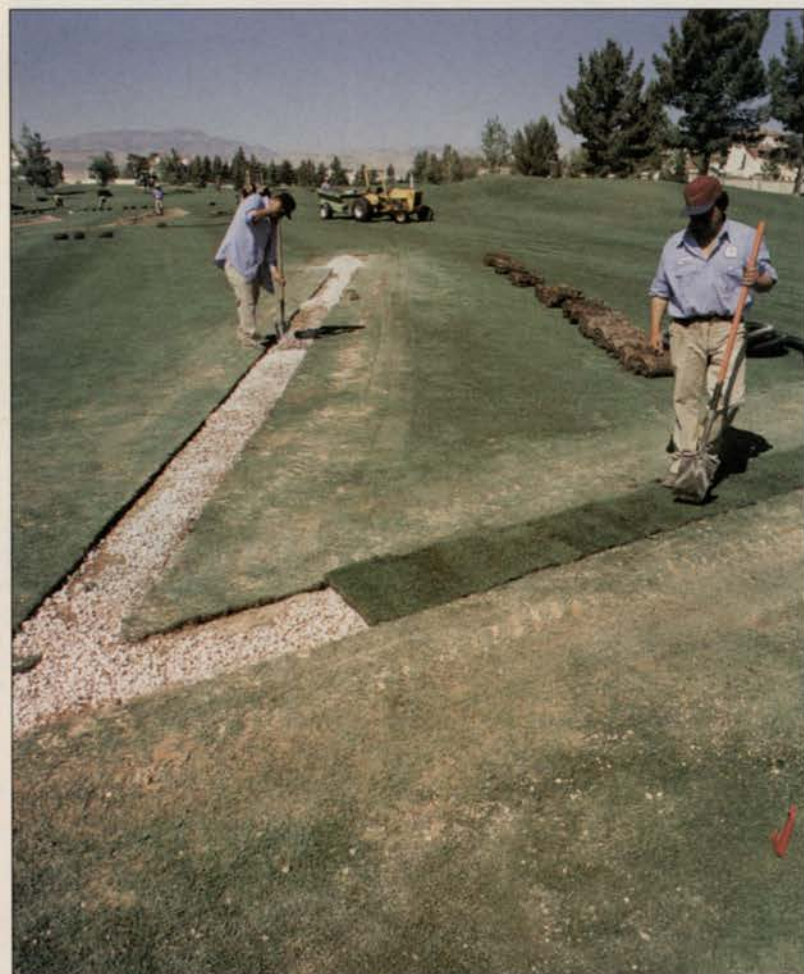


Every drop counts

Superintendent Bill Fielder, CGCS, seeks long-term water conservation solutions in maintaining Spanish Trail Country Club Golf Course in Las Vegas.

By DON DALE

Spanish Trail in Las Vegas is an impeccable golf course but receives, on average, just three inches of rain a year. Bill Fielder is, understandably, big on water conservation. And how: the annual water bill for the club is almost \$1 million. But his primary re-



The Spanish Trail crew works on installing drainage tile on the #9 hole on the Canyon Course. A new pump station, redesigned irrigation system are in place too.

sponsibility, as a certified golf course superintendent, is to maintain quality turf and trees at Spanish Trail Golf and Country Club where members expect superb playing conditions.

"We pay the highest water rates for golf courses anywhere in the western United States, and maybe the entire country," says Fielder who waters 210 acres of turf (common Bermuda fairways, hybrid 328 Bermuda tees, Penncross bentgrass greens) on the 240-acre development. His water conservation program seeks savings in places where many courses might not even think they can conserve water.

"The first thing was to get a new pump station," Fielder says of his new dual-pump Flowtronex PSI station with six 75-hp motors. The pump station, costing about \$110,000, increases water distribution efficiency, and allows Fielder to pump water where he needs it, when he needs it and under the pressure he needs it.

The new pump station, with its even pressures, has eliminated a lot of breakage and weeping of lines. Irrigators also constantly correct head spacings and nozzle imbalance.

The pump station is just part of a complete redesign of the irrigation system at Spanish Trail. That meant changing from a block system to a valve and head system on the 9-hole Canyon Course, with the other two courses scheduled for changeover in the near future. The redesign will cost \$1.5 million, but saves lots of water.

More precise control

By running each sprinkler head with its own valve, Fielder has more precise control of his irrigation. Before, he often had to overwater one spot to get adequate water on another spot. "Now we can address the hot spots, and only the hot spots," he says.

Management practices have a lot to do with total water usage, he notes, and he has gone to an efficient system. He has three irrigators, one for each nine holes.

"Constant maintenance of the system is the most important thing. Second is constant adjustment of the irrigation schedule," says Fielder. The Maxi V System is a great aid here, says the superintendent. Using the computer's calculations based on weather,

and their own knowledge of each course, Fielder and assistants make nightly adjustments to the schedule.

The superintendent even prints out each daily station log and go over it to see if there are problems, with irrigators changing each station's precipitation rates as needed to match up with evapotranspiration rates.

In the previous irrigation setup, Fielder recalls, "we'd actually have to come out in the day and add more water." In addition to poor coverage and massive water losses to evapotranspiration, the soil suffered from sodium buildup.

"Basically what happens is that sodium makes the plants unable to use the water that is there." Consequently, more water has to be used to get the desired effect.

Other options

"We use a lot of soil amendments and wetting agents to reduce the amount of water required to properly irrigate," Fielder says—calcium, sulphur, gypsum and, on an experimental basis, some porous ceramics. The amendments improve water penetration to the root zone, as well as improve drainage.

"In the case of wetting agents we're trying to reduce the surface tension so water will penetrate," he points out. He uses the wetting agents through the pump station, or applied with a boom pressure sprayer directly to greens, tees and localized hot spots.

The club is also laying drainage tile under one fairway, and plans to French-drain other holes if this experiment in leaching is successful.

Another method of reducing water usage is by reducing turf, and Fielder has taken out about 10 acres in low-use areas such as along drainways. This isn't popular in a development that has houses worth up to \$15 million, but it does save money.

Spanish Trail is also drilling its own water well to participate in an irrigation district groundwater recharge program. This will give the club reduced rates on their Colorado River water, but it will also cost \$0.5 million for all the upgrades.

Leaky lakes are scheduled for a bottom-lift in the future, and that will save water in bunches. "We're



Bill Fielder at Spanish Trail Golf Club in Las Vegas says the three most important things on a desert golf course are—"irrigation, irrigation, and irrigation."

going to drain them and line them with 20 mm PVC liner," Fielder says. "Each one we do is going to cost us \$100,000."

But look at the cost to replace water lost to leaks and evaporation in one month, April, and you'll see why leak stoppage is a good policy. That month's water loss on one lake cost \$1,100.

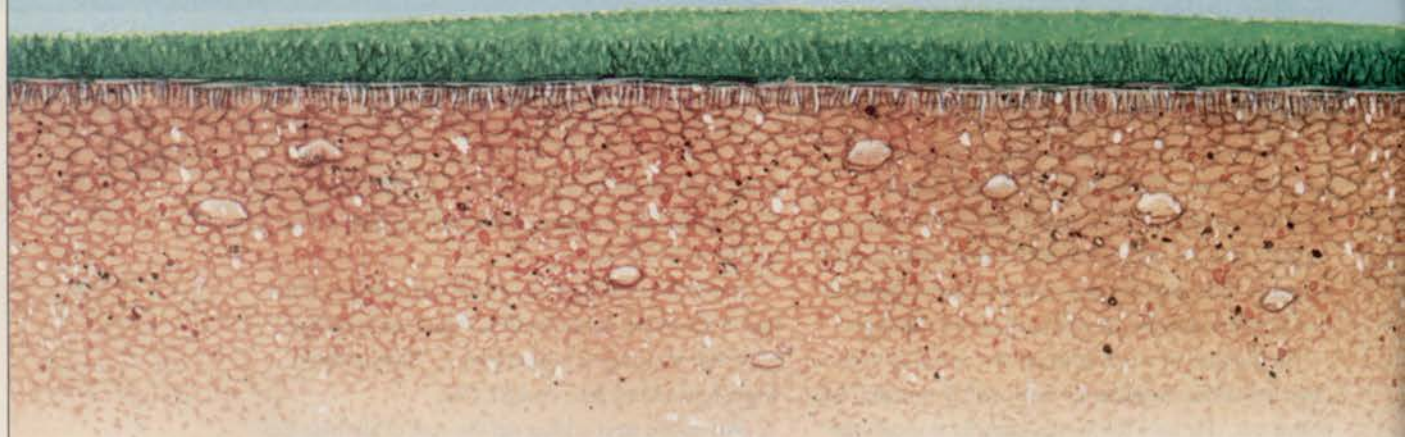
When you start adding up the cost of all these improvements you're looking at millions of dollars. But Fielder says that in a city of a million people that is adding a thousand families a week to its population, water will become more expensive in the future. Restrictions on usage will also be more prevalent.

"In the desert the three most important things on a golf course are irrigation, irrigation, irrigation," Fielder says, adding, there are two ways to pay for a golf course: "Now, or forever." A good irrigation system pays off now.

It's paying off now at Spanish Trail thanks to an aggressive program to conserve water. □

—Writer Don Dale is based in Willcox, Arizona

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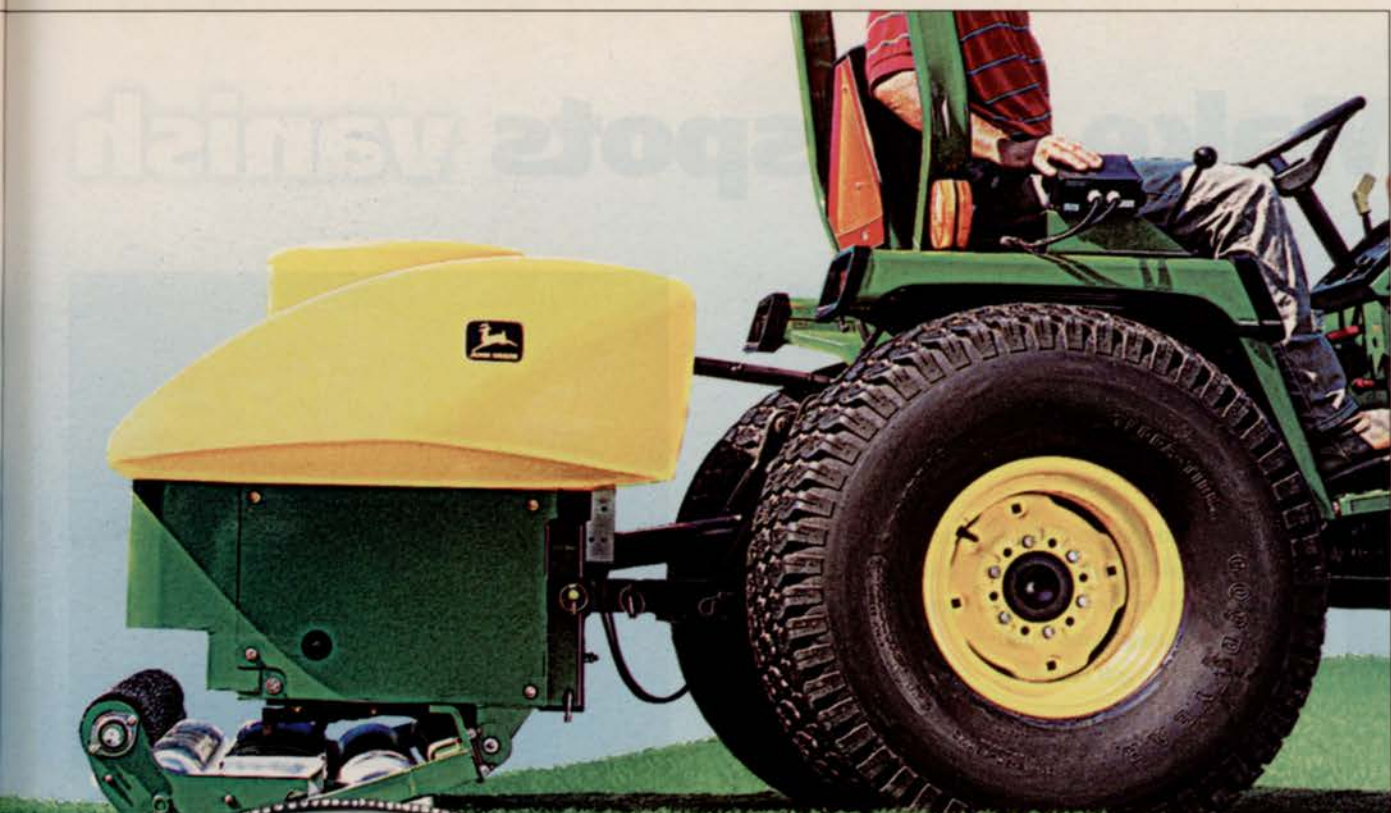
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NOTHING RUNS LIKE A DEERE®

Make dry spots vanish

Researchers tell superintendents what to use and what they can do to make the dry spots on their greens go away.

By JOHN C. FECH

It's just a few short weeks away from the annual statewide tournament and you're the host. Lots of details run through your mind as you prepare the golf course for play.

The last thing you need to worry about are localized dry spots on the greens. But, sure enough, the symptoms are showing up—foot printing, dark blue-green color development, and even some wilting and tissue loss. You try stepping up the irrigation cycles, but it doesn't help much. The spots are there.

Many causes

Localized dry spots (LDS) are symptoms with various causes. On native soil greens, many factors including thatch, compaction, poor irrigation coverage, and fungal mats can cause dry spots. On USGA specification or other high-sand-

content greens, hydrophobic (water repelling) soils are mainly responsible.

On both types, once a spot becomes noticeable, it's difficult to get it to perform normally again. As with pest control and other problems, proper diagnosis of the cause of the LDS is critical.

Research sheds some light on this problem on high-sand-content greens. The water-repelling capacity of a given soil is believed to be related to the buildup of an organic coating on the soil particles.

"The coating results from the natural microbial process of breakdown of roots, shoots and organic elements of the soil mixture such as peat moss," says Dr. Keith Karnok, professor of turfgrass science at the University of Georgia. When the coat-

ing becomes dry, its chemical nature repels water. Because high-sand-content greens hold water poorly to begin with, coatings further reduce moisture holding capacity and increase the rate of drying.

The symptoms of localized dry spots can be temporarily suppressed by using wetting agents, compounds which lower the surface tension of applied irrigation water. There are many products available in today's market. However, Karnok's research indicates that there are not significant performance differences among them. "Differences show up in cost, amount of product required and number of applications necessary to relieve symptoms," says Karnok.

Superintendents, on the other hand, may have favorite products. "Superintendents have to feel comfortable with whatever product they use. It has to be compatible with whatever else they may be applying to the green at the time such as fungicides or fertilizers," says Charlie Hadwick, superintendent at the Country Club of Lincoln, Neb. "The bigger concern is potential phytotoxicity to the green." To reduce risk to valuable turf, Charlie tests new products on the practice green.



Localized dry spot symptoms: blue-green turf color, wilting.

PHOTO COURTESY DR. PAUL REKE



Expression of mushrooms in localized dry spots, something you might not expect.

PAUL VERMUELEN, USGA

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Hadwick believes the coating issue is at the core of debate over controlling dry spots. "It affects so many things—USGA sand greens versus native soil mixes, high rates of wetting agents being effective, and possible relationship to fairy ring—sort of a problem cousin to localized dry spots." As evidenced by the expression of mushrooms in spots, the coating causes odd symptoms. "Whoever would expect mushrooms to show up in a dry spot?" asks Hadwick.

Soil modification through aeration and topdressing is another approach. Also, Kamok has seen positive results with the use of PSA diatomaceous earth soil amendment products.

Dr. David Minner, associate professor of turfgrass science at Iowa State University, has conducted several field studies to assess the optimum procedures and materials to incorporate.

"There is a negative stigma surrounding these products, kind of skepticism based

Be persistent or you'll have a hard time getting rid of localized dry spots.

on the notion of using kitty litter on your green," says Minner. Even so, he's encouraged by the results of his studies. One product in particular, Profile, has demonstrated dramatic differences. He encourages superintendents to try it for themselves.

"Break open a bag and see for yourself," says Minner. "After coring a green, backfill the holes with Profile in a 10 by 10 ft. area where dry spot is a problem. The treated area should show up if its helping your dry spot problem."

Minner reports that some calcined clays are dusty and can break down into finer materials that may severely reduce water infiltration on sand greens. Profile is differ-

ent than calcined clays of the past in that the dust particles are removed and the material is heated to a higher temperature creating a porous ceramic material.

"It appears that coring and topdressing dry spots with Profile will allow water to quickly enter, and remain in the dry spot sand," adds Minner.

The best approach to dealing with localized dry spots is to be persistent. "You've got to stay on top of them," adds Hadwick. "Hand water during the heat of the day, and put the water where it's dry, not where it's wet. Use light repeated applications. Let it soak in. Rewater. Otherwise the water just runs downhill, and you haven't got enough on the dry spots, and you've got too much everywhere else." □

—The author is an extension educator with the University of Nebraska



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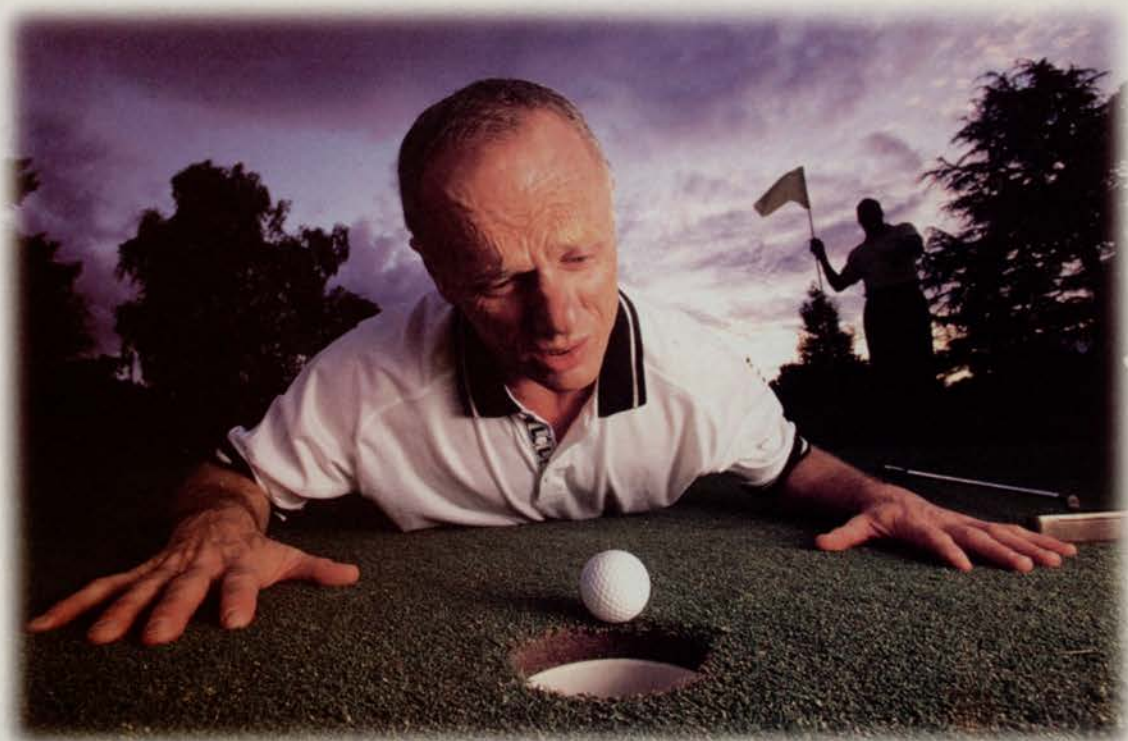
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Is leasing for you?

You don't always have to buy those big-ticket equipment items you need to maintain your golf course. Here's why.

By STEVE AND SUZ TRUSTY

Your crews need to manure the turf and groom bunkers quickly and efficiently and get off the course to clear the way for play. The better the course looks and plays, the more satisfied the golfers, greens committee and course owners.

Obviously, how you work with and manage people and equipment affects maintenance quality. Less obvious is the impact your allocation of resources has on maintenance quality. But in reality, that's what comes first. You only have so many dollars to spend and how you spend them determines what equipment and which people make up your maintenance team.

How leasing works

Technically, leasing is a contract granting use of property during a specified period in exchange for a specified fee. Some call leasing a long-term rental agreement. And, like rentals, leasing offers you the opportunity to select the equipment you want for the time period you want without tying up financial resources for the total price of the unit.

With leasing you pay for equipment as you use it which helps with cash flow. Down payments usually are lower. Often you can finance 100 percent of the equipment costs. Also, leasing generally allows you to keep your established lines of credit open and available for other needs.

There can be tax benefits as well. De-

pending on the terms and conditions of your leasing agreement, the leasing payments could be up to fully tax deductible.

Terms of the lease must be negotiated, of course, but most offer options in length from 24 to 60 months. For golf and turf equipment, a 36 month lease is common. The lease agreement gives you the option of simply turning in the unit and walking away, or of trading up to a new machine in three years without taking a financial hit for doing so.

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A quick review of your service and repair records will reveal an added advantage to regular cycles of equipment replacement. The need for major repairs occurs most frequently on older machines.

Though no equipment is immune to unexpected breakdowns, major problems with newer units—whether purchased or leased—should be covered by the manufacturer's warranty.

Comparable terms

Could you get a better deal from a bank? No, according to most lease holders, especially since bottom line cost isn't your only consideration. Banks often will require a down payment, sometimes a substantial one. Most lease agreements have minimal, and some have no, down payment requirements.

With a bank loan, you own the machine. Generally, the tax advantages are not as good. Friendly as your local banker may be, odds are he or she doesn't thoroughly understand your business. Payments are set to fit the bank's needs and schedules, not yours. It's the job of the leasing companies associated with equipment manufacturers to understand your business and meet your needs.

With some of these companies' lease

agreements, you can include a "skip payment" option that allows you to set up a payment schedule in which no payments are required during the off-season when your cash flow is the tightest. They also may offer a "bundling" option in which you may include used equipment from the associated manufacturer, competitive equipment from other manufacturers, and allied products, all in the same package with your new equipment lease.

Who leases?

John Deere's Golf & Turf Division Business Manager Ken Edwards, says, "Anything that's going to appreciate in value, you buy; anything that's going to depreciate, you lease."


While that may be too basic for some things (You can't lease new carpeting for the clubhouse for example, and that definitely depreciates.) it does apply to equipment.

Flexibility

Lease flexibility gives you other alternatives as well. You might decide at the end of a 36 month lease that you really like a certain unit and the job it's doing for you. You can exercise the purchase option that could be included in the lease agreement.

This purchase amount is determined at the time the lease is signed, so you'll already know the cost. You can make your decision based on the condition of the machine—which you and your service technicians will know—and the current market price of a comparable unit.

Or, at the end of a lease period, you could decide that the machine you're using is still performing well and isn't much different from what is currently on the market. You also may have heard that a new model is due for introduction quite soon. You then could extend the lease on the current machine for a specific period, say another 12 to 24 months. **LM**



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- Allows for low use rates
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Put the power of EAGLE

Superintendents tell why they rely on Eagle to prevent stubborn turf diseases.



Mike Jones
Valley High Country Club
Elk Grove, CA

"We go into the season with really nice greens," says Mike Jones, superintendent at Valley High Country Club in Elk Grove, CA.

"Then about July, the decline starts and it's a constant battle all through September."

Mike's solution was to intensify his preventative fungicide program with Eagle[®] while raising fertility levels.

Mike's experience was no surprise to us. We've been saying all along that Eagle provides dependable, long-lasting protection against 14 major turf diseases — protection unmatched by any other systemic fungicide. Better yet, Eagle is now registered to control summer patch and spring dead patch.



Rich Hardebeck
Eagle Lake Golf Club
Farmington, MO

Tackling dollar spot and brown patch

Rich Hardebeck is superintendent at Eagle Lake Golf Club in

Farmington, MO. When he first came to Eagle Lake, he experienced extremely heavy dollar spot on his ryegrass and bluegrass fairways.

"Last year," says Rich, "I applied Eagle preventatively in April and again in September and didn't see dollar spot all summer."



Dave Anderson
Evergreen Country Club
Haymarket, VA

Dollar spot was also Dave Anderson's problem, as well as brown patch on his ryegrass fairways.



to work for you.

Dave is superintendent at Evergreen Country Club in Haymarket, VA.

"I used Eagle exclusively on the fairways," he says, "and they were the best fairways I've ever had, especially considering the extreme heat."

"Late in the year," Dave continues, "I alternated Eagle with a contact fungicide to control gray leaf spot and got excellent results overall."

Effectiveness is just the beginning.

In addition to the long-lasting protection of Eagle, superintendents

appreciated its outstanding turf safety, low-use rates and water-soluble packaging.

"I don't have the safety concerns with Eagle that I do with other sterol inhibitors," says Mike Jones. "And rates are so low, I have the flexibility of using it in the fall if I need to."

The flexibility of Eagle is further enhanced by the new extended spray schedule—now up to 28 days.

Those are powerful reasons for using Eagle. Dave Anderson gives the final word.

"Considering its length of control, low-use rates and cost,"

he says, "Eagle offers the best of both worlds."

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T-O-160

2/97

Circle No. 130 on Reader Inquiry Card

Grass carp nears Calif. okay

The bill to expand superintendent use of the grass carp passed the California Senate by a vote of 31-1 reports the GCSAA. California GCSA and lobbyists were tireless in efforts to secure the vote. Fish and Wildlife officials have expressed concern about expanding grass carp use to the whole state at once but superintendents are optimistic about getting their bill through the Assembly and signed by the governor. □

Alice Dye new ASGCA president

Alice Dye has helped make history for the American Society of Golf Course Architects by becoming the first woman president of the 51 year-old organization.

The selection of Dye is also the first time a husband and wife have served the Society as presidents. Designer Pete Dye served in the post in 1989.

Alice Dye has co-designed more than 40 golf courses in the U.S. and abroad, and is perhaps best known for her work as a promoter of women's golf, according to the Society. She has drawn attention to the need for courses that challenge the skills of women golfers through the placement of tees and hazards.

Dye holds more than 50 amateur titles.

The election of Dye was held at the ASGCA annual meeting in Toronto in May. Also elected officers were:

Vice president: Bob Lohmann, Marengo, Ill.;

Treasurer: John LaFoy, Greenville, S.C.;

Secretary: Brian Ault, Kensington, Md.

Immediate past president Denis Griffiths of Braselton, Ga., will serve as ex-officio member of the ASGCA Board of Governors. □

Detroiters raise \$20,000 for Special Olympics

The Greater Detroit Golf Course Superintendents Association recently raised \$20,000 for the Special Olympics through a golf outing at Bald Mountain Golf Course, Lake Orion, Mich.

The tournament scramble was won by the team of Gerald and Jerry Pireskorn; Scott Barrows and Ron Adams. Second place team was Ted Kasel; Randy Miller; John Haney; and Craig Jach. □

Do the best supers wear Etonics? They do now!

As a component of the three-year partnership, Etonic will market its *Dri-Lite* Series golf shoes as "GCSAA's Official Superintendent's Shoe."

"By working in conjunction with the people responsible for maintaining golf courses nationwide, Etonic will gain input that will allow the company to produce golf shoes that are best suited for today's golf courses, while also strengthening our stature as the industry leader in the alternative spike market," says Bill Kirkendall, president of Etonic Worldwide Corporation.

Etonic and GCSAA will share information in areas related to alternative spikes, focus group discussions, professional development and industry-client round table forums.

Bollig suggests that the information exchanged between the two groups would likely consist of turf research information.

"It's one of those things that if Etonic called and said 'we're trying to develop a product, what have you guys found,'" says Bollig.

"And from [Etonic's] standpoint, if they do any testing...they'd share with our membership."

Does GCSAA or does it not favor alternative spikes?

"From a strictly agronomic focus, I would say 'yes' says Jeff Bollig, spokesman for GCSAA. "But knowing that the game of golf involves more than just [the superintendent's] area, we have to look at this on a wide-range basis.

For example, says Bollig, "There's bermuda-grass courses with very little traffic, and there's probably no reason to mandate some of these courses to go to alternative spikes. There's also some of our members who feel that because the alternative spike craze has hit, people are going to change automatically, and it's just a matter of time [before all courses mandate their use].

Etonic will help to fund the GCSAA's Development Series, and will also contribute to the GCSAA Foundation. □

These questions came straight from the customers of lawn care operators, pest control operators and other professional pesticide applicators across the country—and probably reflect the concerns of your customers. The more your customers know about the products you use, how you use them and how much is used, the more confident they will be in you and your service.

Communicate With Your Customers

Your customers expect you and your employees to be credible and knowledgeable sources of information about your products. Take time to talk with them about your safe and responsible use of pesticides.

Studies show that most people don't know that pesticide products are among the most highly tested products sold. The U.S. Environmental Protection Agency (EPA) registers only those uses of pesticide products that pose minimal risks.

- Emphasize that pesticide products must undergo stringent government-monitored testing before they can be sold. It is a long and costly process. For example:
 - It takes a chemical manufacturer eight to 10 years to test and register a product, at an average cost of \$30 million to \$50 million.
 - As many as 120 tests or more are performed, many specific to health, safety and the environment.
 - Only one potential pesticide in 20,000 makes it from the research lab to the market.
- Explain Integrated Pest Management (IPM) to your customers. Most do not fully understand the concept. Point out that a successful IPM program stresses prevention, pest identification and selection of the best method of pest control, which may require the use of pesticides. Tell how you incorporate IPM into your pest management practices.
- Identify the specific pesticides you use and the pests they control.
- Indicate that professionals use an array of products, many the same as those used by homeowners.
- Assure customers of the benefits pesticides provide for turf, trees and ornamentals, and in the home. For example:
 - Termites cause over \$1 billion in structural damage each year.

"Are the pesticides you use safe?"

"Are the pesticides that professionals use stronger and more toxic?"

"When is it safe for my children and pets to return to an area after a pesticide application?"



- One large, pest- and disease-free tree has the same cooling effect as 15 room-size air conditioners.

- A well-maintained lawn and landscape adds as much as 15 percent to a home's value.

- Discuss your safe and responsible use of pesticides as a professional applicator. Note the many steps you take to ensure that the pesticides you use are used properly.
- Advise your customers that you closely follow label instructions. The label contains instructions for only those uses approved by EPA.
- Outline the extensive training that is mandatory for professional applicators in order to apply specialty pesticides. Applicators are required by law to undergo training, certification and licensing, as well as to keep records of each job performed.

- Explain what happens to pesticide containers once a job has been completed. Note that containers are disposed of properly.

What Else Can You Do?

Provide your customers with materials such as newsletters, brochures, fact sheets and bill stuffers that communicate these messages. Be sure that someone at your company, who has a basic knowledge of the products and application methods your company uses, is available to answer questions.

RISE Is A Resource

RISE is the voice for the specialty pesticide industry. Its members include manufacturers, formulators, distributors and other industry leaders.

RISE works in cooperation with your national, state and local user/applicator associations and is an additional source of information regarding issues facing pesticide users. We can help you in your role as a knowledgeable and credible information source to customers and to the public. A brochure on communicating about pesticides with your customers is available. Contact RISE to receive your copy.

We urge you to take an active part in your state and national association(s). We work together to support your business.



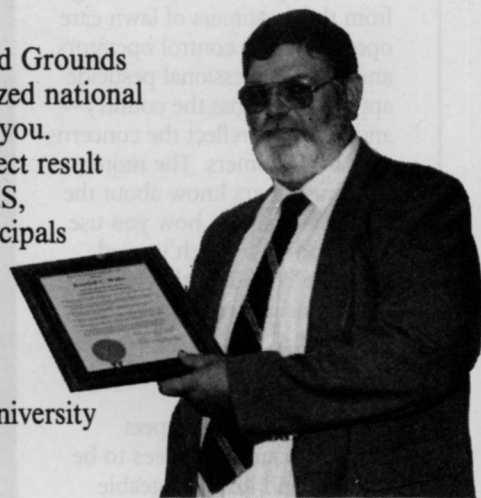
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Randy Willis, CGM
Grounds Supervisor
NW Missouri State University



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The Professional Lawn Care Association of America (PLCAA) is a stable, well-run organization, but it has some tough decisions to make.

Tops on the list is finding a new fulltime leader. Then there's the need to begin growing again. Also, is it in PLCAA's best interest, or of the green industry itself, for PLCAA to continue to manage the Green Industry Expo?

The GIE is a partnership among PLCAA, the Associated Landscape Contractors of America (ALCA), and the Professional Grounds Management Society (PGMS).

PLCAA has managed it since its inception about seven years ago. GIE has, with a few glitches, worked very well. It's been a good deal for just about everybody in the industry. Suppliers show their wares to a wider audience. Show attendees get to pick and choose among the three group's educational offerings.

In conjunction with the show, each association conducts its own conference with its own annual meetings, award ceremonies and educational sessions. Each association retains a measure of autonomy which is the way it should be. This year's GIE is in Charlotte, NC, in November and cooperation among participating associations remains strong. Indications point to a strong 1997 GIE.

I'm glad. It's to the green industry's best interest that the three organizations continue to cooperate for the GIE; the only question is, who should manage it?

As for PLCAA's new leader, what seemed like a done deal, the hiring of Rex Boynton to manage the Professional Lawn Care Association of America (PLCAA), didn't happen.

The executive director of the Picture Framing Association for the past six years, really impressed the PLCAA Search Committee, but Boynton

[LANDSCAPE/GROUNDS]

PAGE 8 L ▶

Maintaining a maintenance edge

PAGE 12 L ▶

A field fit for a World Series

PAGE 14 L ▶

Can you aerify too much?

PAGE 20 L ▶

Techniques for beautiful ponds

Next PLCAA leader will need to jump right in



Ron Hall

RON HALL
Managing Editor

took another job in Richmond, VA, where he and his family live. Because the Boyntons have school-age children, they apparently decided against packing up and moving. PLCAA is headquartered in Marietta, GA.

PLCAA has been without a fulltime executive director since Ann McClure left in mid spring. She departed leaving the Association in solid financial shape and with an able staff. Overall, she was an excellent manager and administrator.

But, neither she nor the PLCAA board members over the past decade have been able to grow the organization much beyond its 1000 or so members. Back in the mid 1980s it looked like the Association would reach 2,000 members. It didn't happen. PLCAA, although it's had some success in starting regional allied associations, seems to be on membership cruise control.

PLCAA will probably have to rethink its dues structure to put some zip back into its membership effort. It should more vigorously court the small mowing and maintenance firms too. I think it has a lot it could offer this segment of the industry.

One thing for sure, PLCAA's next executive director won't be able to just come in and keep the wheels turning. That person is going to have to have to make things happen. And soon too. **LM**

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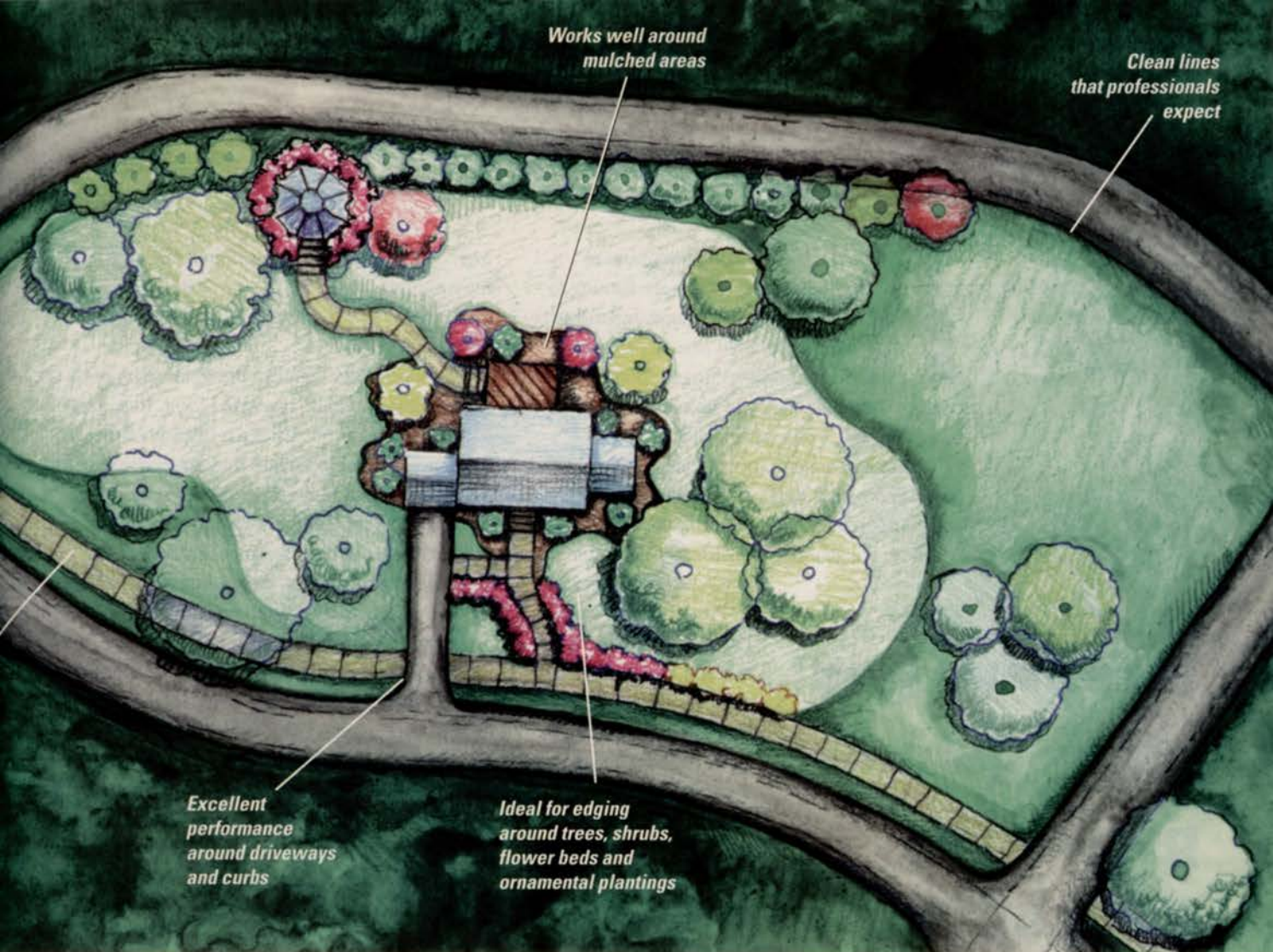
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Circle No. 139 on Reader Inquiry Card

Incentive pay plans gain in popularity with LCOs



BOB ANDREWS
Contributing Editor

As the labor market continues to tighten, many LCOs are turning to incentive pay programs. Instead of relying on straight hourly pay, overtime, and discretionary bonuses these operators are linking pay to objective measures of individual and group performance.

Of course, the employer's goal is to retain and reward his or her staff while also tying employees' compensation more directly to performance.

There are generally six different ways that LCOs pay employees:

Production bonus.

These firms recognize, first and foremost, that the work must get done. Therefore, those with production responsibility are rewarded for it. Production standards are set and usually a percentage of individual billing is paid. Some firms pay the percentage weekly, some pay it monthly so that this portion of the incentive program is done shortly after the work it rewards. Some firms limit the amount of personal production to better control service quality.

Individual sales. Whether it is done during the course of production or as an off-season activity, separate incentives are paid for individual sales. This allows as many people as possible to be engaged in marketing. Front-line employees are closest to the customer, so why not pay them for expanding the customer base? Usually this is done by paying the employee a flat fee for a new customer, or a percentage of first-season sales.

Referral bonus. The best source of new business is an existing customer, most LCOs feel. A customer's satisfaction with your service and their confidence in your company often leads that customer to refer new customers to you.

It follows that the service provider that generates new customers this way must be providing a

high quality of service. This is great for customer retention, so rewarding the employee responsible for a referral is actually rewarding the employee for retention too.

Responsibility. People with supervisory responsibility should be rewarded for it. In some cases, the level of reward is a reflection of the performance of the employees they supervise.

In this scenario, the supervisor isn't simply being paid a high salary for "being responsible." Indeed, the supervisor's compensation can rise and fall, to some extent, depending on his or her group's productivity. While such an incentive program may not have a major effect on the manager's overall pay, it does get his or her attention.

Length of service. Many firms build in some extra compensation based on length of continuous service. This recognizes the value of a long-term employee, and the employer's desire to keep turnover at a minimum. Usually, businesses offering a length-of-term incentive do so in the form of a flat increase in base pay on the anniversary date of the employee's hire.

Cost of living. Some operators include an annual cost of living increase in their compensation program, particularly for salaried employees. Usually this is based on the average increase in the Consumer Price Index. In recent years this has averaged about 2 percent annually. These companies find a cost-of-living adjustment to be a fair way to increase the pay of employees that aren't eligible for incentive programs.

What is interesting about these options is that four of the six are related to the employee performance, and its impact on the business. □



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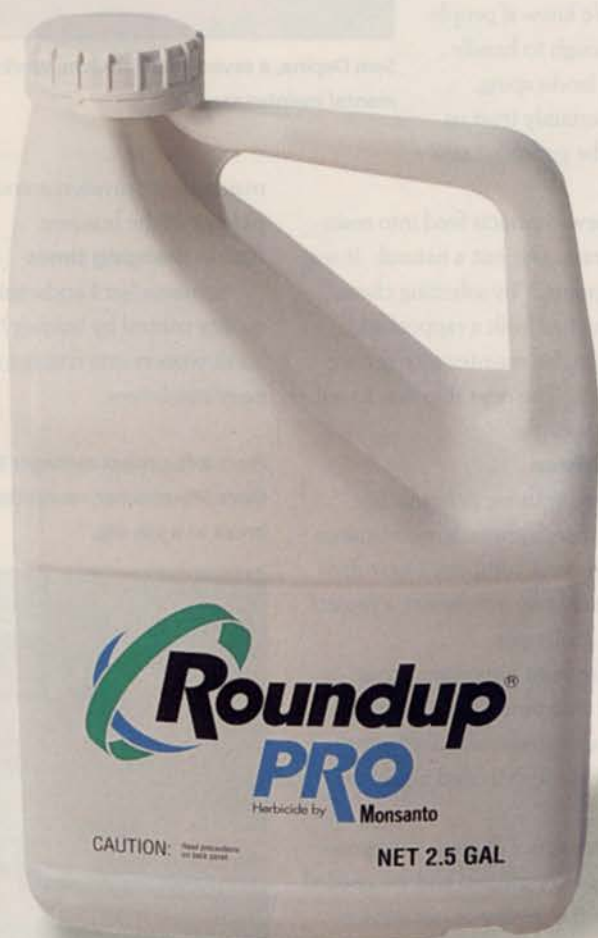
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'MAINTAINING' an edge

When the real estate market started falling, Boston's John Schumacher looked for an opportunity beyond landscape construction, and found it in maintenance.

A company will often find a profitable market niche by being in the right place at the right time or by simply reacting to a group of particular circumstances.

This was the case when John Schumacher, founder of Schumacher Landscaping in Boston, entered the maintenance market in response to New England's worst real estate recession a decade ago.

"When I founded Schumacher Landscaping 30 years ago, my vision was to provide landscape construction to new facilities and residences throughout the region," says Schumacher. "This plan was a success throughout the first twenty years of the

business. However, as the late eighties approached, all signs pointed to a recession and I knew I needed to do something to prepare for my company's financial survival." Schumacher's goal was to discover a way to bring in a new source of revenue before the real estate market collapsed.



John Schumacher: customer trust helped win maintenance accounts.

Since most of his business was based on new landscape construction, his solution was to open a division that would offer maintenance programs to his current and former clients. After all, he knew that even if all new construction stopped, the grass would still grow and need to be maintained.

Fast action

Schumacher didn't lose time implementing his plan. By 1987 he was soliciting former clients to sign on for maintenance programs. He also designed maintenance packages for new construction contracts. "We knew if people trusted us enough to handle their original landscaping, they would certainly trust us to maintain the grounds," says Schumacher.

"Having new contracts feed into maintenance contracts was just a natural. It was one-stop shopping." By soliciting clients with whom he had built a rapport and solid reputation, his maintenance service was an easy sell. The next step was to sell the service in volume.

Forming a division

To increase volume, Schumacher hired Gary Chase, a grounds maintenance specialist, to run the company's new division. Chase hired two estimators, a project manager and a salesman.

"One of the most important accomplishments at that time was to develop a system for management and marketing that operated like a well oiled machine," says Chase.

"The maintenance division was growing faster than we expected and we needed to ensure that the quality of our service wasn't being compromised as is often the case with growth," says Chase. By bringing four additional staff members into the division, Chase was able to increase sales and ensure a smooth operation. By 1992 the



Sam Depina, a seven-year foreman, works here in ornamental maintenance.

maintenance division accounted for 10 percent of the business.

'QC' in changing times

Schumacher Landscaping managed quality control by turning New England's harsh winters into training season for company employees.

From left, project manager Rich Wyman and Dave Schumacher, marketing director take a break at a job site.



Today, Schumacher's employees account for six percent of all Massachusetts Certified Landscape Professionals (MCLPs), a designation set up by the Associated Landscape Contractors of Massachusetts (ALCM). The organization holds rigorous training programs for plant identification, insects & diseases of ornamental plants, plant health care, soils, turfgrass management, safe use of pesticides, safety and first aid, design and more.

To improve employee retention, Schumacher not only provided competitive benefits packages and opportunities for employees to grow within the company, he provided those benefits year round to his seasonal employees.

"It was a risk that continues to pay off every year," says Schumacher. "Because I believe in my staff and respect their needs, quality has been controlled and improved each year due to low turnover and our highly experienced field. Today most of my employees have been with the company for an average of 10 years."

Still growing

By 1996 Schumacher and the rest of the region were well out of the recession, yet as the market for new landscape construction increased, Schumacher continued aggressively pursuing the maintenance market. Why? Because when Schumacher formalized his department with job costing and estimates, he discovered

that the profitability in maintenance was just as good if not better than new landscape construction. Today, Schumacher's maintenance division consists of 45 staff members and accounts for 20 percent of revenues. John's son, David Schumacher, manages sales for the maintenance division, and says that he and his father were even thinking about growing maintenance into a

separate company. However, the Schumachers decided that their success in maintenance was based on their solid reputation in new construction. The company plans to grow the maintenance division wherever possible, to 30 percent of company revenues by the year 2000. □



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users. We're confident these amazing new engines will soon be the power of choice for string trimmers, leaf blowers, backpack blowers and mini tillers all over the world.



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These lightweight engines are hard-working, clean-running and incredibly easy to start. They measure less than ten inches square, length by width, and are about eight inches deep. Actually, they're about the same size or even smaller than most two-stroke engines, but so much better. Small engines. Big difference.

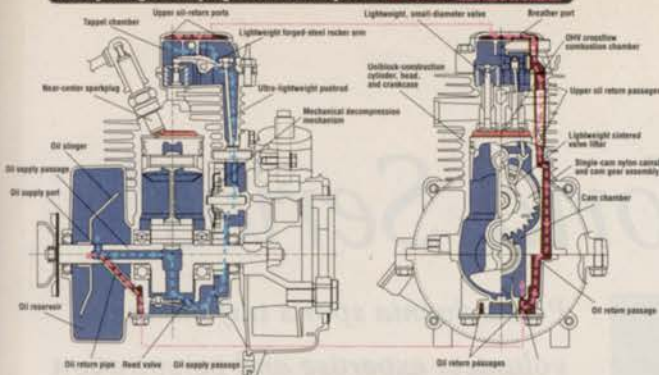
This ultra-compact, lightweight design is accomplished through a uniblock construction that integrates the cylinder, head, and upper crankcase into one piece. The innovative OHV format uses a single cam to actuate both intake and exhaust valves. And the durable nylon cam gear assembly and ultra-compact fuel tank further lighten the engine—making the Mini 4-Strokes the smallest and lightest four-stroke engines made today for hand-held power equipment. Available in two sizes, the 22cc GX22 and the 31cc GX31, these breakthrough 4-stroke engines are ideal for all hand-held power equipment.

Use Anywhere, Do Anything.

With 360° inclinable operation, Honda's Mini 4-Stroke will run like a charm. This unbelievable agility is possible because of a clever rotary-slinger pumping lubrication system that keeps oil in a completely misted state and circulates it using pressure fluctuations generated by the movement of the piston. Built-in passages effectively return the circulated oil to the oil reservoir from every part of the engine. Plus, an oil-return point positioned in the center of the reservoir ensures that oil cannot



Rotary-Slinger Pumping Lubrication System



mechanical noise even more. These various features all work in unison to help eliminate annoying noise and smoke and help reduce user fatigue.

Convenient and Economical to Use

With Honda's four-stroke engines, there is no oil and gas to mix, no messy containers, no special storage requirements. The Mini 4-Strokes also suppress spark plug carbon buildup and carburetor clogging, maintaining like-new starting ease even after long periods of use or storage.

Other Honda design innovations allow these engines to deliver fuel consumption approximately half that of two-stroke engines. The end result is lower maintenance costs that actually make the engine more economical the longer you own and use it. Efficient 4-stroke combustion significantly lowers emissions, making the Mini 4-Strokes more environmentally friendly.

And They're Powerful

Following in the footsteps of every Honda engine before, the Mini 4-Strokes are packed with power. Legendary Honda power, to be exact. And when you combine this esteemed power with the engines' flexibility in application, ultra-lightweight construction and amazingly compact size, you have a revolutionary new engine that is ideally suited to all kinds of hand-held and portable equipment. You have the future of hand-held power right in the palm of your hand.

For a free brochure on the incredible Honda Mini 4-Stroke Engines, call 1-800-426-7701.

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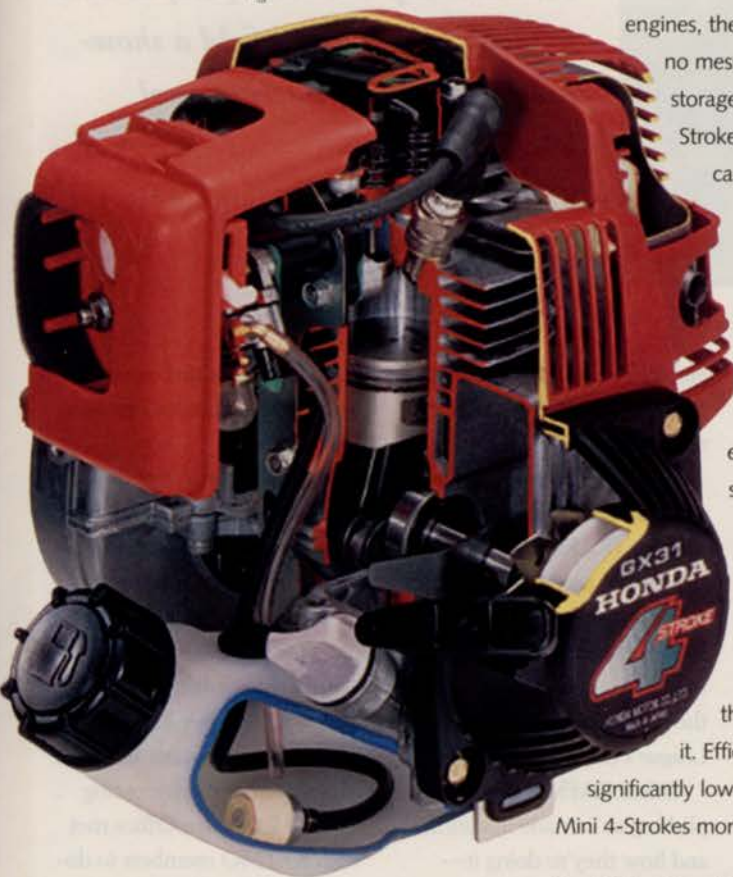


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ultra-small,
four-stroke
engines,
the Honda
Mini 4-Strokes.*

HONDA
ENGINES

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accidentally flow into the combustion chamber. That translates into inclinability and flexibility in use.

Unbelievably Quiet

With this new 4-stroke technology comes a new level of quiet hand-held power. This is because in two-stroke engines exhaust gases are released in a high-pressure state, resulting in a loud muffler noise and fatiguing vibrations. But Honda's Mini 4-Strokes take advantage of the four-stroke combustion format to reduce noise by delaying the opening of the exhaust valve. A nylon cam gear assembly dampens

FIT *for a 'World Series'*



L. to R.: Paddy Drimmie, Kirk Felix, Joe Lutz, Mark Carbaugh, Jim Rooker (ABC commentator), Jimmy Scott (coordinator for Little League fields), Don Fowler, David Fowler.

Below, KAFMO volunteer Tim Foreman helped build the pitchers mound. Right, bottom, Alpine Services graded the field.



Pennsylvania sports turf managers volunteer expertise and perspiration to make Little League field a showcase for August's International World Series.

By RON HALL / Managing Editor

For a few days each summer baseball's attention turns to Williamsport in the wooded mountains of north central Pennsylvania. Williamsport is international headquarters of Little League Baseball. Each August, the Little League World Series is played near here. That's when Little League, after 12 games in seven days, crowns a new world champion.

Unlike Major League Baseball, this event truly is

global. Teams from about 90 nations compete for the right to play here each August.

Members of the Keystone Athletic Field Managers Organization (KAFMO) help make the Little League World Series special. Members donate hard-earned expertise and hundreds of man hours to help improve the playing field at Little League's Lamade Stadium.

What KAFMO is accomplishing at Lamade Stadium—and how they're doing it—highlights the specialized

knowledge that turf managers bring to the America's growing love of sport.

"Little League wanted these young baseball players, coming from around the world, to play on the best Little League field in the world," says Don Fowler, one of the KAFMO volunteers.

Companies quick to help

On September 21, 1995, Little League officials and Tom Murphy from the Lycoming County Extension Office met with KAFMO members to discuss renovating the stadium playing field. Little League had already stripped the field and it asked for help. KAFMO volunteers agreed to help, and immediately went to work.

In fact, as they drove from Williamsport that very day, Kurt Nilsson, with Blue Mount Quarry (a regional supplier of diamond mix, mound clay and infield conditioner) enlisted, via car phone, preliminary agreements with sod supplier Hummer Sports Turf, and with Alpine Services, a company spe-



Grove Teates of Alpine Services used a laser to make sure Little League's World Series field drained to the warning track, foul lines.

cializing in grading and field renovations. Four days later both companies signed contracts with Little League Baseball, Inc.

"Other than Beaver Stadium at Penn State, this Little League field is probably the most high profile field in all of the state," says Dan Douglas, KAFMO president and stadium grounds superintendent of the Reading Phillies. "The whole world's attention is on Williamsport, so we committed ourselves to helping it to become the best Little League field in the world."

Time was short. KAFMO and the two contractors had committed themselves to renovating the field yet that fall.

Precise installation

On October 9 Alpine Services began preliminary grading. The field, built on heavy clay, required three inches of good, dry compost, rototilled to a depth of five inches. Alpine precision-graded the field again, using a laser, and sculpted the outfield with a 12-inch crown from second base to centerfield,

so that excess rains drained to the foul lines and to the outfield warning track.

The skin infield required an equally fine touch. Alpine graded to a depth of four inches allowing KAFMO volunteers to put in the infield mix, and to build the pitchers mound and the batters box.

By Oct. 25, Alpine had reconstructed the field, but cold rains stopped work. It wasn't until November 8 that Hummer Turf could cut and deliver about 32,500 square feet of Kentucky bluegrass sod.

On November 9, at 7 a.m., employees of Little League, KAFMO volunteers, and employees from Hummer began laying sod. It snowed lightly. Work continued through lunch and the group finished in one day instead of two it had originally planned. On November 11 four inches of snow fell on Williamsport.

It wasn't until May 7 of 1996 that work resumed on the field. Twenty KAFMO volunteers edged the field, topped



Lycoming County (PA) Extension Agent Tom Murphy, standing, with volunteer Kevin Yeiser, center, and KAFMO President Dan Douglas.

the infield with 0.75 inch of Home Run ball diamond mix, and finished the mound and home plate circle. While volunteers visited the field several times during that summer, it wasn't until August 7 that the finishing touches to the field for the 50th anniversary of the Little League World Series began taking shape.

Five KAFMO members helped remove the top half inch of the infield due to gravel contamination. Five tons of Diamond Pro went down. On August 18, the day before the first four World Series games, the Little League grounds crew of Jimmy Scott, Joe Lutz and Kirk Felix, which had worked hand in hand with KAFMO volunteers, put the final touches on the field, including painting logos.

Four KAFMO volunteers worked with the LL grounds

crew throughout the Series, until the final pitch was thrown. It was hectic, says KAFMO's Don Fowler.

"Sometimes we had 20 minutes between games to prepare the field for the next game but it turned out pretty good.

There weren't any extra-inning games because then they might have had as little as seven minutes to prepare for the next game," he adds.

"The games are televised and the cameras are going to be running, and there's a lot to do, including preparing the mound and putting down the lines for the next game."

Although KAFMO volunteers contributed 792 man hours to making the Lamade Stadium field the "best Little League field in the world," KAFMO volunteers continue to work to make it even better. □

Frequent aeration good for fields

Chances are you can't aerify your athletic field too much, particularly a field with clay.

By DR. BILL KNOOP/ Technical Editor

Soil compaction will kill the turfgrass on a busy athletic field. Grass plant roots require oxygen and give off carbon dioxide. This exchange of gases must take place for the plant to live. There are several reasons why a soil surface becomes sealed, but the most common is soil compaction. The degree of compaction is determined by traffic, percentage of clay in the soil and, indirectly, by the amount of moisture in the clay.

When a soil containing any significant amount of clay receives traffic, the clay particles, which are very fine, become pressed together. This is especially true if the field is used when the soil is wet. It's the presence of clay in a soil that can really give us trouble.

Another problem occurs when an athletic field is covered with water for an extended length of time. The wetter the soil, the easier it is to compact it, particularly if the soil contains clay, and it's probably the clay that's causing the water-logged condition in the first place. There should be no traffic on a water-logged field.

There is hope

Does this mean we can't have good athletic fields on clay soils? Not at all. But we must understand soil texture and how to manage a turfgrass growing on particular soils.

That's where core aeration comes in. It relieves compaction, the field's greatest enemy. A core aerifier penetrates the soil and removes a core of soil. The remaining soil has room to expand into the resulting opening. Most soils contain a clay that expands when it is wet and shrinks when it is dry.

The hole left by the core aerifier also allows water to move deeper into the compacted soil. The wetting/drying action of the clay in the soil will slowly open spaces that allow the exchange of the gases necessary for root growth. The more root growth, the more traffic a field can tolerate. Also, the faster the field recovers.

Weekly aeration?

How often should an athletic field be aerified? The answer rests with how much the field is used. The amount of clay in the field is another consideration. Once or twice a month certainly isn't too much.

Heavily used fields can be aerified once a week.

It's a sure bet that when you see a great athletic field, the grounds manager understands and uses core aeration. It's aeration—and not just once or twice a season—that makes a big difference in the playing condition of a sports field. Or, perhaps, the field might be a high-sand content field. A sand-based athletic field doesn't need a crown for lateral drainage. High-sand fields provide excellent internal

to construct football fields is to use native soil and create an 18- to 24-inch crown in the field's center so that water will run off the field.

A good management program using soil aeration can dramatically increase the amount of traffic these fields can sustain.

It's sometimes hard to sell aeration, since the results aren't visible right away. It takes time for an aerifier to produce measurable or visual results. Changes in the soil result-



drainage. Not all sands are the same though. Generally, it's suggested that most of the sand be between 0.25-0.50 mm.

The real world

In the real world, athletic fields usually don't have perfect drainage. They can only support a limited amount of traffic without turf loss. That's because the more traditional way

ing from aerifications can't be seen.

Actually, it would be hard to aerify an athletic field too much. Once a month? Once a week? It's hard to say. However, a well-used core aerifier is just as necessary for turf athletic field maintenance as a mower or a spreader. □



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Positive exposure



Participation in events that benefit your community can provide your landscape company with immeasurable benefits.

By JOHN B. CALSIN, JR.

The second annual Chester County Flower Show this past spring gave Philadelphia-area landscapers an opportunity to showcase their talents while helping community charities.

"It was great creative outlet," said Robert Schrack about the Chester County event. Schrack is owner of Decked Out Exterior Design of West Chester, Pa. "I wanted to jump on board immediately. It was community oriented. I felt I could help a great organization raise some money, and I would get my creative ideas out to the public."

Schrack learned of the show from a client who is also a board member of Family Service of Chester County (FSCC).

Schrack's company is a full-service landscape company, specializing in custom design and installation of creative gardens. He collaborated on his show exhibit with Chris Zobel of Chester County Oak Works, a post-and-beam structure company.

FSCC is a private, non-profit social service agency. It offers eight specialized supportive and strengthening programs for individuals and families in the county, such as the Retired and Senior Volunteer Program and Project One: HIV/AIDS Case Management and Counseling.

Jan Hatchard, FSCC's director of development, said the first year, 1996, was a year of "selling her vision" to get the show started. She said the FSCC board "invested in the show" to get it off the ground. This year, now that the show is established, she hoped to raise at least \$25,000.

Trading experiences

John Keating, Jr., owner of Artscape-Sophisticated Landscapes in Downingtown, Pa., and another major exhibitor said the show is the only advertising his company does. He is not even listed in the telephone directory because his customers come from referrals.

Keating got involved for several reasons, not the least of which was to give something back to his community. Of course, the exposure at the show was welcome. It provided a great opportunity to showcase new work to established clients. And, he said, he got a chance to trade ideas with other people in the green industry.

In the 1996 Show, Keating did not get any new work, so he wasn't expecting much from this year's show. However, it turned out he was wrong.

On the Saturday afternoon of the show, event sponsors scheduled a "Designer

Showcase," complete with a buffet for clients of the major exhibitors. Landscapers and florists took their clients through the show, and then talked business over a light lunch and drinks.

One of the landscapers discovered that if clients were hedging on larger projects, they were more inclined to decide to go with the larger project after seeing an exhibit.

Participants found it was also an excellent way to network and get some new ideas from the educational opportunities provided by groups such as Longwood Gardens, Penn State University's professional gardening program, and the Rodale Institute's Experimental Farm.

The show is a giant, volunteer cooperative effort. It is a partnership between corporate sponsors, major and feature exhibitors, East High School, and hundreds of community volunteers. More than 250 volunteers contributed over 8,000 hours service.


Cooperation, not competition

Scott Whitfield, president of Whitfield Landscapes, Ltd., Downingtown, specializes in landscape construction, particularly interlocking paver work. He participated in the Show also.

"The reason I did it was because it was an excellent benefit for a local charity. I strongly believe in this," said Whitfield. Of course, he admitted, he also wanted to attract potential customers and meet with peers.

"It brought a lot of the contractors closer together," said Whitfield. The show is not judged, so cooperation rather than competition is stressed.

"It was a good marketing tool for us," said Whitfield, adding that participation puts a company "on a different level" than non-exhibiting companies. □



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Slope, sunlight

MAIN POND SUCCESS FACTORS

by JOHN C. FECH and
DENNIS FERRARO

A well-kept pond adds beauty to parks, golf courses, gardens and other green spaces. However, concern grows about potential runoff of nitrates and pesticides to surface waters such as ponds and streams.

Good construction techniques and pond best management practices (BMPs) keep landscape ponds attractive and clean.

Construction & management

Three factors influence pond site selection—slope, nearby plant materials and sunlight. Avoid shady sites. They limit plant species. They also tend to attract leaf litter, tree roots and other landscape debris. Generally, it's easiest to build a pond on a level, lower location. However, with some extra effort, a pond can be built into a hillside. When a considerable amount of soil must be moved, consider letting it settle over a winter before beginning construction.

Once the site has been selected, outline

the desired size and shape on the ground. You can use spray paint. Be aware of how much sunlight the site will receive, and consider potential encroachment from nearby trees and shrubs over the next five-10 years.

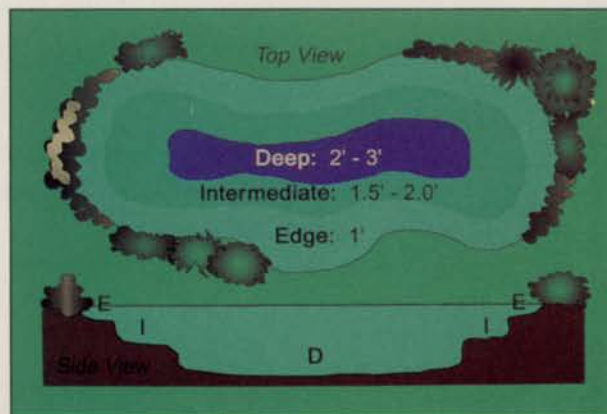
A pond should be as large as the landscape will allow. Most grounds managers indicate that users of a site prefer larger ponds. Larger ponds are easier to maintain, especially if they are to contain fish. Ponds 36 inches or deeper will usually support native plants and fish through winter. Ponds in northern states may require 48 inches or more, while those in southern states can be 24 to 36 inches deep.

Depth and liners

Landscape ponds generally have areas of several depths. Ledge areas of up to one foot outline the pond and account for the

smallest square footage. Adjacent to this is an intermediate area of 1½ to 2 feet in depth. It can be two to three times wider than the first ledge. Most of the pond should be the deepest area, three feet deep. Shelves in the pond separate the levels, prevent plants from sliding down.

Landscape ponds generally have areas of several depths. Ledge areas of up to one foot outline the pond and account for the smallest square footage.



There are several types of liners for ponds. Ponds larger than $\frac{1}{4}$ acre are best sealed with bentonite. Smaller ponds can be quickly and easily made with pond liners. PVC liners are inexpensive, yet will rip easily and can be short lived. Hypalon liners are extremely strong, but difficult to handle and stretch. A liner made of an EPDM/Butyl blend that is 45 to 64 mil thick is best for intermediate-size pond construction.

Plants provide oxygen, filter

Plants can help keep a pond healthy. Submerged oxygen-generating plants are commonly overlooked, yet shade the bottom, harbor organisms, provide spawning habitat for fish, help filter the water, and decrease algal growth in addition to adding oxygen to the water. Submerged oxygenators include Vallisneria, Myriophyllum, Hornwort, and Potamogeton.

Marginal or edge plants beautify shallow areas. These add to the surroundings of the pond. Place tall edge plants such as cattails, palms, rushes, or sweet flag on the far sides opposite the viewing area. Use short, marginal plantings such as water iris, arrowheads, arum or swordplants along the near sides. Cattails and rushes are invasive. Confine the roots of these plants in containers or with rock borders. Hardy lilies, native to the area, can be very pleasing. These should be placed in the 3-foot depth areas.

Pond BMPs

Pond BMPs protect the surface water from potential pollution from fertilizer or pesticides. The threat is greatest during and following heavy rains. Too much nutrients in the pond will cause algal and other weed problems.

That's why ponds need buffer strips to trap potential pollutants. Obviously, the wider and denser the strip, the better it will keep pollutants from a pond. But, buffer strips have to be maintained too.

Research by Dr. James Baird, Oklahoma State University, indicates that mowing height affects the buffering capacity of a strip. Comparing $\frac{1}{2}$ -inch, one-inch and three-inch heights of cut, Baird found that only the three-inch height effectively

reduced runoff and trapped nutrients and pesticides.

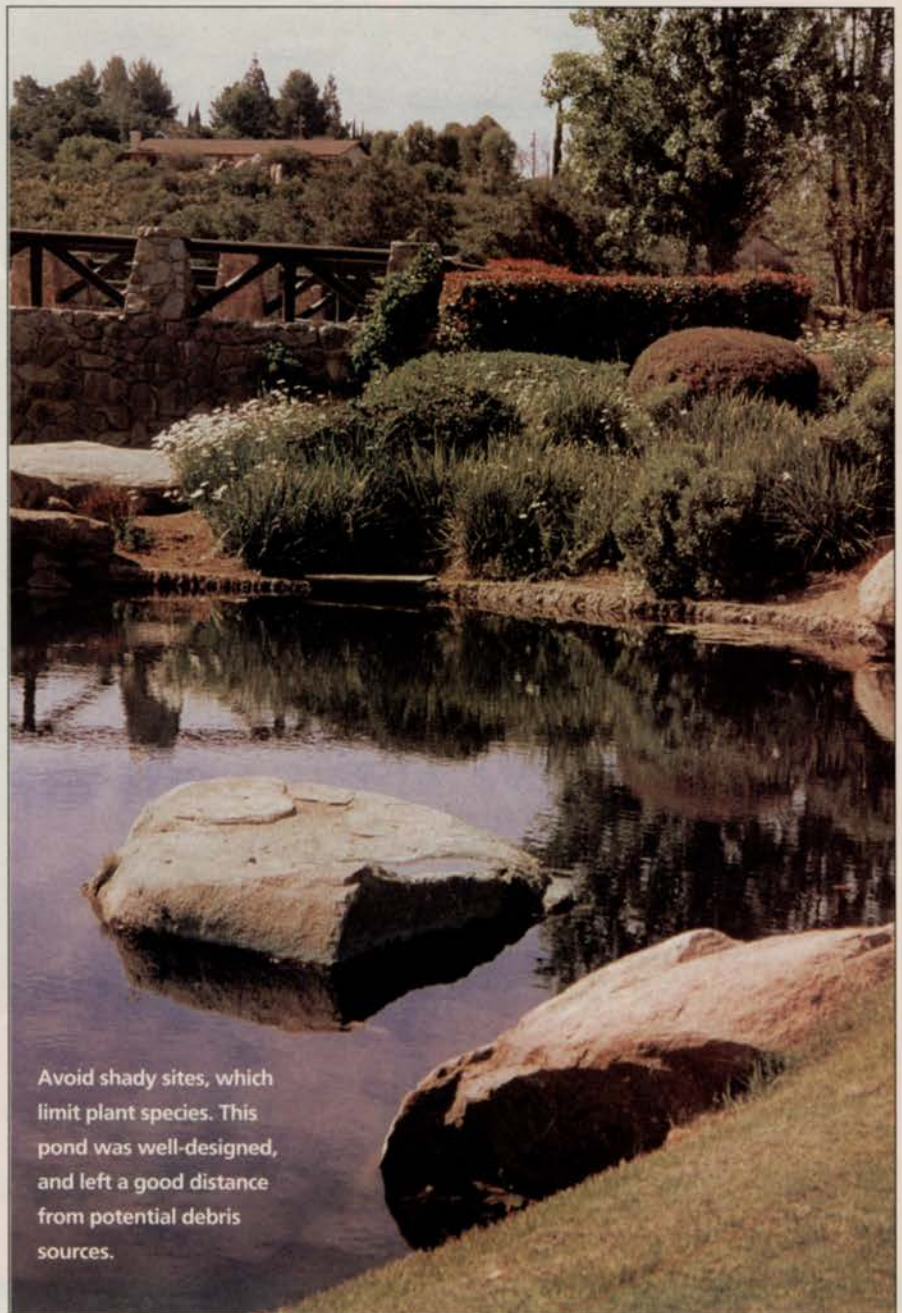
Also, stoloniferous and rhizomatous grasses prevent runoff better than bunch grasses. These grasses produce a thicker thatch and mat layer than bunch grasses.

Be aware that saturated soils have poor absorption characteristics. Applying fertilizers and pest control products under these conditions increases the potential for runoff.

Finally, the physical and chemical properties of the applied materials must be

evaluated. Consider the water solubility of a given pesticide. Formulations can vary widely in solubility, and can be chosen on this basis, especially near ponds. Consult fertilizer and pesticide manufacturers for solubility information. **LM**

John C. Fech and Dennis Ferraro are extension educators at the University of Nebraska



Avoid shady sites, which limit plant species. This pond was well-designed, and left a good distance from potential debris sources.

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GIE features expanded program

The 1997 Green Industry Expo (GIE) in Charlotte, NC, Nov. 15-18, will feature an expanded program, including:

- ▶ A weekend start to the conference events. This saves time and money on travel rates.
- ▶ A bonus GIE General Session on the final day.
- ▶ Additional conference sessions delivering quality educational presentations all the way to the finish.
- ▶ An early start to the Outdoor Equipment Demo, now preceding the trade show opening. The Outdoor Demon includes a Carolina Barbecue Lunch.
- ▶ \$500 Grand Prize Drawing on the final day of the show.

GIE is free to conference attendees or \$15 per day for on-site GIE-only events on Nov. 16, 17 or 18. For details on conferences, contact ALCA (800/395-ALCA); PLCAA (800/458-3466); or PGMS (410/584-9754). □

ALCA award deadlines approach

Deadlines for ALCA's annual Environmental Improvement Award program are: for exterior projects Aug. 15; for interior projects Sept. 19. The program is available to ALCA members.

Also, the ALCA Executive Committee says the ALCA Long-Range Plan, "Achieving Excellence Through Planning," is ready. The 1996 report focuses on:

- ▶ History of ALCA's long-range planning efforts.
- ▶ ALCA's mission statement.
- ▶ Core capabilities.
- ▶ Core members.
- ▶ Long-range goals and strategies.

To learn more about the Environmental Improvement Award program, or the Long-Range Plan, contact ALCA at (800) 395-2522. □

New address for FNGA

The Florida Nurserymen & Growers Association has moved to new headquarters: 1533 Park Center Dr. Orlando, FL 32835-5705. (800) 375-3642; (407) 295-7994 for local calls; fax: (407) 295-1619; E-mail: fnga@aol.com □

Irrigation Expo set for Opryland

If you're planning to attend the 1997 International Irrigation Exposition in Nashville in November you might want to register with the IA and book your hotel room soon. Denise Stone, IA Expo Manager, reports all booth space for the Expo at the Opryland Hotel is reserved and hotels are filling up quickly.

Also, Tim Wilson, IA education director, says the Expos is featuring more educational courses this year. "We can add more courses if we see from registration that you want them," says Wilson. "That's why we encourage everyone to register early."

Contact the IA at 8260 Willow Oaks Corp. Div., #120, Fairfax, VA 22031. (703) 573-3551, or visit its web site at www.irrigation.org. □

CLCA honors two landscape firms

The California Landscape Contractors Association (CLCA) honored Jensen Landscape Services, Cupertino, CA, and Mission Landscape Services, Santa Ana, as winners of the 1997 Excellence in Water Management Award.

Mission Landscape Services was honored for its work at The Spectrum, an industrial region in Irvine, CA, comprised of 40 acres of turf. The company kept the landscape there within its water budget and saved the client more than \$41,000 on water bills from the previous year.

Jensen Landscape Services has long been in the forefront of landscape water budgeting, and CLCA described Jensen principal, Scott McGilvray, as "a pioneer" in promoting and developing the concept of water budgeting for landscapes. □

SuperShow is Sept. 17

The Landscape Contractors Association MD•DC•VA will hold its annual SuperShow on Wednesday, September 17, from 8:30 a.m. to 4:30 p.m. at the Howard County Fairgrounds in West Friendship, Maryland. The show was previously called LCA's Landscape Expo.

The SuperShow is free to employees of LCA member companies and is \$5 per person for non-members. To sign up, contact the LCA office at 15245 Shady Grove Road, Suite 130, Rockville, MD 20850. (301) 948-0810.

The SuperShow is open to individuals in the landscape industry only. □

For more information on JACOBSEN/TEXTRON Circle Reader Inquiry #110 ▶

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According to Herb Henkel, president of Textron's Industrial Products, Jacobsen's acquisition of Bunton will "position both companies for growth.



It will enable us to build upon Bunton's established products and

distribution channels in the commercial arena. While at the same time, capitalizing on Jacobsen's leadership position in the golf market."

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BUNTON'S FIRST STEP TOWARD A

RENEWED COMMITMENT TO NEW PRODUCT

DEVELOPMENT, CUSTOMER SATISFACTION AND

COMPANY GROWTH. IT POSSESSES ALL OF THE

INNOVATIVE TECHNOLOGY, QUALITY AND RELIABILITY THAT

HAS SET BUNTON APART FROM ITS COMPETITION. AT THE SAME

TIME, IT REPRESENTS THE STRENGTH OF THE NEW BUNTON

DIVISION OF JACOBSEN TEXTRON.

THE TWISTER'S DRIVE SYSTEM IS EQUIPPED WITH TWO, INDEPENDENT HYDROSTATIC PUMPS WHICH ALLOW FOR ZERO-TURN OPERATION, WHILE ITS STEERING CONTROL ARMS ENABLE THE OPERATOR TO EASILY NEGOTIATE AROUND TREES AND SHRUBS. THE UNIT'S FINGERTIP-CONTROLLED ELECTRIC DECK HEIGHT ADJUSTMENT VIRTUALLY ELIMINATES SCALPING AND GOUGING BY LETTING THE OPERATOR EASILY ADJUST THE DECK HEIGHT TO VARYING TURF CONDITIONS, INCLUDING CURBS, SPRINKLERS AND ROOTS.

COMFORT FEATURES ON THE NEW TWISTER INCLUDE AN ADJUSTABLE, CUSTOM-CONTOURED SEAT WITH FOLD-UP PADDED ARMRESTS AND ERGONOMICALLY DESIGNED CONTROLS. THE STEERING, PARKING BRAKE, THROTTLE, CHOKE AND IGNITION ARE ALL WITHIN EASY REACH. OTHER FEATURES, LIKE A LARGE 12-GALLON FUEL TANK, ALLOW FOR ALL-DAY MOWING WITHOUT REFUELING.

IN ORDER TO MATCH SPECIFIC SIZE AND POWER NEEDS, THE "TWISTER" IS AVAILABLE IN A CHOICE OF NINE ENGINE AND CUTTING DECK COMBINATIONS. THE TWISTER IS AVAILABLE WITH A 20-, 22-, OR 25-HP KOHLER GAS ENGINE AND A CHOICE OF 48-, 52- OR 61-INCH CUTTING DECKS.

FOR FASTER AND EASIER MAINTENANCE, THE TWISTER HAS BEEN DESIGNED WITH MODULAR "POWER PACK" ACCESS TO ALL COMPONENTS. FEWER PARTS AND MORE COMMON COMPONENTS MEAN MORE SERVICE CONVENIENCE, LESS DOWNTIME AND GREATER SAVINGS FOR THE CUSTOMER.

The Twister logo features the word "TWISTER" in a stylized, italicized font with a blue and white gradient. Above the letters "I", "S", and "T" are three curved lines in yellow and orange, suggesting motion or a blade's path.

quality will not change. Bunton will continue to provide customers the highest levels of quality, performance and service, but with the support, financial backing and development resources of one of the largest turf equipment manufacturers in the world.

"People thought Jacobsen was going to come in, change the name, and paint everything orange," said Joe Santangelo, regional sales manager for Bunton.

"That just hasn't happened.

"They're the experts in golf. We're the experts in professional lawn care. Jacobsen wanted a company that knew the industry—we do."

"PEOPLE THOUGHT JACOBSEN WAS GOING TO COME IN, CHANGE THE NAME, AND PAINT EVERYTHING ORANGE."

INNOVATIVE PRODUCT OFFERING

As part of Jacobsen Textron, Bunton will be able to provide its customers with products and technology never before possible. Bunton's access to a number of resources will dramatically enhance product offerings.

For example, Bunton will be able to draw upon the resources of Jacobsen's design and engineering staff.

"We do our own thing," said Santangelo. "But we definitely take advantage of the many resources made available by Jacobsen, such as the state-of-the-art 'shakedown rooms' used for product testing, research and development."

Customers can expect higher levels of quality and performance from



the new Bunton. As proof of its commitment to quality and to Bunton's success, Jacobsen has already invested extensive time and finances into the manufacturing process at Bunton's Louisville, Kentucky, facility. New painting processes, material handling operations and additional staff are just a few of the enhancements.

COMPANY STABILITY

In addition to the improvements in manufacturing and new product offerings, Bunton now has a solid position in the industry. The support of Jacobsen Textron means Bunton will be able to expand its product line and service support. Dealers can be assured Bunton is once again a major player in the professional lawn care industry. Customers can expect total service and support from Bunton. From manufacturer to distributor, distributor to dealer, and dealer to end-user, customers can have the confidence in the products they purchase, as well as in the representatives who sell them.

DISTRIBUTION NETWORK

While there will be no radical changes made, one of the most visible results of the acquisition will be an expanded distribution network for Bunton. Bunton has a very strong reputation in the eastern half of the United States. The acquisition will not change any of those relationships. Bunton will support its original dealers,

**DEALERS CAN BE ASSURED
BUNTON IS ONCE AGAIN
A MAJOR PLAYER IN
THE PROFESSIONAL LAWN
CARE INDUSTRY.**

maintaining and growing the current distributor network in the United States, but at the same time



capitalizing on Jacobsen's international network for overseas distribution. The company will continue to manufacture and distribute its line of commercial lawn care equipment, while growing its rotary product offering both domestically and internationally.

SUPPORT FROM TEXTRON

One of the greatest benefits of the acquisition is the support Bunton will receive by becoming part of a Textron Division. As a \$9.3 billion company, with divisions that include Cessna and Bell Helicopter, Textron has tremendous technology resources and purchasing power.

The alliance among each of Textron's divisions puts the resources of a company like Textron within reach of a smaller organization like Bunton. For example, a product or technology developed by Textron Automotive Company may have a manufacturing method applicable to Bunton. The shared resources will result in higher quality and more technologically advanced product offerings.

In addition to the technical support, Bunton, via its relationship with Jacobsen, will feel the strength of Textron's financial alliances. The purchasing power wielded by Textron and its subsidiaries is substantial.

BUNTON DIVISION OF JACOBSEN MASTER DEALERS & DISTRIBUTORS

Anmar Corporation
Elmhurst, IL
Phone: 630-530-2266
Contact: Mike Spagnoli

Central Equipment
Lexington, KY
Phone: 606-253-2611
Contact: Joe Huber

Colorado Golf & Turf, Inc.
Englewood, CO
Phone: 303-461-3332
Contact: Tom Bauerie

Commercial Lawnmower, Inc.
Livonia, MI
Phone: 313-525-0980
Contact: John Murphy

Crandall-Hicks Company, Inc.
Westboro, MA
Phone: 508-898-3500
Contact: Peter Dobbins

E-Z-GO Jacobsen Textron
Oklahoma City, OK
Phone: 405-947-8873
Contact: Mark West

FH & H Limited, Inc. (Pro-Star)
Coatesville, IN
Phone: 317-386-7231
Contact: David Hayes

Great American Outdoors
Des Moines, IA
Phone: 515-253-9005
Contact: Don Van Houweling

Garco Industrial Equipment Co.
Indianapolis, IN
Phone: 317-788-4624
Contact: Dan Gardiner

Hunt Tractor
Louisville, KY
Phone: 502-566-6313
Contact: Scott Hunt

Jacobsen Textron-Dallas
Carrollton, TX
Phone: 972-242-0263
Contact: Tracy Scheibel

Jacobsen E-Z-GO Textron-Corona
Corona, CA
Phone: 909-371-1888
Contact: Gary Allenbrand

Jacobsen Textron-Palm Desert
Palm Desert, CA
Phone: 760-776-8873
Contact: Bob Pederson

Jacobsen Textron-San Diego
Escondido, CA
Phone: 619-737-9807
Contact: Gus Guevara

Marshall Equipment Co., Inc.
Lyndhurst, OH
Phone: 216-442-7583
Contact: George Clayman

Mid South Sweeper Supply
Memphis, TN
Phone: 901-744-1555
Contact: Ron McCarty

North Star Turf, Inc.
St. Paul, MN
Phone: 612-484-8411
Contact: Dan Miller

Outdoor Equipment Company
Chesterfield, MO
Phone: 314-532-6622
Contact: Tom Walker

**Outdoor Equipment Company-
Kansas City**
Grandview, MO
Phone: 816-765-3333
Contact: Joe Tegethoff

Stanley Equipment Co.
Stanley, KS
Phone: 913-681-2306
Contact: Larry Palmquist

Stull Enterprises, Inc.
Beltsville, MD
Phone: 800-229-7885
Contact: Tom Yingling

Thigpen Distributing, Inc.
Tifton, GA
Phone: 912-382-1396
Contact: Jill Guess

Totem Equipment & Supply, Inc.
Anchorage, AK
Phone: 907-272-9573
Contact: Allie Houston

Valley Turf, Inc.
Grandville, MI
Phone: 616-532-2885
Contact: Paul Johnson



In addition, Textron's financial services component will be available to support Bunton distribution. In the past, Bunton dealers relied on unrelated financing companies for assistance with purchases and overhead. The relationship with Textron Financial Corporation provides a familiar and secure source for financing.

THE FUTURE OF BUNTON DIVISION OF JACOBSEN TEXTRON

New products are on the horizon. As time goes on, and as the relationship with Jacobsen Textron grows, so will the awareness of the new Bunton Division of Jacobsen Textron.

"People should pay attention and keep in touch with where Bunton's going," said Santangelo. "The market is ready for a company like us. There will be some very exciting growth."

**"THE MARKET
IS READY FOR
A COMPANY
LIKE US."**

**JACOBSEN
BUNTON**

TEXTRON

4601 E. Indian Trail, Louisville, KY 40213-2929
Phone: (502) 966-0550, Fax: (502) 966-0564

See us at EXPO 97. Booth #4435 inside and booth #7060 outside.

For product and service information, contact Bunton Division of Jacobsen toll-free at 1-888-423-7897 or www.jacobsen.textron.com

LANDSCAPE
management

July 1997

This card is void after September 15, 1997

NAME (please print) _____
 TITLE _____
 FIRM _____
 ADDRESS _____
 CITY* _____ STATE _____ ZIP _____
 PHONE (_____) _____ FAX (_____) _____
 INTERNET/E-MAIL ADDRESS _____

I would like to receive (continue receiving) **LANDSCAPE MANAGEMENT** free each month: Yes No

Signature: _____ Date: _____

1. My primary business at this location is: (check ONE only)

- 01 250 GOLF COURSES
- CONTRACTORS/SERVICE COMPANIES**
- 02 255 Landscape Contractors (installation and maintenance)
- 03 260 Lawn Care Service Companies
- 04 265 Custom Chemical Applicators (ground and air)
- 05 270 Tree Service Companies/Arborists
- 06 275 Landscape Architects
- 07 280 Land Reclamation and Erosion Control
- 08 285 Irrigation Contractors
- Other (please specify) _____
- INSTITUTIONAL FACILITIES**
- 09 290 Sports Complexes
- 10 295 Parks
- 11 300 Right-of-Way Maintenance for Highways, Railroads or Utilities
- 12 305 Schools, Colleges, Universities
- 13 310 Industrial or Office Parks/Plants
- 14 315 Shopping Centers, Plazas or Malls
- 15 320 Private/Public Estates or Museums
- 16 325 Condos/Apartments/Housing Developments/Hotels/Resorts
- 17 330 Cemeteries/Memorial Gardens
- 18 335 Hospitals/Health Care Institutions
- 19 340 Military Installations or Prisons
- 20 345 Airports
- 21 350 Multiple Government Municipal Facilities
- Other (please specify) _____

- SUPPLIERS & CONSULTANTS**
- 22 355 Extension Agents/Consultants for Horticulture
- 23 360 Sod Growers/Turf Seed Growers/Nurseries
- 24 365 Dealers/Distributors/Formulators/Brokers
- 25 370 Manufacturers
- 26 Other (please specify) _____

2. Which of the following best describes your title? (check ONE only)

- 27 10 **Executive/Administrator**- President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Director of Physical Plant
- 28 20 **Manager/Superintendent**- Arborist, Architect, Landscape/Grounds Manager, Superintendent, Foreman, Supervisor
- 29 30 **Government Official**- Government Commissioner, Agent, Other Government Official
- 30 40 **Specialist**- Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
- 31 Other Titled and Non-Titled personnel (please specify) _____

3. SERVICES PERFORMED (Check ALL that apply)

- 31 A Mowing
- 32 B Turf Insect Control
- 33 C Tree Care
- 34 D Turf Aeration
- 35 E Irrigation Services
- 36 F Turf Fertilization
- 37 G Turf Disease Control
- 38 H Ornamental Care
- 39 I Landscape/Golf Design
- 40 J Turf Weed Control
- 41 K Paving, Deck & Patio Installation
- 42 L Pond/Lake Care
- 43 M Landscape Installation
- 44 N Snow Removal
- 45 O Other (please specify) _____

4a. Do you specify, purchase or influence the selection of landscape products? Yes No

4b. If yes, check which products you buy or specify: (check ALL that apply)

- 46 1 Aerators
- 47 2 Blowers
- 48 3 Chain Saws
- 49 4 Chipper-Shredders
- 50 5 De-icers
- 51 6 Fertilizers
- 52 7 Fungicides
- 53 8 Herbicides
- 54 9 Insecticides
- 55 10 Line Trimmers
- 56 11 Mowers (reel/rotary)
- 57 12 Snow Removal Equipment
- 58 13 Sprayers
- 59 14 Spreaders
- 60 15 Sweepers
- 61 16 Tractors
- 62 17 Truck Trailers/Attachments
- 63 18 Trucks
- 64 19 Turfseed
- 65 20 Utility Vehicles

5. Do you have a modem? Yes No

6. Do you subscribe to an on-line service? Yes No

7. Is CD-ROM available in your workplace? Yes No

101	119	137	155	173	191	209	227	245	263	281	299
102	120	138	156	174	192	210	228	246	264	282	300
103	121	139	157	175	193	211	229	247	265	283	301
104	122	140	158	176	194	212	230	248	266	284	302
105	123	141	159	177	195	213	231	249	267	285	303
106	124	142	160	178	196	214	232	250	268	286	304
107	125	143	161	179	197	215	233	251	269	287	305
108	126	144	162	180	198	216	234	252	270	288	306
109	127	145	163	181	199	217	235	253	271	289	307
110	128	146	164	182	200	218	236	254	272	290	308
111	129	147	165	183	201	219	237	255	273	291	309
112	130	148	166	184	202	220	238	256	274	292	310
113	131	149	167	185	203	221	239	257	275	293	311
114	132	150	168	186	204	222	240	258	276	294	312
115	133	151	169	187	205	223	241	259	277	295	313
116	134	152	170	188	206	224	242	260	278	296	314
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ADVANSTAR COMMUNICATIONS INC
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 52 7 Fungicides 62 17 Truck Trailers/Attachments
 53 8 Herbicides 63 18 Trucks
 54 9 Insecticides 64 19 Turfseed
 55 10 Line Trimmers 65 20 Utility Vehicles

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117	135	153	171	189	207	225	243	261	279	297	315
118	136	154	172	190	208	226	244	262	280	298	316

Here's an affordable aerator

Budget tight but you still need an aerator? The TM-42 may be just your answer. It is a 42-inch-wide coring aerator with 3/8-in. tines. It will rear mount on tractors with 3-pt. hitch and front mount on most out-front rotary mowers.

You can aerate right through tight turns with the tine wheels mounted separately in sets of two with greaseable oilite bearings. A heavy-gauge doubles as a weight tray to hold additional weight. Call Turfco Mfg. at (612) 785-1000, or

Circle No. 267



Aercore aerators increase productivity

John Deere's Aercore Model 1000 and Model 1500 aerators are tractor-mounted to deliver high productivity without sacrificing hole quality, durability or ease of service. With heavy-duty frames, tine rams and adjustable hole spacing, these durable aerators increase productivity while providing flexibility on the job.

Both models can pull as many as 30 cores per square foot, depending on the ground speed of the tractor. With high-speed tines and "flexi-link" supporting arms, Aercore aerators consistently produce round holes.

Both models share the same belt-driven design that provides quiet, smooth operation and doesn't require lubrication. The belts provide dependable operation with minimal adjustments. All components are easily accessed from the top of the machine, making daily checks and routine maintenance a breeze. The aerators are compatible with John Deere 55 and 70 series compact utility tractors.

Circle No. 269

Toro offers two new aerators

Toro unveils its 244 and 442 Aerators. The 244 Aerator has four rows of six tines (24 tines) and is powered by a 4-hp Briggs & Stratton IC engine. The fold-down handle provides easy transport and storage, and lift handles on both sides of the aerator make loading and unloading quick and easy. The larger 442 Aerator also uses a 4-hp B&S IC engine, and features seven rows of six tines (42 tines) and a unique free-wheeling outer tine design making it easier to turn and maneuver than competitive units.



One of the most innovative features of the 244 and 442 Aerators is the removable weights which provide more control and greater, more even tine penetration without adding to the weight of the unit. There are no water drums to fill and empty. The 244 has two 36-lb. weights and the 442 includes two 36-lb. and four 18-lb. weights which are easily added or removed.

Circle No. 268

Steiner's front-mounted aerator

The Steiner 4-wheel-drive tractor with rugged front-mounted core aerator provides fast effective turf penetration. Soil cores up to 3 1/2 inches are removed with minimum surface disturbance. Seven ground-driven rotors with greaseable bushings have six tines each (total 42 tines). Down pressure of the front lift uses the weight of the tractor to penetrate turf. The aerator has four weights and a weight box to carry additional weight if extra penetration is required. Contact Steiner at (330) 828-0200 and mention LM, or

Circle No. 270

Bear Cat is big enough to get job done

The Bear Cat Van-N-Chip Pro cleans a 29-inch wide swath with its exclusive agitator bar and 27 mounted beater blades to pick up leaves and small twigs. It features single-handle adjustable height control with infinite settings for optimum performance from agitator bar. The vacuum opening is also adjustable for variable condi-



tions and quantity of leaves. It reduces leaves up to 10-to-1 for fewer stops to unload. It also chips branches up to 3 inches in diameter with its built-in chipper for ultimate cleanup.

The unit is self-propelled with five forward speeds and one reverse. The single front wheel pivots for easy turning and maneuverability in rough terrain. The large,

knobby drive tires provide excellent traction and powerful climbing ability.

Call Bear Cat at (800) 247-733 and mention LM, or

Circle No. 271

IsoTek 14-14-14 spreads uniformly

Lebanon Turf Products' IsoTek 14-14-14 fertilizer is designed for use on turf, annual and perennial flowers, shrubs and trees. It combines isobutylidene diurea and methylene ureas in a clean, homogeneous granule that is consistently sized for dust-free application.

Formulated with 5.0 units of WIN and micro nutrients, IsoTek 14-14-14 delivers its slow-release nitrogen through hydrolysis and microbial degradation. A full 57 percent of its nitrogen is controlled-release.

The product can be applied anytime during the growing season. It spreads easily and uniformly, even at lower application rates. At suggested rates, a 50 lb. bag will cover up to 7,000 sq. ft. For more information on IsoTek 14-14-14 contact Lebanon Turf Products (800) 233-0628, or

Circle No. 273

Water-soluble packs make mixing easy

Terra Industries Inc. introduces BioEdge WSP and BioEdge WSP (Fe) biostimulants for use on turf. BioEdge WSP (Fe) contains fully-chelated iron, a secondary turf nutrient, in addition to the same nutrients in BioEdge WSP. Both come in convenient, water-soluble packs. Both products have proven efficacy, says Terra Industries, with a near-neutral pH for increased tank mix flexibility, and no need for heated storage. You can learn more about the products by calling Terra Industries at (712) 277-1340, or

Circle No. 272

Shred-Vac good choice for on-street use

The Shred-Vac 2000 is a portable commercial shredder that efficiently and economically converts green waste to mulch at source. It processes soft, green waste such as leaves, pine needles, cones, bark, wood chips, vines, brush, shrub prunings and bulky waste material from gardens, parks and nurseries.



The mulch created by the shredder is fine enough for instant use on the ground around all manner of plants, controlling weed growth, and protecting the soil from erosion and temperature extremes.

The Shred-Vac 2000 cuts collection, hauling and disposal costs by reducing waste by a ratio of 10-to-1 in volume at rates of up to 30 cubic yards per hour. Its 65-hp, V6 propane engine powers the hammermill and suction fan. The 48 heavy, free-swinging hammers shred material up to 1 1/2 inches in diameter.

Because of its dust control features, fully enclosed materials flow and low decibel noise rating of 68, it's ideally suited for use on streets or private property, says Shred-Vac Systems which can be reached at (916) 477-7240, or

Circle No. 274



Echo's new Shred 'N' Vac

Echo's new Model ES-2100 Shred 'N' Vac is designed for easy and effective handling of yard debris. It boasts an all-around ergonomic design with a 35-inch intake tube and a 17-ounce, see-through fuel tank. Debris is shredded and blown in a large-capacity, two-bushel bag that features a rear-discharge design for easy dumping.

The ES-2100 also features a new, fully adjustable throttle for operation at variable speeds and cruise control for even easier operation for extended time periods. A handle-mounted stop switch gives the operator fingertip control. Like its predecessors, the ES-2100 can be easily converted to a hand-held blower.

For more information, contact Echo Inc. at (847) 540-8400, and don't forget to tell them

that you read about their ES-2100 in **LANDSCAPE MANAGEMENT**, or

Circle No. 275

Little Wonder redesigns blower line

Little Wonder's new line of redesigned commercial blowers make quick work of any cleanup. The new blowers feature an exclusive centrifugal blower design that works together with a backward-inclined blade impeller. The result is a greater volume of air moving at increased velocity versus traditional flat-blade designs.

The curved, aerodynamic inlet draws air in smoothly around the entire inlet area, ensuring adequate air intake even if part of the intake is blocked by debris. The new blowers also feature a patent-pending deflector which splits the air streams to make use of the

fastest moving air. To find out more about Little Wonder products or the nearest dealer for its blowers, call (215) 357-5110, or



Circle No. 276

Coremaster is rugged, versatile

GreenCare's Coremaster ECO walk behind turf aerator can aerify up to 18,200 sq. ft. per hour. Variable hole spacings include 1 by 1-in., 1 by 2-in., 2 by 2-in., and 3 by 2-in.. A full range of tine sizes include 1/4-in., 3/8-in., 1/2-in., 5/8-in. and 3/4-in., hollow and solid, quadra tines and spikes.

GreenCare says its Coremaster ECO operates with low noise levels, low fuel consumption, low emissions, and low maintenance and servicing. It features a powerful aeration head and wide flotation tires, says GreenCare which can be reached at (800) 635-8761. Or,

Circle No. 277

A lotion that protects like a glove

Gloves In A Bottle is a lotion that works like a pair of gloves. It is rapidly absorbed into the outer



layer of skin forming a matrix between dead skin cells. The result is a one-way barrier which helps prevent most irritants from penetrating the skin. The barrier will allow the skin to breathe and perspire naturally, while it increases the retention of the skin's natural moisturizers.

Gloves In A Bottle cannot be washed off. It comes off through the skin's natural exfoliation process. After about four hours enough skin cells have sloughed off to cause this barrier to break down, so Gloves In A Bottle needs to be reapplied every four hours for continued protection.

Gloves In A Bottle will protect against a wide range of irritants, including grease, solvents, thinners, paint, pesticides, poison ivy and oak, disinfectants, cement and lime, gasoline and diesel, and most other chemicals, not including hydrofluoric acid. Call (800) 600-1881 for the store nearest you, or

Circle No. 278



New Mighty Max blows away debris

MacKissic's new 11-hp walk behind leaf blower will be available for fall 1997 leaf and debris removal. The Model LB1172 will have an 11-hp B&S Industrial Plus engine that puts out 215 mph wind velocity and 2600 cubic feet per minute of air volume. Like all Mighty Mac blowers, this unit has a poly impeller that is lightweight and durable. Contact MacKissic, Inc., at (610) 495-7181, or

Circle No. 279

Moles? Not with new Mole-Med

Having problems with moles? Investigate Mole-Med the all-natural liquid product used to repel moles from turf and landscape areas. It's proprietary ingredients go deep into the soil where moles live and feed. For more information, call Soil Technologies Corp. at 800/221-7045, or

Circle No. 280

Organic biostimulant product aids turfgrass, stimulates roots

CytoGro Turf-Aid is a granular sea plant meal fortified with CytoGro biostimulant that can be incorporated into any aerifying or topdressing program. This blend of organic amendment and hormone biostimulant will stimulate root growth, improve water leaf status, and speed up the recovery of damaged turf, says manufacturer Terrabiotics. CytoGro Turf-Aid will not layer, maximizes fertilizer efficiency and improves the nutrient holding capacity of sandy soils.

CytoGro Turf-Aid is non-toxic and biodegradable. It is derived from several species of North Atlantic kelp that are harvested in carefully regulated cycles, processed by proprietary methods to maximize biological activity, and ground to a consistent, easy-to-spread particle size. Contact Terrabiotics at (800) 988-8257 and mention Landscape Management, or

Circle No. 281



Gator Ramps for all pickup makes, models. Installs inside of tailgate

Load everything from boxes to tractors with the Gator Ramp. Constructed of high-strength aircraft aluminum, it has a weight capacity of 1500 lbs., and features a powder-coated, anti-slip surface. It mounts to the inside of a pickup tailgate in minutes. When not in use, the Gator Ramp takes up only 4 inches inside the bed of the truck. Available for all pickups. Tell Gator Ramp where you read about its product (in *LANDSCAPE MANAGEMENT*, of course) by calling (888)-504-2867, or

Circle No. 282

"The Mouse" post-hole digger is designed for lawn/garden tractors

Shaver Manufacturing's new PTO-driven post-hole digger, Model 101, "The Mouse" is designed for lawn and garden tractors with category zero and 3-point hitches. It combines rugged power in a lightweight, compact design. Model 101 features:

- ▶ shield that protects PTO assembly from dirt and moisture,
- ▶ totally enclosed gearbox,
- ▶ straddle-mounted, tapered roller bearings for extra strength,
- ▶ replaceable cutting teeth and points,
- ▶ 3-year limited warranty.

Shaver offers semi-double flight augers of four, six and nine inches in diameter for Model 101. An optional Down Pressure Module can be used with Model 101. It adds 500 pounds of downward pressure for digging in hard, rocky or frozen ground.

Shaver offers a complete line of post-hole diggers, including three PTO-driven units and two hydraulic models.

Call Shaver Manufacturing Company at 515/266-7550, or

Circle No. 283

Rubigan A.S. available again

DowElanco has brought back Rubigan A.S. fungicide. Rubigan A.S. is a liquid which provides the mixing flexibility



and ease of handling that most golf course superintendents and other professionals require. It offers broad-spectrum control of turf diseases including dollar spot, brown patch, snow mold and necrotic ring spot.

The product is packaged in a 2½ gallon case. "We decided to bring back this formulation because our customers have requested it," says Dan Bouck, communications manager for DowElanco turf and ornamental products.

For more information about Rubigan or to receive a specimen label, call DowElanco Customer Information Center at (800) 255-3726, or

Circle No. 284

Irrigate, fertilize at the same time

InjectPRO, a product of Irrigation Injection Technologies (IIT), enables golf course superintendents and other turfgrass managers to apply fertilizer, herbicide, insecticide, fungicide and other chemicals through their watering systems with computer-like precision and control.

"The InjectPRO injects precise amounts of chemicals into the water passing through a watering system," says Erik Tribelhorn, IIT general manager. "That chemigation process makes fertilizer and other chemicals available to plants in a highly usable form, which means you need less chemical to achieve results."

The brain of the InjectPRO is the Electronic Proportional Injection Control (EPIC) system. The EPIC system can be programmed to provide non-supervised control of when and how much chemical will be applied with its easy-to-use keypad control center.

During the application process, the EPIC system monitors the stream flowing through the pipe and automatically adjusts the chemical injection rate if water flow changes. Call IIT at 800/4-INJECT, or

Circle No. 285

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The Professional Lawn Care Association of America is in the business of "Growing Leaders." Growing your career, your company and your industry. That's our mission. From all parts of the United States, Canada and around the world, PLCAA members are dedicated lawn and landscape professionals, grounds managers, industry suppliers, and students committed to professionalism and success.

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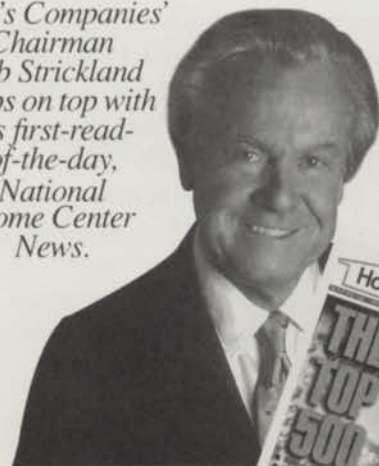


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Lowe's Companies' Chairman Bob Strickland keeps on top with his first-read-of-the-day, National Home Center News.



Dr. Rick Fulwiler, President, Technology Leadership Associates, blazes through his first-read-of-the-day, Occupational Hazards.



Superfan Randy Snyder, Senior VP of MC Sporting Goods, eyeballs the competition in his first-read-of-the-day, Sportstyle.



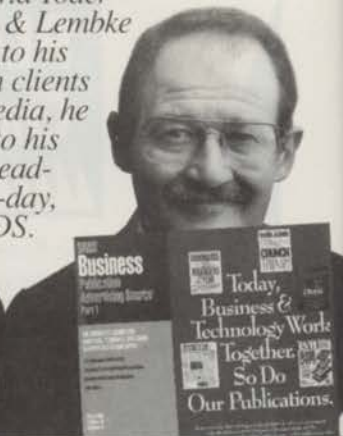
Director Irwin Winkler gets informed with his first-read-of-the-day, The Hollywood Reporter.



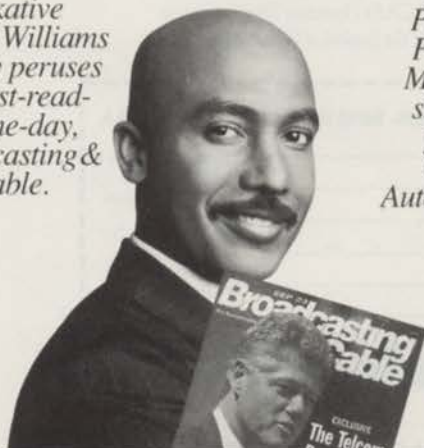
For well-groomed Judy Guido and Ed Laflamme, their first-read-of-the-day is Landscape Management.



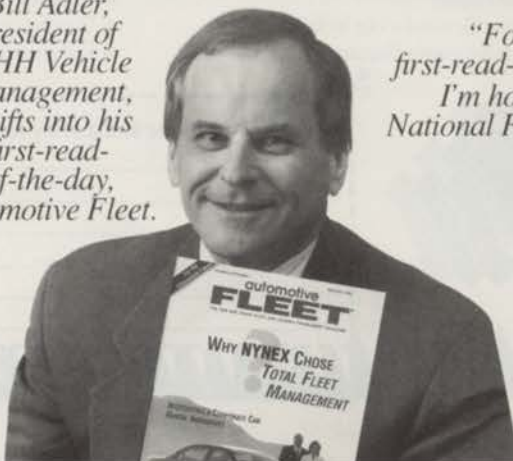
Before David Yoder of Anderson & Lembke speaks to his high tech clients about media, he turns to his first-read-of-the-day, SRDS.



Talkative Montel Williams silently peruses his first-read-of-the-day, Broadcasting & Cable.



Bill Adler, President of PHH Vehicle Management, shifts into his first-read-of-the-day, Automotive Fleet.



"For my first-read-of-the-day, I'm hooked on National Fisherman."



Events

JULY

17-19: American Sod Producers Assn. Summer Convention & Field Days, Minneapolis, MN; Contact: ASPA, 1855-A Hicks Rd., Rolling Meadows, IL 60008; (708) 705-9898; (708) 705-8347.

18: "Woody Plants for the Landscape and Garden Center Industries," Swarthmore College, Swarthmore, PA. Call Kris Benarcik (610) 328-8024.

25: ALCA Interior Tech/Knowledge Seminar, Dakota Community

Technical College, Minneapolis (Rosemount), MN. ALCA, (703) 736-9666.

26-28: International Lawn, Garden & Power Equipment Expo, Louisville, KY. (502) 562-1962.

31: Compost Production and Utilization Workshops, The Rodale Institute Experimental Farm, Kutztown, PA. Contact: (610) 683-6009.

AUGUST

1-3: Southern Nurserymen's Assn. Horticultural Show, Georgia World Congress Center, Atlanta.

Montoya Woods, (770) 973-9026; (770) 973-9097.

2-5: International Society of Arboriculture Conference, Salt Palace, Salt Lake City, UT. Jennifer Degroot, (217) 355-9411; (217) 355-9516.

3-9: Perennial Plant Association Symposium, Raleigh, NC. Contact: Dr. Steven Still, (614) 771-8431; (614) 876-5238.

6-7: MAPP/PGMS 6th Annual Grounds Mgmt. Conference, Wm. Rainey Harper College, Pallatine, IL; Bob Getz, (847) 925-6350.

8: Wisconsin Nurserymen's Assn. Summer Field Day, McKay's Nursery, Waterloo, WI; Kari Fos-

ter, (414) 529-4705; (414) 529-4722.

8-9: Associated Landscape Contractors Association of America, Masters in Management for the Landscape Industry seminar, Chicago, IL; (800) 395-2522; (703) 620-6265

8-11: Association of Professional Landscape Designers Summer Conference, Boston, MA; Jack Lagershausen, (312) 201-0101; (312) 201-0214.

28: Michigan State University Turfgrass Field Day, Hancock Turfgrass Research Center, MSU Campus, East Lansing; Contact Kay Patrick (517) 321-1660. **LM**



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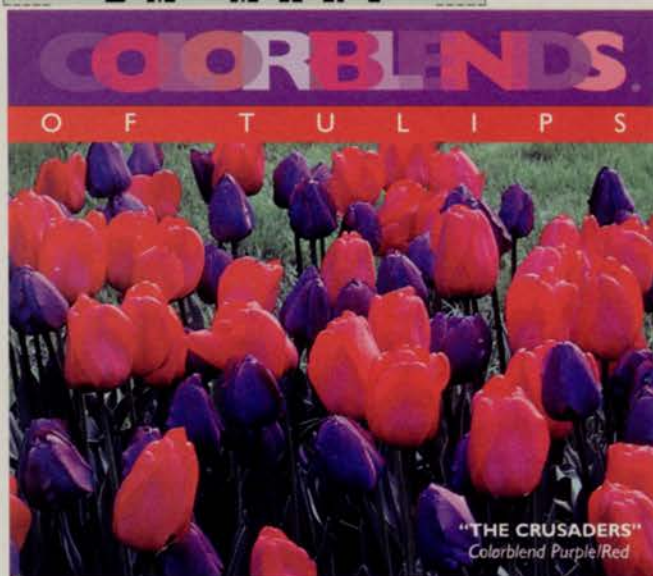
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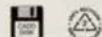
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Grab Bag



Time for 'Celebration'

Valley Crest Landscape, Inc., tackles some of the largest and most visible landscape construction projects in the country, including the Town of Celebration, Disney's new residential community just outside the gates of Disneyworld near Orlando, FL. Valley Crest Landscape was involved with site, landscape and irrigation construction there, along with installing

open air structures and water features—all the while striving to preserve natural vegetation. Valley Crest Landscape claims to be the largest total landscape and site construction company in the United States. It is headquartered in Calabasas, CA, and is a wholly-owned subsidiary of Environmental Industries. Valley Crest has nine regional offices, including one in Orlando, near the new community of Celebration.

State of the Industry observations:

"We're looking for people who thoroughly enjoy this profession. We're also spending a lot of time and money training and developing skilled people, allowing them to have career tracks so they can continue to grow into a position."

—WAYNE RICHARDS, CEO, CAGWIN & DORWARD, NOVATO, CALIF.

"If they come in here with personality and drive and initiative and they come off nicely in the first five minutes, I'll spend 20 minutes to an hour just chatting to see what I can get out of them. If I get a kid who's just quiet and sits there like a dunderhead, they're out of here. Because that's how they're going to be with my customers."

—NICK DENNIS, PRO LAWN PLUS, JACKSONVILLE, FLA.

Grab Bag features brief observations and prognostications throughout the green industry. If you have an unusual photo or comment you'd like to share with us, please send it in...

"There's always going to be room for labor people if that's all they're interested in doing. I'd like to keep all my workers forever, but the reality is the low-end labor force is just looking for a pay check. As long as they work hard, that's fine by me."

—JEFFREY SHEEHAN, PRESIDENT, CONFIDENCE LANDSCAPING.

"There's going to be a bigger demand for well-trained mechanics than there's going to be for superintendents and assistants."

—W.P. MONTAGUE, OAKWOOD CLUB, CLEVELAND HTS., OHIO.

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Number 18 green, Bayville Golf Club, Virginia Beach, VA

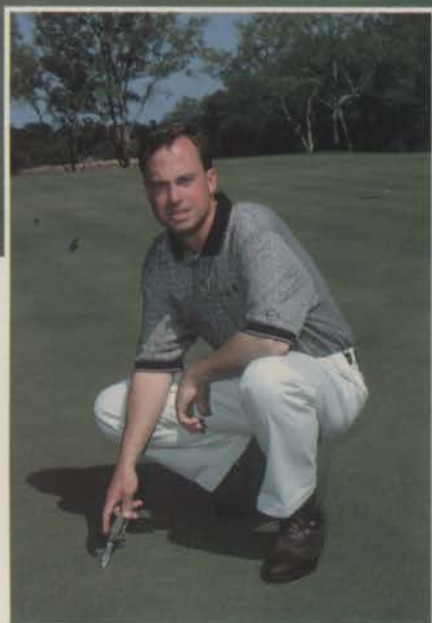
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