

THE VOICE OF THE GREEN INDUSTRY

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State of the
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ON THE COVER: VALHALLA GOLF CLUB, LOUISVILLE, KY., MARK WILSON, SUPERINTENDENT. PHOTO BY LARRY KASSELL.

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LANDSCAPE

For me, there is no more abominable task in the world than breaching the doorstep of a car dealership. Why? Because I'm not only fearful of being taken to the cleaners by the slippery salesmen, but—not knowing the difference between a cylinder and a valve—I also dread the prospect of revealing my total ignorance in front of complete strangers.

Many of you, we suspect, feel the same way about computers. Terms like *Read-Only Memory*, *28,800 baud* and *Pentium chips* confound you.

"There are enough reasons—time management, people management, materials management and communication—to have a computer," says Peter McCormick of TurfNet Associates. "And hardware is becoming affordable. I went into a computer store last week and saw a great little computer for \$895."

If you haven't joined the computer revolution yet, but might want to try, here's a step-by-step guide:

- 1) Put your checkbook in your pocket and bop on down to your local computer store.
- 2) Find a sales clerk in the hardware section where all the monitors and keyboards and stuff are displayed.
- 3) Tell him you want a "PC-compatible computer with a Pentium chip." That kind of machine will allow you to run a wide variety of programs at fast speeds and should not be outdated for at least—oh, say six months.

If the sales clerk hits you with some doubletalk about "megahertz," just remember that the higher the number, the faster the processor (100 Mhz seems to be a watershed speed nowadays).

You will probably *not* want a Macintosh computer, unless you're going to be using it at home and the kids will be using it, too. Macintoshes are

easier to use than PCs, but fewer business programs are available.

4) Tell him you want Windows '95 software. Actually, the computer will probably come with a wide variety of software, from games to screen savers—much of which you'll probably never use.

5) Tell him you want at least 8 "megs" (that's "megabytes," or thousands of computer bytes) of "RAM" (Random-Access Memory). Eight megs should be enough to allow you to access multiple computer programs at one time, but if you can afford 16 megs, get them.

6) Tell him you want "a hard drive with at least 500 megs," which is pretty standard today. This is the total amount of memory, in bytes, that your computer can store. Many new machines come with up to 1.2 gigabytes, or 1,200 megabytes; but if you're not going to be running complicated graphics, you don't need that much.

7) Tell him you want a machine with at least a "14,400 bps (or baud) fax/modem." This will enable you to access online and Internet information with a reasonable amount of speed. If you can afford a 28,800 bps fax/modem, get one.

8) Tell him you want a "4x CD-ROM drive," which is a machine that reads digital compact disks like the ones you play on your stereo system. ("ROM" stands for "Read-Only Memory," which means you cannot record to the disks, only play them.) Four-x means quadruple-speed; if you can afford an 8x, get it.

9) Give the nice man your check—which in no case should be more than \$2000, more likely around \$1100-\$1600.

10) Before leaving the store, sign up for computer classes. They cost a little extra, but without them, you might be lost.

One last suggestion—and it's more of a warning: do *not* get caught spending hours and hours in front of your computer. You still need to get outside and talk to your employees, visit customers and check out the turf and shrubs.

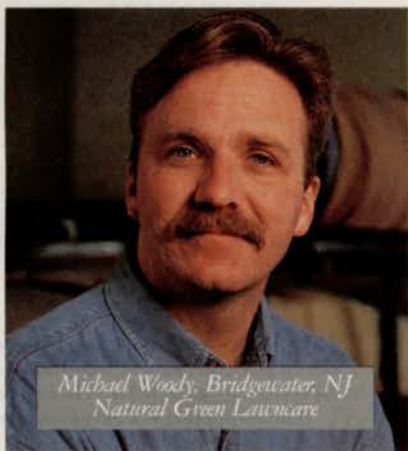
A computer is nothing but another tool, like a spade or a cellular phone. You can use it to educate yourself, to provide some of your needs, and to make you a better manager. But it's no substitute for what you're already doing right. **LM**

How to wire yourself without getting electrocuted



Jerry Roche

JERRY ROCHE
Editor-in-Chief



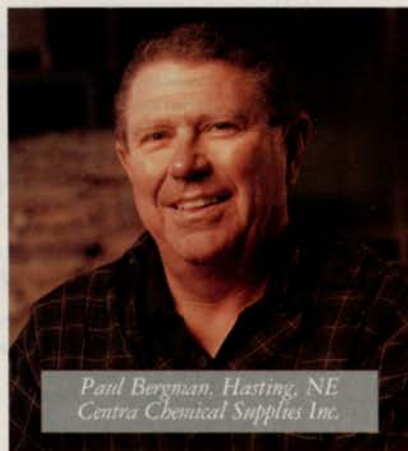
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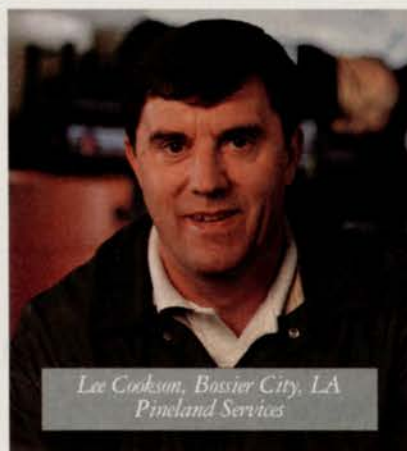
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The ins and outs of weeds and aerification

Will aerifying in spring affect the performance of pre-emergence herbicides? When is the best time to aerify, in spring or fall? Do we need to rake and remove the cores after aerifying to reduce future weed problems? For aesthetic reasons, some of our clients insist that we remove all the cores from the lawn surface. We believe that for agronomic reasons we need to leave the cores on surface.

—MICHIGAN

Several university findings indicate that aerifying after a pre-emergence herbicide application will not have any significant adverse effect on herbicide performance and crabgrass control. This practice is being used by some lawn care professionals.

Others, however, are concerned about the possible outbreak of crabgrass from this operation when soil cores are left on the surface of lawns. The soil in the core contains weed seeds as well as beneficial microbes needed for decomposition of thatch. The soil particle containing weed seeds can filter down and may contribute to weed problems. However, I am not familiar with any published research findings indicating that this may be the case.

If the density of the aerified turfgrass is poor, then there is a good chance for weed seeds to germinate and present problems in the future. Weed seeds can remain viable in soil for many years. In this situation,

the best thing to do is to improve the vitality of existing turfgrass through proper watering and fertilizing. That will make the turf more competitive with weeds. In some situations, overseeding after aerification, or using a slicer/seeder (slit-seeder) is needed to improve the density.

Most people prefer to aerify in the fall. Agronomically, fall is preferred because at that time there are cool temperatures and adequate moisture for the turfgrass to recover. Generally, turf can be aerified about three weeks before freezing temperatures occur. There should be good growing conditions for the roots to grow after aerification.

There is no need to remove cores from the lawn surface after aerifying. Leaving the cores will allow the microbes to filter down through the thatch layer to ease thatch decomposition.

Rose of Sharons not always red

Are there any Rose of Sharon plants that do not produce a lot of baby plants around them from falling seeds? Please provide a list of Rose of Sharon plants which have different flower colors.

—OHIO

Many Rose of Sharon (*Hibiscus syriacus*) cultivars are available in major wholesale nurseries.

Among these, 'Diana,' 'Helene' and 'Minerva' are National Arboretum releases. They are also triploid and produce few

ROSE OF SHARON

Cultivar	Color
'Ardens'	Double violet
'Banner'	Double red, white
'Blue Bird'	Single purple
'Blushing bride'	Double pink
'Boule de feu'	Double red
'Collie mullins'	Double purple, lavender
'Diana'	Single pure white
'Hamabo'	Single pink
'Helene'	Double white
'Lucy'	Double red
'Minerva'	Single lavender, red center
'Paenyflorus'	Double pink
'Red heart'	Single white, scarlet center
'Woodbridge'	Single pink, red center

seeds. They could be used if you don't want seedlings around mother plants. Cold hardiness of these cultivars is questionable. Some may show extensive dieback during the winter. Cultivars 'Helena' and 'Diana' are slow growers.



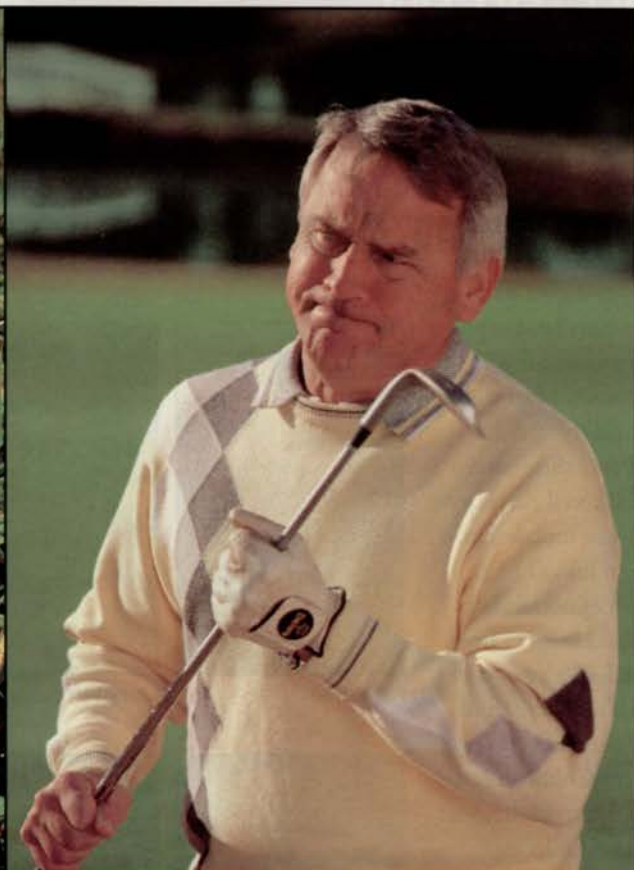
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also still be used on bluegrass, ryegrass, zoysiagrass, fine fescue, tall fescue — even bentgrass fairways and tees. And ACCLAIM

EXTRA controls crabgrass escapes from the 1-leaf stage right up to just before seed head formation.

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*Wait 3 weeks for bluegrass, zoysiagrass, bentgrass.

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Six join our edit panel

Six new landscape managers join the LANDSCAPE MANAGEMENT Editorial Advisory Panel this month. The Editorial Advisory Panel was founded in 1993 to bring LM's veteran editorial staff news and insights from the end-user's point of view. This is the third set of panelists chosen.

Jerry Coldiron Jr. is grounds superintendent at Boone Links and Lassing Pointe public golf courses in Florence, Ky. Coldiron is a GCSAA-certified superintendent and graduate of Eastern Kentucky University with a degree in horticulture with turf specialization.

He is past president of the Cincinnati Golf Course Superintendents Association, and was the Kentucky Turfgrass Council's 1991 "Man of the Year." In 1994 and 1995, his courses won back-to-back GCSAA Environmental Steward Awards, and in 1994 he was E.K.U.'s Department of Agriculture Outstanding Alumnus. He and wife Susan have three boys, Josh, Jake and Jared.

Corey Eastwood is the golf course superintendent at Stockdale Country Club in Bakersfield, Calif. He has previously worked at Marbella Country Club in San Juan



Pat Nibler



Larry Iorri



Jerry Coldiron Jr.



Corey Eastwood



Russell Studebaker



Mike Guthrie

Capistrano, and California's Green Hills Country Club and Churn Creek Golf Course.

Eastwood earned his GCSAA certification in 1986. His wife Susi is in law school, and his son is a general sales manager for a Jacobsen/Textron distributor.

Mike Guthrie is vice president of Ground Control Landscaping's Maintenance Division. Ground Control is the largest landscape contractor in the Orlando, Fla., area.

Earlier in his career, he was with Johnson's Landscape in the metro Washing-

ton, D.C. area and with Landcare Industries, Tampa.

Guthrie, who attended Clemson University, was Exterior Landscape Division chairperson for the Associated Landscape Contractors of America in 1992.

Larry Iorri is founder and owner of Down to Earth, Inc., a small landscaping business in Wilmington, Del. He was president of the First State Branch of the Professional Grounds Management Society for 15 years, and on the Board of Directors of the Delaware Turf Grass Society for nine. He is a graduate of

the University of Delaware and holds certificates of merit in ornamental horticulture from Longwood Gardens.

Iorri's company has been featured in four industry publications, including LM. He has been a featured speaker at the Green Industry Expo. Wife Janine is the company bookkeeper and mother to Brent and Kristin.

Patrick Nibler is co-owner and vice president of operations for ProGrass, Inc., a chemical lawn care company in Wilsonville, Ore. He's a member of the Professional Lawn Care Association of America, the Northwest Turfgrass Association, the Oregon Golf Course Superintendents Association, the Oregon Association of Nurserymen and the Oregon Landscape Contractors Association.

Nibler was on the PLCAA Board of Directors for three years and chaired its Education Committee. He's also been on the Board of Directors of the Northwest Turfgrass Association. He and his wife Cheryl have two sons.

Russell Studebaker is former city horticulturist for the Tulsa Park and Recreation Dept. and curator of horticulture at the Tulsa Zoo. In semi-retirement, he remains a prolific writer (a weekly garden column for the Tulsa World) and speaker (garden clubs, plant societies, nursery and plant associations, and

civic organizations).

He is a charter member and a past president of the Oklahoma Horticultural Society and has been president and board member for the Professional Grounds Management Society and the Southwest Park and Recreation Training Institute. □

Correction

Due to an inadvertent error in our June, 1996 issue, an incorrect reference was made to Sostram Corporation's Echo fungicides.

The advertisement should have referred to "Sostram's advanced ECHO STICK™ formulations..."

The advertiser apologizes for any inconvenience. □

OSHA reform in the hopper

by JAMES E. GUYETTE / Contributing Editor

Recommendations aimed at gaining much-needed reforms within the Occupational Safety and Health Administration (OSHA) were introduced to the U.S. House of Representatives during April.

The bipartisan piece of legislation—H.R. 3234—is also known as the Small Business OSHA Relief Act.

"We're hoping to move this legislation quickly," says Rep. Cass Ballenger (R-N.C.), who wrote the bill. "This is not an OSHA bill that will offend anybody."

The new bill's most controversial provision would require that OSHA perform a cost-benefit analysis on any proposed legislation, and new rules could be issued only if they meet those cost-benefit standards.

Other provisions would:

- 1) Waive penalties for small businesses (less than 250 employees) that move quickly to correct certain violations.
- 2) Put an end to citation/penalty quotas placed on OSHA inspectors.
- 3) Relax enforcement of "paperwork" violations.
- 4) Urge consultation and cooperation rather than enforcement.

As of June 4, the bill was in the House Work Force Protection Committee. A hearing from the House Economic and Educational Opportunity Committee is expected.

Support is growing for a similar piece of legislation in the U.S. Senate, according to Sen. Christopher S. "Kit" Bond (R-Mo.).

"The inspectors come in like they are from the king—not from an elected government," says Bond. "Too often, regulators think their jobs are to go out and issue citations and collect fines. If we can make that change, we can go a long way." □

Pay for the ride home an issue

by JAMES E. GUYETTE / Contributing Editor

The U.S. Congress is considering legislation to clarify the issue of paying travel-time wages to employees who take home company vehicles

Using the company truck to get to and from work is largely viewed by employees as a "perk." Landscape managers, like other small business owners, seldom pay their workers an hourly wage for drive time. Nevertheless, national union officials are opposing H.R. 1227 that would allow these arrangements to continue.

The issue is real, and H.R. 1227 needs industry support, says Sandra Boyd, assistant general counsel to the Labor Policy Association.

For instance, a Dept. of Labor audit over travel-time wages resulted in Stan Hoselton of the Union Roofing Co., Chenoa, Ill., paying additional wages for each of his 18 employees who drive his trucks home.

"They came in with their attorneys and said, 'This is the law; it doesn't matter what your collective bargaining agreement is,'" Hoselton says. "If they would have gone back more than three years, they would have wiped us out."

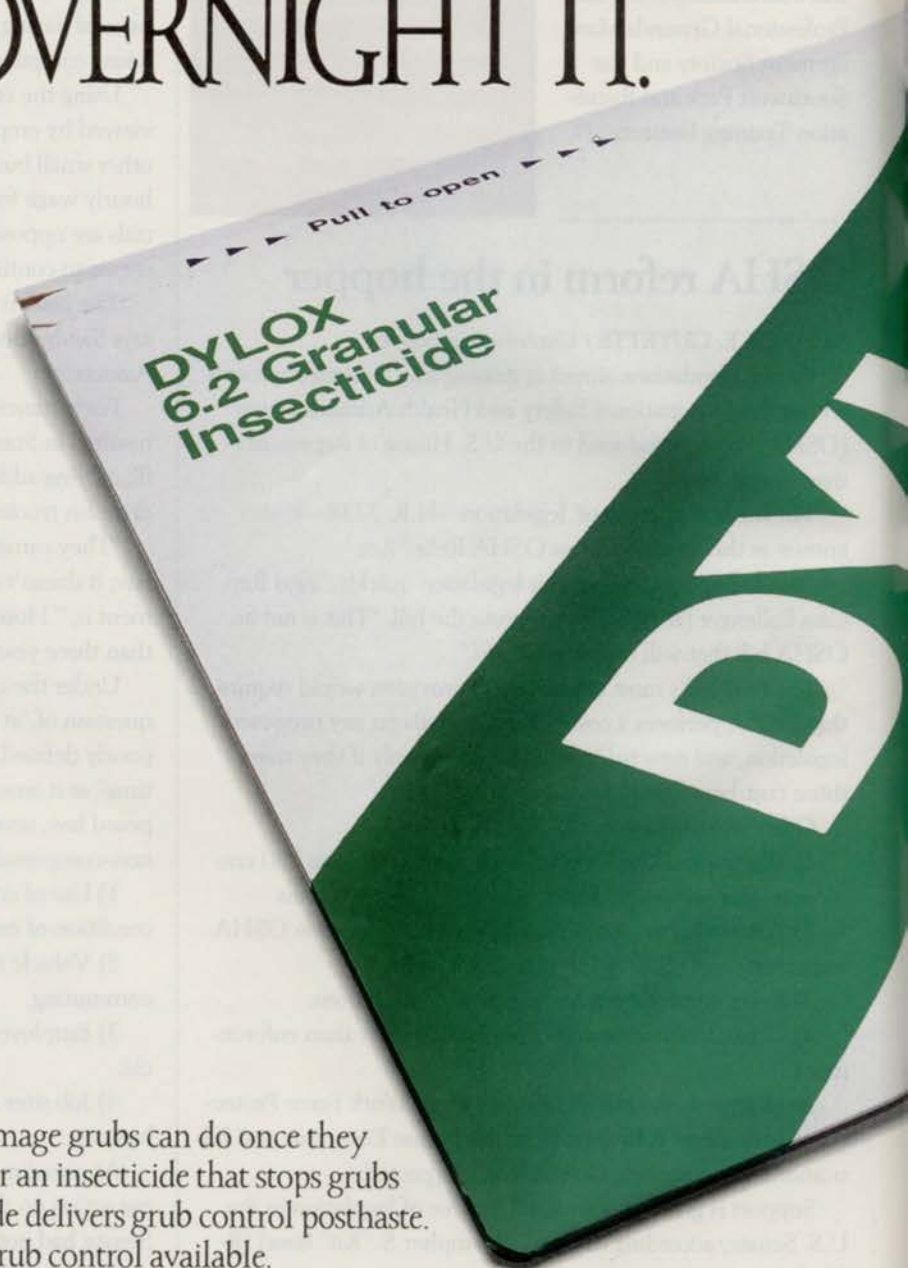
Under the current mishmash of conflicting regulations, the question of "at what point does the timeclock turn on?" is poorly defined, but H.R. 1227 addresses "compensable travel time" as it amends the Portal-to-Portal act. Under the proposed law, several criteria must be met for travel time to be non-compensable:

- 1) Use of company vehicle is entirely voluntary and not a condition of employment.
- 2) Vehicle is the type that would normally be used for commuting.
- 3) Employee incurs no cost for driving or parking the vehicle.
- 4) Job sites are within the normal area of the contractor's business.

At presstime, H.R. 1227 was out of committee and awaiting action on the floor of the House of Representatives. The Senate had not considered it.

Boyd and the Associated Specialty Contractors (ASC) organization urges landscape managers to join them in contacting their elected officials in support of the legislation. □

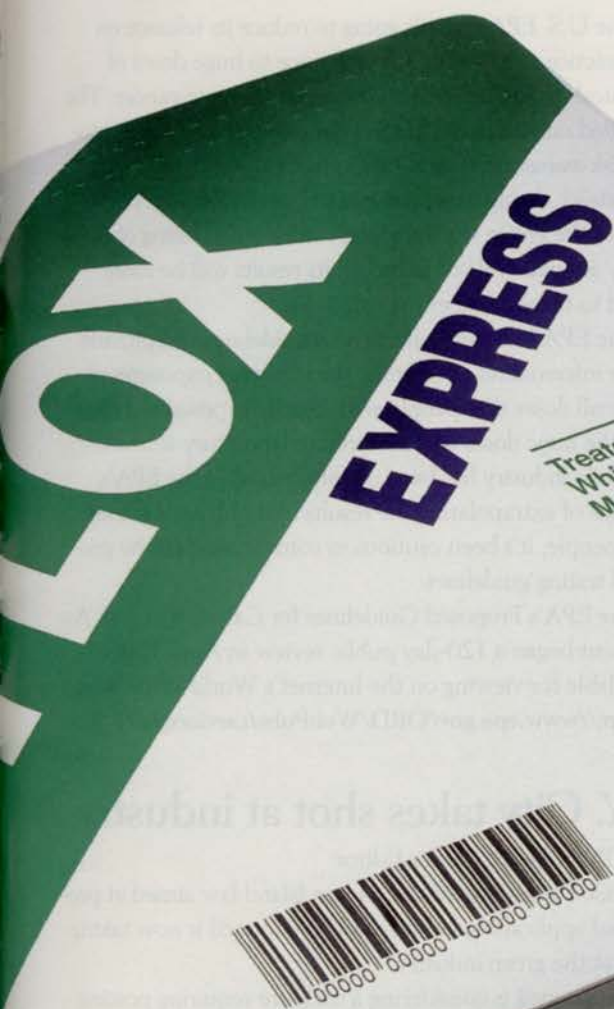
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scape and recreational turfgrass varieties or sites. In fact, with the 80% water-soluble powder formulation, you can even spray flowers, shrubs and trees and get first-class control of ornamental insect pests.

DYLOX is a low-odor compound and is also available in a 6.2% granular formulation. To find out more, contact Bayer Corporation, Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.

And get fast grub control signed, sealed and delivered.

Bayer



Small trucks may get a break

A measure that would provide the green industry with some relief from confusing federal DOT regulations is working its way through Congress.

U.S. Representatives Tom DeLay (R-Tex.) and Gary Condit (D-Calif.) are sponsoring H.R. 3153 which would exempt service vehicles from DOT hazardous materials regulations if:

- ▶ the vehicle is a relatively small vehicle (5 tons or less).
- ▶ the vehicle is not carrying a highly hazardous material.
- ▶ the vehicle is not transporting a large quantity of a less hazardous material.

In introducing the proposal this spring, Rep. DeLay said that 1990 amendments to the Hazardous Materials Transportation Act created an unnecessary tangle of regulations that cost the structural pest control industry \$135 million annually. Much of that cost resulted from unnecessary paperwork and record-keeping.

"My bill simply amends the Hazardous Materials Transportation Act by providing an exemption for small commercial vehicles which are transporting common 'Raid'-like materials which do not pose a risk to public health or safety," said Rep. DeLay. □

Lab rats lose status in U.S. EPA laboratories

The U.S. EPA says it's going to reduce its reliance on the practice of exposing rats and mice to huge doses of chemicals to determine which chemicals cause cancer. The so-called rat tests have formed the basis for EPA's carcinogen risk assessment since 1986.

Instead, the agency proposes to base its findings on "a view of the entire weight of the evidence." Testing of laboratory animals will continue but its results will be more added to those of other investigations.

The EPA believes that the new guidelines will provide better information concerning the effects of exposures at the small doses that people are typically exposed to rather than the huge doses administered to laboratory animals.

While industry has been openly critical of the EPA's practice of extrapolating the results of its lab animal tests onto people, it's been cautious in commenting on the proposed testing guidelines.

The EPA's Proposed Guidelines for Carcinogen Risk Assessment began a 120-day public review in April 1996. (Available for viewing on the Internet's World Wide Web at <http://www.epa.gov/ORD/WebPubs/carcinogen/>) □

N.Y. City takes shot at industry

by RON HALL / Senior Editor

While a judge tossed out a Long Island law aimed at professional applicators, New York City Council is now taking a shot at the green industry.

That council is considering a measure requiring posting for all lawn/landscape chemical applications, including fertilizer. As written, the proposal mandates 3-by-3-foot notices posted at least 100 feet from each application, and no further apart than 25 feet.

"If you had a truck doing fertilizations for customers, you would need another truck right behind it just to carry the signs," says Pat Voges, government affairs specialist for the Nassau/Suffolk Landscape Gardeners Association. That association, along with other industry groups, including RISE, oppose the measure.

In a related matter, a judge disallowed a Nassau County (N.Y.) law which would have required professional applicators to mail notification postcards to all property owners abutting lawn/landscaper treatments at least five days prior to the treatments.

Although that law was to have gone into effect May 24, the judge, responding to actions filed by industry, determined that Nassau County legislators overstepped their authority. **LM**

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2780-38 MJ

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Ahh, television news in the 90s.

Tabloid journalism has sneaked its way onto the airwaves. And the pursuit of facts seems to have been replaced by the pursuit of ratings.

So the specialty pesticide industry needs a media watchdog that not only watches. But that also takes action.

Fortunately, we have one.

RISE. Responsible Industry for a Sound Environment.

RISE is a coalition of manu-

facturers, formulators and distributors from all areas of the specialty pesticide business.

In addition to promoting environmental stewardship, RISE makes sure the media doesn't report misinformation as fact.

We also hold editorial meetings with media decision-makers. And respond to negative articles or broadcasts that are incorrect. We've been very successful so far. Not surprising considering what

our most powerful weapon is. The truth.

Of course, there's still a lot more work to do. But rest assured, RISE is up to the task.

Because we know if we eliminate air pollution, the pesticide industry can breathe a lot easier.



1156 15th St., N.W., Suite 400,
Washington, D.C. 20005. ©1995 RISE RISB-0047



The Grasshopper Aera-vator unit is hydraulically controlled.



Toro's Hydroject 4000 has a portable, 200-gallon water supply.



◀ John Deere Aercore delivers a 4-inch core.

TURFGRASS AERATORS

Soil compaction is a common turfgrass management problem. Foot traffic, sporting events, or the weight of heavy equipment will soon squeeze soils together to deprive turfgrass roots of oxygen. Wet soil is especially prone to compaction.

Signs of compaction include bare spots, standing water, and isolated dry or muddy patches.

Aeration is an important and basic turf care service that can bring extra revenue to a lawn care company, and improve the vigor and play of athletic fields and golf course turf.

Frequent aeration:

- ▶ reduces thatch build-up,
- ▶ improves water infiltration,
- ▶ improves irrigation efficiency,
- ▶ improves fertilizer efficiency, and
- ▶ helps reduce the need for pesticides.

Kinds of aeration

Closed spoons remove a core from the turf. This is the most commonly-accepted form of aeration.

Open spoons penetrate the soil without making cores. This is a less disruptive treatment, and eliminates core clean-up, if that is important to the job.

Slicer blades make thin slices in the soil, about three to four inches deep, depending on soil conditions. This is a more temporary solution, since the openings tend to close up within a few days, limiting the effect. The advantage of slicing is that it is fast and minimizes turf disruption.

To sell it

Here are some ways to tell customers about aeration:

1. **Give them** a flyer that explains the cost offset by savings on other turf additives and water.
2. **Inspect** for obvious compaction problems, such as isolated dry spots, weak turf

Aerway
(519) 863-3414
Circle No. 250

Twenty-nine models, including 3-point hitch and tow-behind hydraulic lift units, four to eight inches in width. For golf courses, a ground-drive, non-coring green aerator penetrates six inches.

Shattertine aerators for sports fields and golf course fairways penetrate up to seven inches deep, and cause a sideways soil shattering effect beneath the surface, with little surface disruption.

BlueBird International
(303) 781-4458
Circle No. 251

The operator can pre-set the walk-behind unit's rear wheels to control depth of tine penetration,



machine stability and maneuverability. V-belt to jack shaft primary drive. Secondary drive is a #40 permanent lube roller chain to tine assembly and front wheel. Front wheels are 10x6 inches semi-pneumatic with sealed ball bearings on shaft. Rear wheels are 8x2-inch solid rubber molded on cast wheels. Tines are 3/4-inch closed spoon. Aerates up to 3 inches, with a 17 1/2-inch swath.

plants or standing water.

3. Take a soil profile sample. A thin soil slice made with two cuts of a spade is good if you don't have a soil sampler. Look for hard soil, high clay content, low water infiltration rate, black layer, poor rooting and waterlogging.

4. Show the customer what you find. Explain how regular aeration will help solve

Classen Manufacturing
(402) 371-2294
Circle No. 252

TA-26 features a 4-cycle, 4 hp Honda O.H.V. engine with 6:1 gear reduction box. Compact enough to fit through a 42-inch gate with the rear wheels attached, but wheels remove easily to a 36-inch width. Sealed ball bearings. Stable on sloped areas. 65 lb. weight bar. Pro-



tection guard keeps cores away from chain. 375 pounds.

John Deere
(919) 850-0123
Circle No. 253

New Aercore aerators are tractor-mounted, deliver a true 4-inch core at spacings between 2.4 x 2.0 inches and 3.2 x 5.0 inches. Aercore 1000 produces 600,000 holes per hour at a coring swath of 37 1/2 inches. Model 1500 can produce 900,000 holes per hour at a coring swath of 57.5 inches. Standard "flexi-link" supporting arm on both the Aercore 1000 and 1500 to keep tines perpendicular to the turf surface longer.

the problem. Aeration will help restore poor lawns and turf. Regular aeration will keep it looking good.

Aeration is most effective when done in spring and fall. For heavily-used turf, more frequent aeration—once every four to six weeks through the growing season—is ideal.

—Thanks to the Grasshopper Co. and Millcreek Manufacturing for supporting information.

Grasshopper Company
(316) 345-8621
Circle No. 254

AERA-vator attachment goes on Grasshopper zero-radius outfront mowers for aerating closely around trees, flower beds and other landscaping. Hydraulic lift that locks into a raised position, then lowers using a foot-operated release. PTO drive vibrates the tines rapidly in an oscillating motion for good penetration. Extent to which soil is loosened varies by speed of the power unit.

Gravely
(910) 777-1122
Circle No. 255

The new Pro Aire-27 includes hydraulic operation that allows you to switch from aeration to transport with the touch of a lever. A low center of gravity allows for more stability on hills and slopes. Spring-loaded rear caster wheels allow you to aerate while making gradual turns.

An automatic weight transfer system keeps the weight and balance where it's needed for transport or aeration. The unit can aerate up to 34,474 sq. ft./hour.

GreenCare International
(714) 842-6003
Circle No. 256

Shattermaster is a tractor-mounted aeration tool that will cover up to 30,000 sq. ft./hr. in best conditions. Aerates to 14 inches. Operates on all model tractors offering at least 18 hp and a 540 PTO. Coremaster model can be fitted with a variety of tine sizes and covers up to 20,000 sq. ft./hr. in ideal conditions.

F.D. Kees
(402) 223-2391
Circle No. 257

Core Pluggers are self-propelled, easily loaded and transported. Foot operated adjustment controls tine depth. Welded stainless steel tines.

Millcreek
(800) 879-6507
Circle No. 258

Mount to commercial upfront mowers via 3-point and front mount; unit fits Excel, Ford, Kubota, John Deere, Walker, Howard Price and Gravely, with 3-point hitch standard equipment on each. Front-mount models are 42- and 63-inch units; 3-point hitch covers up to 84 inches. Also: free sales-building brochure on how to sell aeration services and an example of a newspaper ad you can use to market the service.

Ransomes America
(800) 228-4444
Circle No. 259

Three-wheel Ryan GA 30 aerator maneuvers easily, and causes minimum soil compaction within a 30-inch swath. Greensaire 24, made for golf greens tees and other fine turf areas that require high-maintenance, covers up to 8000 sq. ft./hour with a 24-inch swath. Lawnaire V is designed for sloped surfaces, and covers a 26-inch swath.

Toro Company
(612) 888-8801
Circle No. 260

Fairway Aerator cuts a swath of 63 inches, follows a tighter coring pattern and cores up to 5 inches deep. Covers 61,000 sq. ft. per hour. Six tines per head is standard; two per head is optional. Hydroject 4000, a pull-behind model to go with the Workman Utility Vehicle, draws water from a 200-gallon tank mounted on the Workman bed.

Turfco
(612) 785-1000
Circle No. 261

Aerator Pro covers 33,280 sq. ft. per hour. Controls conveniently located. Minimal chain maintenance required. Drop-off wheels allow the unit to fit through tight spots. 48 tines for a dense pattern. Rugged

cont. on next page

>LM REPORTS



The Ryan GA-30 maneuvers easily.

one-piece frame, external drive components, fewer moving parts, industrial-grade engine. Easy to operate and service. $\frac{3}{8}$ -inch tines penetrate 2 $\frac{1}{2}$ inches deep.

Turfster International
(810) 632-9200
Circle No. 262

Model H550 drum unit mounts directly to 3-point hitch, and makes

a turning radius as sharp as the tractor itself. Each drum rotates independently to reduce strain on equipment and turf. Hinged tines allow for clean plug removal. Available in two, three four or five drum units, with 36, 60 or 120 tines per drum. Plug collecting is optional. All drums are 12 inches wide, and there is a three inch space between drums. All drums can be equipped with solid or



Turfco's Aerator Pro requires minimal chain maintenance.

screened sides. Spikers available.

Verti-Drain
(717) 288-9360
Circle No. 263

The new model 205.150 penetrates to a maximum soil depth of 16 inches. Compact for easy maneuvering. Working width of 60 inches, similar to the 105.145 model. Creeper not necessary; gearbox provides a better connection to the tractor and a higher speed of the crankshaft. Ideal for football fields, golf courses, municipalities, places where there are narrow entrances.

Way Easy, Inc.
(770) 591-5999
Circle No. 264

Hooker Pro Model 38 Aerator mounts behind large, commercial walk-behind mowers. 38 inches wide, with small curved, hook-like tines which pierce 3 inches deep and hook under soil, to lift and loosen from underneath. Individual catering heads allow zero turning and/or reversing. Stable and easy to handle going up or down hills or crossing the slope. Each tine rotor assembly is independently suspended which allows it to lift over an obstacle while the others continue to work. **LM**

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sq. ft./hr

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operation

PRO AIRE 27

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Reduced
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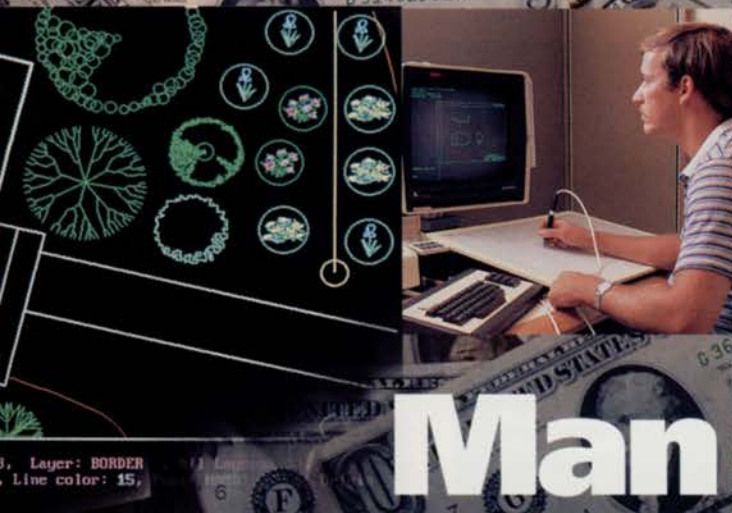
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Circle No. 115 on Reader Inquiry Card

STATE OF THE INDUSTRY



Man and machine

The availability of alternate labor and the new generation of fast, inexpensive computers are changing the face of the green industry, according to statistics compiled by Readex, Inc., for *LANDSCAPE MANAGEMENT* magazine.

Computer use at organizations that subscribe to *LM* has grown to more than 70 percent. As few as 10 years ago, it was less than 20 percent.

Leading the way are landscape contractors, 76 percent of whom now use computers for administrative tasks, landscape and irrigation design, and communication. Though golf superintendents lag slightly—behind landscapers, lawn care owners and grounds managers—in computer access, their number is expected to grow as more computer-controlled irrigation systems are installed on golf courses.

Surprisingly, the survey found almost half (47 percent) of all computers in the green industry are hooked up to a fax/modem, making "conversation" with suppliers and other

Readers of LANDSCAPE MANAGEMENT controlled the purse strings on more than \$25 billion dollars in 1995. They used a good deal of the money to hire 'non-traditional' labor and purchase top-of-the-line computers.

by JERRY ROCHE / Editor-in-Chief

golf/landscape professionals possible.

"The rapid and easy exchange of ideas has only begun to be felt," notes Tom Pinney Jr. of Evergreen Nurseries, Sturgeon Bay, Wis., a director of the American Association of Nurserymen. "We are in an age where society demands instant everything, from meals to landscapes. And, with the advent of the 'Information Superhighway,' demands are going to grow even more."

Twenty-one percent of all

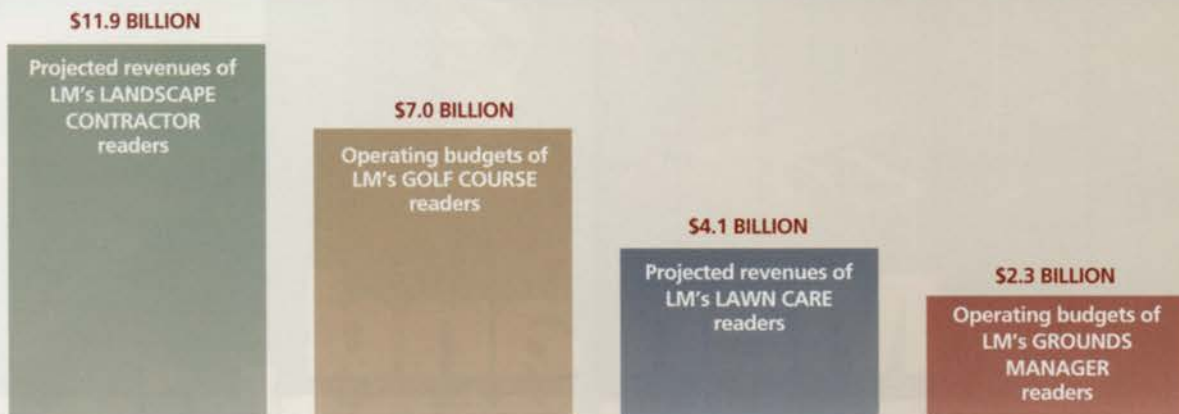
LM readers use their computers for electronic mail ("e-mail") messages, or to access agronomic, government and product information.

The green industry still trails other industries in its use of online services. Just 14 percent have access to the Internet, the fast-growing computer web that has millions of subscribers around the world.

As quickly as computers are changing the green industry, the real explosion is yet to come, according to Peter McCormick of TurfNet Associ-

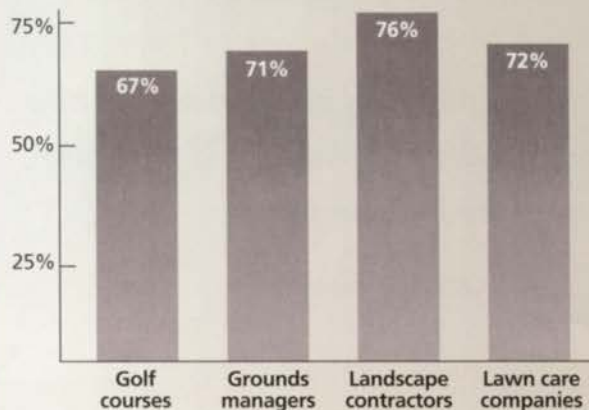
STATE OF THE INDUSTRY

1995 BOTTOMLINE BUSINESS

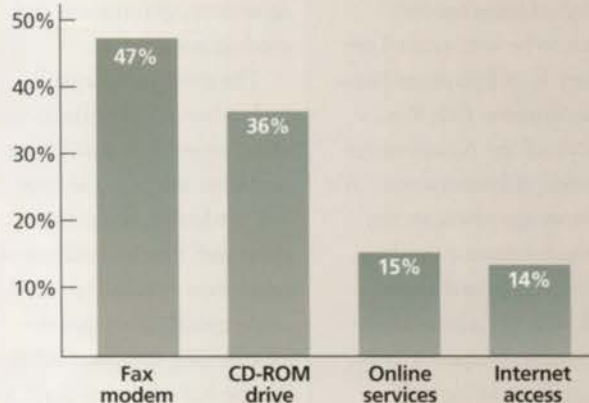


COMPUTER ACCESS

RESPONDENTS WITH COMPUTERS AT WORK



ACCESSORIES AVAILABLE TO THOSE WITH COMPUTERS



ates, Skillman, N.J. More than 450 golf course superintendents in the U.S. and Canada access supplier information and "chat" with their peers through TurfNet's magazine and online services.

"A forward-looking superintendent is doing himself a disservice in terms of professional development," says McCormick, "if he's not functionally proficient with a computer.

"If you have to, you should spend your own money and take your own time to learn how to use a computer. You're really lost today if you don't know the rudimentary basics."

The number of green industry organizations with online capabilities is expected to grow as trade associations go online, suppliers like John Deere begin to offer customer services and product information online, and the Environmental Protection Agency disseminates its reams of information via personal computers.

According to the Readex research, LM readers frequently use their computers to access technical/agronomic information (14 percent of all respondents), most of which is available through their state universities' computer systems. Eleven percent of our readers use computers to send and receive electronic mail ("e-mail"), and an additional eight percent use the computers to find out more about the products they use, including pesticide label information. E-mail use is more common among grounds managers at parks, schools and colleges (24 percent) than anywhere else in the green industry.

Labor changes

English-speaking males between the ages of 21 and 65 historically have comprised the bulk of the green industry workforce. But, according to some surprising numbers from Readex, that has changed.

A "traditional" labor force no longer exists in the green

NON-TRADITIONAL LABOR %

	GOLF COURSES	GROUNDS MANAGERS	LANDSCAPE CONTRACTORS	LAWN CARE	INDUSTRY AVERAGES
Non-English speaking	5.3%	2.7%	12.3%	5.6%	8.2%
Female	13.9%	15.9%	11.0%	9.5%	12.3%
Age 65+	7.2%	2.6%	1.7%	1.1%	3.6%
Students	30.1%	28.9%	22.9%	21.2%	25.8%
TOTALS	56.5%	50.1%	47.9%	37.4%	50.0%

industry: exactly half of all employees are either non-English-speaking, female, aged 65 or more, or part-time students.

Most (25.8 percent) are students. But non-English-speaking workers and female employees are showing significant gains. Almost one in eight people involved in the industry is female (12.3 per-

cent), and about one in 12 doesn't speak English (8.2 percent). Golf courses are the biggest employers of students (30.1 percent) and older people (7.2 percent), while park and school grounds managers have more females (15.9 percent) in their employ, and landscape contractors hire the most non-English-speaking workers (12.3 percent).

Labor, incidentally, is still the biggest cost of doing business in the green industry: paychecks use up four of every 10 budget dollars. Park and school maintenance is the most labor-intensive with 56.9 percent of every dollar spent on labor. Golf course labor stands at 47.0 percent, lawn care labor at 37.1 percent, and landscape contracting labor at 35.0 percent.

Contractor dollars

Readers of LANDSCAPE MANAGEMENT control more than \$25 billion every year.

The largest segment reached by this magazine is landscape contracting, with more than 20,000 readers. Not surprisingly, then, the landscape segment is the biggest in terms of dollars, too. Average landscape contracting revenues nationwide—from the Readex survey, projected to LM's landscape circulation—are \$11.9 billion.

Lawn care revenues projected to total LCO circula-

tion of 7,000+ is \$4.1 billion. Total operating budgets for golf course employees who read LM (nearly 17,000 of them) are about \$7 billion, and operating budgets for the nearly 5,000 grounds managers who read LM are projected to be about \$2.3 billion.

Not surprisingly, golf course superintendents are the best-paid readers of LM, with average annual salaries of \$54,100. Both landscape contractors and lawn care operators make about \$47,700 a year. Grounds managers, who average \$42,400 a year, however, can take heart: according to past LM surveys, they are the best-compensated market segment in terms of benefits and incentives.

The lawn care and landscape segments reported somewhat disappointing profit levels in 1995.

However, the companies that were profitable were *really* profitable. The 47 percent of landscape companies that reported profits averaged 17.4 percent, and the 54 percent of LCOs who reported profits averaged 19.3 percent.

Survey parameters

One thousand-seventy questionnaires were mailed to LM readers this past spring. The margin of error for percentages based on 613 usable responses (57% response rate) is ±3.9% at the 95% confidence level.

Responses were tallied, and are verifiable through, Readex, Inc., Stillwater, Minn.

12 ways to master the winds of change

1. View change as a challenge. Convert fear into energy.
2. Build commitment among employees.
3. Stay committed to your goals.
4. Know when to control—and when to let go.
5. Bounce back from setbacks.
6. Be optimistic.
7. Use humor to ease the tension.
8. Learn from your mistakes.
9. Maintain perspective, and deal with events in order of importance.
10. Tune the body with regular exercise.
11. Build your confidence.
12. Communicate, and help others to "master the winds of change," too.

—Source: "Business Beat," November, 1994

Labor woes cause industry shift

by RON HALL / Senior Editor



DAVIS: Give quality employees a reason to stay.

Continued low unemployment, good news for the U.S. economy, is making it tough for the green industry to find reliable labor this season.

Contractors, in particular, aren't waiting for good workers to find them. They're actively recruiting employees, and sometimes—our survey shows—they have to recruit outside of the traditional young/white/male labor market.

There are probably many reasons for this, but one of

them might be the demise of the family farm. There just aren't that many young people familiar with, or eager to do, manual labor. That's what Joe Munie of Munie Outdoor Services, near St. Louis, believes.

"When we started our company, we were able to get some people with a farm background. We don't see that segment of the labor force anymore," says Munie.

The problem is most acute for entry-level positions. Many potential employees in that particular job pool appear

REEVE: "People want to be challenged."



SERVICES PERFORMED



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INSECT PESTS BECAUSE ALL IT TAKES
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Most customers tend to overreact. Discover one lawn pest and they think they're infested. Never mind that most customers can't tell the difference between a sod webworm and a night crawler.

Keeping customers' lawns insect pest free is what Dursban* insecticide is all about. Not only is it a dependable and economical broad spectrum insecticide,

but it has also been formulated to provide you an effective residual on most turfgrasses and ornamentals.

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STATE OF THE INDUSTRY

ANNUAL INCOME

Golf course superintendents \$54,100

Landscape contractors \$42,400

Lawn care operators \$47,700

Grounds managers \$47,700

INDUSTRY AVERAGE \$49,600

"For four or five years it was fairly easy to get help. This year we're seeing a tight labor market."

— Landon Reeve

ently feel that there are less strenuous ways to make \$6.50 to \$7.00 an hour, which is about the industry starting average.

But both contractors and other segments of the industry, including professional application companies, are on the lookout for strong managers. These are in short supply, too, our survey suggests.

The Washington D.C. labor market may or may not be typical across the nation. But in 1996, that market has more jobs than people to fill them.

"For four or five years it was fairly easy to get help. This year we're seeing a tight labor market," says Landon Reeve IV, whose Chapel Valley Landscape has two locations in the D.C./Baltimore market.

"I think the issue of labor is an on-going problem. The main thing that we have to do as a company is to try very hard to keep people," he adds.

"We have to create an environment where our people have something to achieve. People want to be challenged."

Reflecting the findings in our survey, Chapel Valley Landscape, like other contractors, hires and retains an increasingly larger percentage of non-English speaking employees, typically Hispanic.

Tom Davis, president of Bozzuto Landscaping Company, Upper Marlboro, Md., says that staffing his landscape company—the fourth largest in metro D.C.—is a two-pronged effort. First, you attract the quality employee. Then you have a plan to retain the quality employee.

His company finds employees by:

- ▶ offering present employees incentives for bringing in other good workers,
- ▶ advertising in trade magazines,
- ▶ recruiting at universities,
- ▶ participating in field days,

Superintendents' pay is highest in green industry

Salaries of golf course superintendents have increased \$4,800 over the past two years, according to statistics from the Golf Course Superintendents Association of America.

In 1993, the average supers' salary was \$44,500, based on a 1993 Salary Report; in 1995, that figure had risen to \$49,300, based on a 1995 Compensation and Benefits Report.

▶ as a last resort, advertising in local newspapers.

To keep good employees, his company relies on:

- ▶ careful hiring and screening,
- ▶ competitive wages,
- ▶ weekly training,
- ▶ English/Spanish tutoring,
- ▶ regular employee recognition,
- ▶ an "open-door" management philosophy,
- ▶ periodic company "fun" events,
- ▶ incentive programs based on meeting quality and

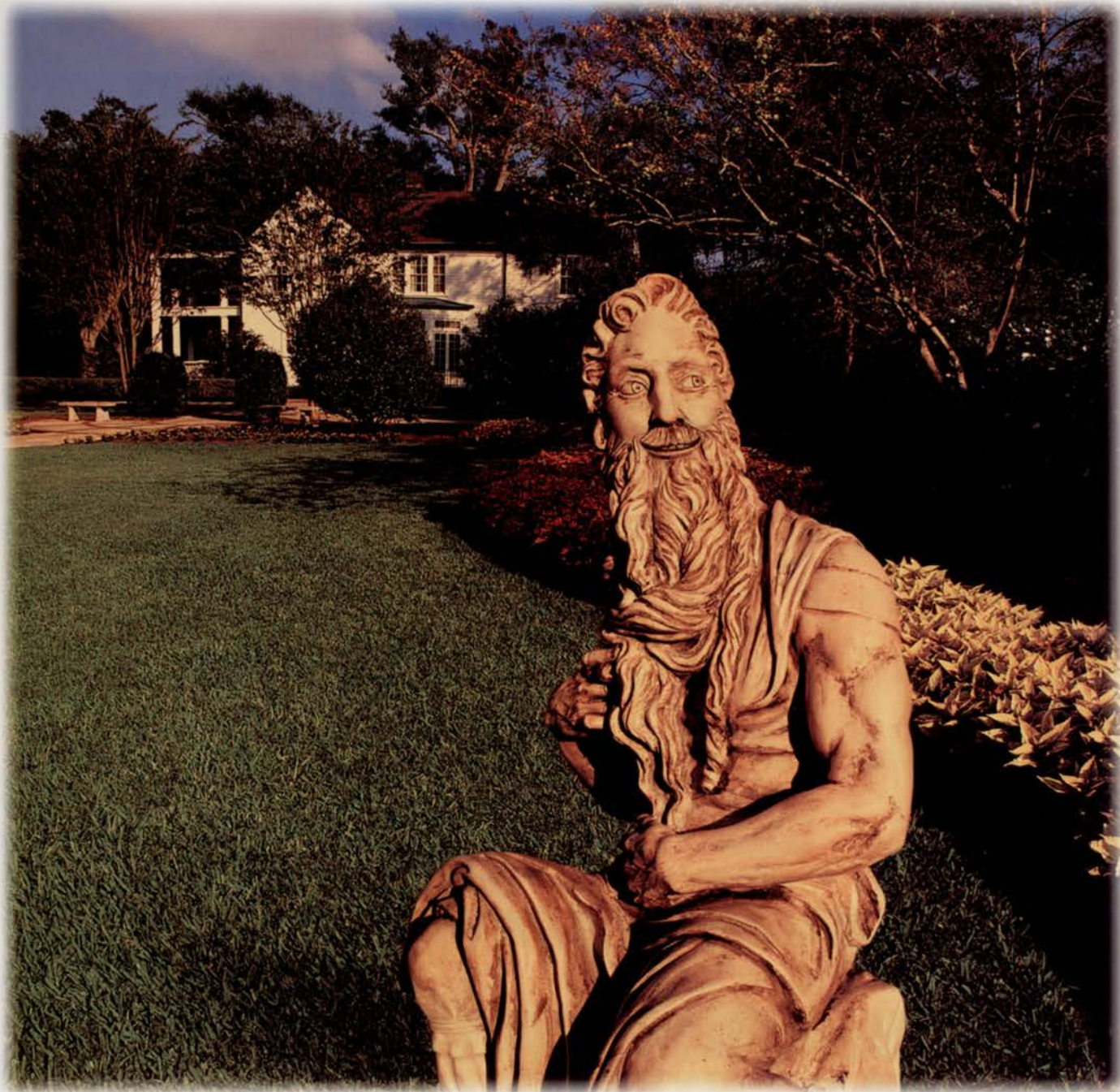
production goals,

▶ attempting to reduce off-season layoffs.

"We want to remain a company that new employees would want to come to, and our existing employees would like to stay a part of," says Davis.

Landon Reeve and Tom Davis met with members of the Turf and Ornamentals Communicators Association recently, and talked about labor.

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What they're saying out there...

LAWN/LANDSCAPE

ON BUSINESS EVOLUTION...

Charlie Racusin, Environmental Landscape Services, Houston, Texas:

Racusin is a realist who always looks for ways to attract new customers, which he says is essential in highly competitive markets.

"Today, landscaping has become, like many businesses, a commodity," explains Racusin. "Customers can buy it anywhere. So many people in this business today are shaking the same trees. They are telling the same story and writing up the same brochures. I see most landscape contractors as exceptionally competitive pricewise



Messina: Customer service goes "one step beyond reasonable."

because they don't have anything different to offer.

"What was best in 1972 wouldn't be the best today. Technology has improved, systems have improved, clients have become better educated and more sophisti-

cated, and they understand the work better and they demand excellence at a real competitive price. Everyone has gotten better, so you'd better be able to deliver something better or you've got no extra sizzle on your steak."

ON HOMEOWNERS... Ken Thomas, Landscape Techniques, Alpharetta, Georgia:

Thomas realizes the economic facts of life that often face new homeowners in higher-priced housing developments. "The people who are paying \$150,000 to \$200,000 for homes don't have a lot of extra income for landscaping because they are buying as much house as they can afford," says Thomas. "But

if we can catch up with them in three or four years, they'll be ready to spend some money, if the neighborhood is landscape-conscious.

"You get into the \$350,000 range and up, and those people are more likely to buy more initial landscaping."

ON SERVICE... Larry Messina, Lawn Cure of Southern Indiana, Jeffersonville, Indiana:

Messina adheres faithfully to the cornerstone of success.

"I preach service," he claims. "If a customer calls, we're on their lawns in 24 hours. When it comes to satisfying customers, we go one step beyond reasonable."

"This business is the lifeblood of our existence. To lose a customer is almost like an insult...[even though] 75 to 80 percent of the reasons a person cancels are the kind of things that are out of our control."

ON HIRING... Chris Senske, Senske Tree & Lawn, Kennewick, Washington:

These days, when it's getting harder to find good help, Senske's company has been fortunate to draw some of the best, but he's modest in his self-appraisal.

"Getting good employees has very little to do with my talent," he says. "It's mostly

OPERATING COSTS

	GOLF COURSES	GROUNDS MANAGERS	LANDSCAPE CONTRACTORS	LAWN CARE	INDUSTRY AVERAGES
LABOR	47.0%	56.9%	35.0%	37.1%	41.7%
OVERHEAD	18.0%	10.9%	25.5%	24.1%	21.3%
EQUIPMENT	12.1%	14.8%	16.0%	14.8%	14.6%
FERTILIZERS & PESTICIDES	11.9%	6.7%	7.2%	13.8%	9.9%
OTHER (INC. PROFIT)	10.0%	10.75	16.3%	10.2%	12.6%

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the abilities and drive of the people at Senske that make it a fun place to work and a successful business.

"It's been a lot of luck at finding great people, I think. I don't have any particular prescription. We don't pay as much as other industries, though we try to be competitive within our industry. So there has to be something else—the environment—that makes it a pleasant place to work."

GOLF/GROUNDS

ON THE GROWTH OF GOLF...

Bruce Williams, CGCS, Bob-O-Link Golf Course, Highland Park, Ill.:

One of the industry's leaders, Williams always looks at the big picture.

"Golf encompasses so many more things than just 'the green industry,'" says Williams. "As the population grows, so too does the game. We have to grow along with it. We have to orient more people to the game, teach more people the game."

"All the associations need to work together to provide quality golf at affordable prices. There's tremendous cooperation between the allied associations and golf. We are all on the same page. There are some things for which we compete, but they are minor versus the things we are in concert on."

"Architects have to work to design maintainable golf courses that can be played in a reasonable amount of time.



Smith: More hydraulic mowers.

"We need a good complement of public and private facilities, and get people starting at an early age to understand etiquette, the rules of the game and the environmental aspects. It's harder to change people's opinions in mid-life."

ON NATURAL AREAS... Alan Culver, Mahoney Golf Course, Lincoln, Nebraska:

"Prairiegrass (little

bluestem, big bluestem and switchgrass) is being seeded in out-of-play areas that don't require a lot of mowing, fertilizer and water. We don't know if it's going to work. It's like an experiment, but it worked out at Highlands, one of the other Lincoln public courses. I'm putting in four acres that will be a different look and take some areas out of mowing."

Bruce Williams: "There's a lot of science versus emotion. We have people speaking on emotion [on what golf 'does to the environment']. There's factual information available on golf courses as wildlife habitats, and the positive benefits wetlands provide to a golf course. Data from universities show how a golf course can enhance the environment. GCSAA is working in schools to share that."

ON GOLFERS... Jean Esposito, Hinckley Hills Golf Course, Hinckley, Ohio:

A reality of golf is... golfers. Esposito often gets critiques from players who don't fully understand the realities of turf management and turf science.

"Customers are more critical once they see the television," says Esposito. "They don't realize that most courses don't have the budget to look like Augusta National."

"People are always trying to push me toward lower cutting heights. We mow our greens at $\frac{3}{16}$ of an inch, our fairways at $\frac{1}{8}$ inch. We used to mow our greens at $\frac{1}{4}$ inch. At one time, we mowed our fair-

PRODUCT PURCHASES IN 1995 by Landscape Management Readers

	% OF SAMPLE PURCHASING	MEAN PURCHASE	PROJECTION TO READERSHIP
CONTROL PRODUCTS (including fertilizers)	93%	\$19,000	\$811 million
MOWERS (reel & rotary)	67%	\$20,400	\$627 million
OTHER EQUIPMENT (hand powered, sprayers, etc.)	87%	\$17,200	\$683 million
VEHICLES (heavy trucks & pick-ups)	41%	\$36,000	\$678 million
SNOW REMOVAL PRODUCTS	29%	\$5,010	\$66 million
MISCELLANEOUS (seed, nursery stock, sod, software, etc.)	93%	n/a	n/a

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Confront

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ways at $\frac{3}{4}$ -inch, but the drought a couple years ago forced us back to one inch."

ON GOLF COURSE

MAINTENANCE... Tim Smith of Hawks Nest Golf Club, Creston, Ohio, sees these trends:

► Mowing with hydraulic equipment.

► Narrower (8-foot rather than 18-20 feet) tractor bridges because the tractors are smaller.

► More "links look" with wildflowers and fescues and just letting them grow.

► Tapered creeks that we can run equipment down to the edge on.

► Planting trees so you can maintain around them.

ON TECHNOLOGY... Brad Kocher, Pinehurst Country Club, Pinehurst, North Carolina:

"I would say the trend is still toward more maintenance, to a degree," says Kocher. "A lot of that can be

done without a negative impact on the environment by using better mowers, better frequency, lighter weight units. The chemical companies will continue to work on products that you use less—if less is better.

"All those sorts of things that show there's an interest in technology. Any superintendent would love to not have to treat things, or bother with insects and fungus. I'm not sure that a lot of our maintenance practices cause that to happen; there seems to be a very, very minor correlation."

Don Aderman, mechanic for Stillwater (Minn.) Country Club: Aderman sees what can happen to equipment over time, and always keeps his eyes open for innovations that will save on repair time, work and money.

► The hydraulic drive

TYPES OF CONTROL PRODUCTS PURCHASED BY FACILITY TYPE, 1995

(% of respondents)	GOLF COURSES	GROUND MANAGERS	LANDSCAPE CONTRACTORS	LAWN CARE	(WEIGHTED) TOTAL
FERTILIZERS	96%	85%	87%	90%	91%
HERBICIDES	91%	83%	69%	79%	80%
INSECTICIDES	83%	63%	60%	65%	69%
FUNGICIDES	90%	42%	48%	51%	63%
NONE OF THESE	6%	1%	8%	9%	7%
AVG. AMT. SPENT	\$28,100	\$29,300	\$12,500	\$13,900	\$20,400

TYPES OF MOWERS PURCHASED BY FACILITY TYPE, 1995

(% OF RESPONDENTS)	GOLF COURSES	GROUND MANAGERS	LANDSCAPE CONTRACTORS	LAWN CARE	(WEIGHTED) TOTAL
WALK-BEHIND ROTARIES	27%	45%	50%	42%	40%
RIDING ROTARIES	39%	46%	28%	8%	34%
PTO-DRIVEN ROTARIES	12%	24%	12%	11%	13%
PTO-DRIVEN REELS	9%	6%	0%	1%	4%
WALK-BEHIND REELS	31%	7%	6%	4%	15%
RIDING REELS	53%	13%	3%	2%	21%
NONE OF THESE	22%	30%	31%	39%	29%
AVG. AMT. SPENT	\$30,200	\$12,100	\$8,600	\$24,600	\$19,000

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mowers are more trouble-free than the belt-drives," says Aderman. "Belts will wear and stretch. The hydraulics are less time consuming to maintain. Good record keeping helps superintendents decide what equipment to get next; it lets the super know if it's time to get rid of a machine; maybe it's costing too much."

Aderman mixes a colorant in with mower oils. "That way, we can tell whether it's engine oil or hydraulic oil that's leaking," says Aderman. The colorant is available from a local auto dealer.

Jerry Coldiron, Boone Links/Lassing Pointe Golf Courses, Florence, Ky.:

Coldiron recently tried a tool he had long wanted to use, and found it solved two problems at once.

"We had 22 inches of rain in the last six weeks (as of June 18). The Floyd MacKay drill alleviated some compaction and really helped dry out the greens. The tapered

Indoors, Coldiron is taking advantage of new communications tools

"I probably use 'e-mail' daily," asserts Coldiron. "The guys who aren't taking advantage of 'e-mail' are missing the boat. I know nothing about computers, but I can peck out



Kocher: More maintenance offset by better equipment.

a paragraph of electronic mail [to get in touch with an industry colleague or find an answer to a particular turfgrass question]."

ON HIRING... Coldiron admits "it's tougher" to find reliable help, but he's come up with

looking for 40-hour weeks; most are kids whose parents don't want them working 40 hours.

"This day and age is different than 10 years ago," claims Coldiron. "The last three years we've struggled with labor, trying to keep up with the McDonald's wages. We have a seasonal equipment operator for \$7 an hour. Another seasonal laborer, 'Jack-of-all trades' who we pay just under \$6.

"We also recruited two full-time guys who have degrees in turfgrass, one from Rutgers, another from Eastern Kentucky."

Coldiron strives to impart in all his workers the goals listed in the Boone County mission statement, something that might be rare among golf courses. It's a values-centered statement that focuses on the "Golden Rule" of treating everyone as you would like to be treated; listening; and always looking for ways to improve.

ON THE WEATHER... Casey Crittenden, CGCS, Beatrice Country Club, Beatrice, Neb.: "It all started in the spring of 1995," remembers Crittenden, whose course recently achieved Audubon Cooperative Sanctuary Certification.

"We had extremely wet conditions, then heat and humidity which promoted disease and weed infestation. Then it was a dry fall and a cold, open winter in this area. Now we're back to 95 degrees; pythium weather came



Mitchell: "An unusual year and a half."

overnight. So you have to be flexible to adapt to the weather. Stay on top of weather information. The weather forecast will tell you what you can and can not do."

Robert V. Mitchell, CGCS, The Greenbrier, White Sulphur Springs, WV: "It's been a very unusual year and a half, getting golfers around the course, regardless of wetness. We never close the golf course. We went to lightweight fairway mowers, to get over wet ground without making tracks. It saved our life!

"As far as the weather changing our management practices, we had to cut when we could, spray a little bit more. We had a run of red thread. But it's hard getting out to spray when it's so wet. Tees are growing profusely!"

Even in ideal weather, Mitchell says, "the days of the carte blanche pesticide applications are behind us. We've made a concerted effort to reduce [control product] use."

—Jerry Roche; Terry McIver

"I probably use 'e-mail' daily. The guys who aren't taking advantage of 'e-mail' are missing the boat."

—Jerry Coldiron

bits bring up very little material. It did a super job.

"We also bought a Toro plug pulverizer. It disintegrates the plugs on fairways into topdressing, then we go over it with a harrow. We also have a new core harvester."

some "part-time" remedies.

"We've been more efficient in the way of seasonal and part-time guys," explains Coldiron.

"We have 15-20 hours a week-type guys. They're not

Lawn care season starts slow but demand still strong

At any given time in the United States, there are droughts and floods, and regions that enjoy blue skies and scattered soft warm showers.

There are communities that are bursting with new industry and opportunity, but many more whose economies are just chugging along.

This country is so big that no single climate or economic condition can contain it. In a sense, that's true for the green industry too.

While the challenges that we face in the green industry are often similar, our language is filled with regional concerns and observations.

For instance, snow storms pounded the eastern seaboard again and again this past winter, and missed much of the north. As a result, companies offering snow removal were busier in Washington D.C. and Baltimore than, say, in Chicago and Detroit.

And when drought gripped the Southwest and the Southern Plains early in 1996, states surrounding the Great Lakes sloshed their way through a damp, dreary spring.

"I think that it rained 62 of 70 days," said John Cruse, Jr., Easy Lawn, who spoke to us in mid June. "The problem



was that we couldn't get done what we had to do."

Cruse in southwest Ohio said that customer demand in 1996 seemed high. "We felt like it was going to be a good year, and we still think it will be."

It wasn't until the first week in June that Brent Flory's Freedom Lawns, near Lafayette, Ind., caught up.

"This spring about wore us out. But, things are really going good right now," said Flory.

"I suspected that going into the spring we were going to have a lot of calls. We were unseasonably hot last summer, and this past winter we didn't get a lot of moisture.

"There were a lot of people whose lawns were just destroyed. But with the amount of rain we've gotten this spring, a lot of these lawns are recovering quite well," added Flory.

Linda Marsh of Classy Grass, Inc., said that demand for her company's services in

Small and large markets were effected by the changeable spring weather, causing companies to play catch up and do their best to maintain efficiency.

by RON HALL / Senior editor

and around Peoria, Ill., started strong. "We just need the weather to cooperate." She said her lawn care company suffered 13 rain days in May.

Eric Fink's Golden Valley Lawn Service in Clinton, Mo., battled through the wet spring but Eric, himself, got laid up in an auto accident. He said he will have to take it easy through the summer. His three employees should be busy all summer, said Fink.

"In our small market we have to do everything we can to get and keep customers, and we do," said Fink. "If that means we have to help clean somebody's gutter, or sweep a walk, we will. We're full service. That's what our customers want."

A very dry winter, and a cold spring, topped by an April snowstorm, pushed everything back several weeks in the Abilene, Tex., market, said Dan Haught of Master-Scapes. Finally several soaking rains in early June replenished ground moisture there.

"We're still about half of what we should be," added Rich Comfort, Genesis Lawn Care, Austin, Tex. "It seemed like we went from winter right to summer."

Comfort added that "everything seemed to be on a time delay. Fortunately, everything's fallen into place, and we're on schedule. The season looks like it's shaping up pretty nice."

Jim MacHahon, Coronis Landscaping, Nashua, NH, said that New England's winter and spring weather was "crazy."

Winter gave one huge blast with a mid-April snowstorm that stole a week of production from Coronis Landscaping and added to the region's record-breaking total.

"But, we've been busy, busy, busy. Our customers kept hearing about the record snowfalls and about this being the worst winter ever, and they're pretty understanding," said MacHahon.

Technology: People and Machines

by CHARLES CLARK / Customer Information Service Manager, DowElanco

While there's no doubt that computer technology is rapidly changing the way we do business, it's important to add that hardware, software, megabytes, networks and servers provide only the medium for this revolution. The tools that enable today's almost-instantaneous communication and data retrieval are still only as good as the minds that use them.

At DowElanco, we're currently designing an integrated approach to using these tools that will ultimately benefit all of the people we serve, from the scientist in the laboratory to the customer in the field. This sounds quite lofty until one considers all of the new questions and real world challenges that arise.

As manager of DowElanco's Customer Information Service, I lead an interdisciplinary team of seven company experts. Together, we are evaluating potential uses of the Internet for our many clients. This work is urgent. Our concern is connecting with important audiences and providing better service than ever.

We are committed to serving the information needs of our clientele, and understanding how to harness current and emerging technologies. How can we best meet those goals through electronic communication? To answer that, our team has been looking hard at the material that's already "out there" in cyberspace. We're also looking inward to evaluate our current customer response systems and how these can be streamlined.

Already, we are implementing a



sales force automation plan based on laptop computers. This system will enable our sales representative to access technical or sales information to respond immediately to customer questions. But that's just the beginning.

All of our analysis leads to the Internet, a global computer network.

This "Net" is revolutionizing the way information is managed. For the first time, an individual can readily access information from sources all over the world. That same capability allows an individual to communicate with all other users "linked" on "the Net."

This new network of information will accelerate change in our core business processes.

For example, the Internet reinvents the entire notion of customer service. First, information is more immediately available than ever—one second after the last keystroke, to be precise.

Second, individuals can access that

timely information in greater numbers than was previously possible.

Third, the interactivity of the medium will take what was once a "mass message" and customize it to individuals. The customer is now in charge of his or her information search.

It's too early to gauge the total impact of all this on customer service. The Internet is still in its infancy and we've merely scratched the surface of its potential. But I think it's safe to say that we'll know even more about our customers

and their individual situations. And they will know more, expect more and get more from their supplier partners.

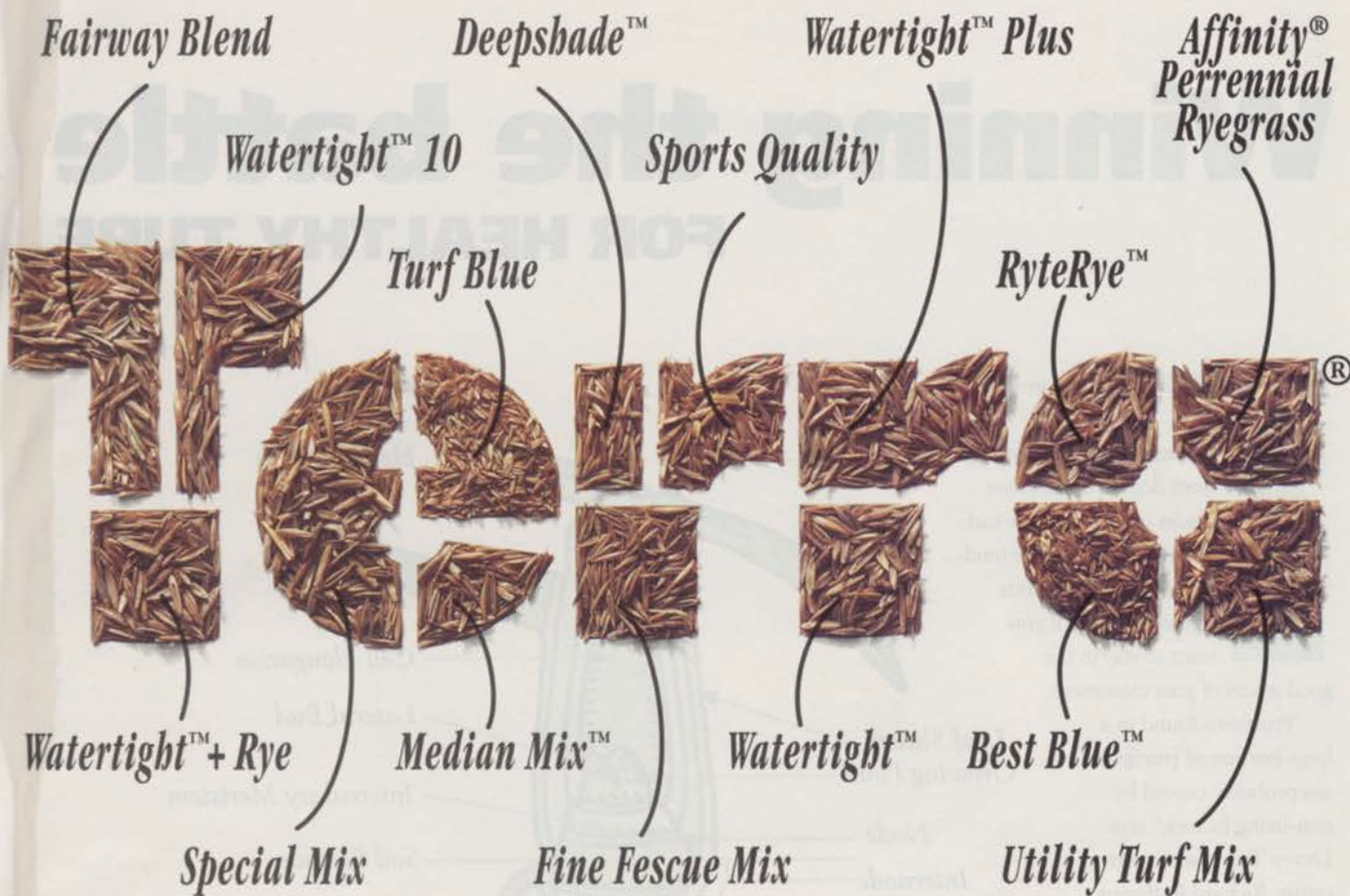
As a tool, the Internet holds great promise for bringing all of us in the lawn care and landscape industry "closer together" in real time. But even more critical is our responsibility to communicate with each other and the commitment to do it well. And that can and will happen as we both learn to operate in the new world of connectivity.

I invite your suggestions and opinions. What would be useful to you?

Respond by e-mailing me at acclark@DowElanco.com. Fax me at (800) 905-7326.

Or, even do it the time-honored way. Write a letter to me c/o DowElanco, Customer Information Service, 9330 Zionsville Road, Building 308/CA, Indianapolis, IN 46268-1054.

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Winning the battle

FOR HEALTHY TURF

by JERRY ROCHE / Editor-in-Chief

It's summer, and everything from dogs to dull mower blades can damage the turf you're supposed to be tending. This is not the time to bail out—not if you want to stay in the good graces of your customers.

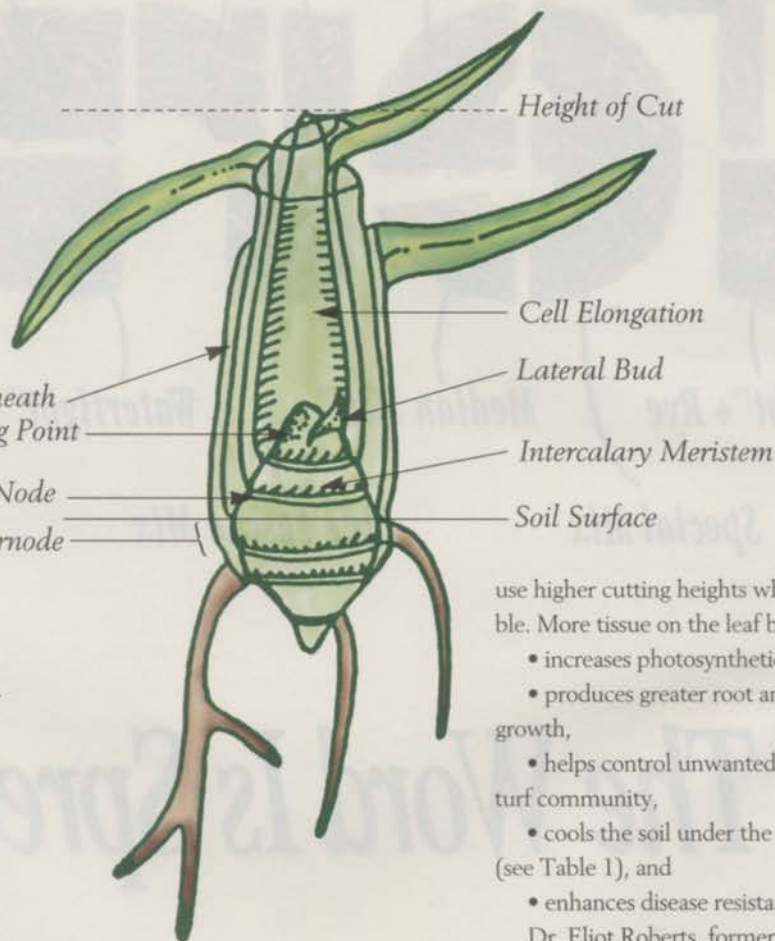
"Problems found in a large portion of [turfgrass] are probably caused by non-living factors," says Davey Tree's senior agronomist, Richard Rathgens.

Certainly, with the onset of hotter, drier weather, mowing practices could be the difference between lush, green vegetation and brown, drought-stricken and/or diseased turfgrass.

"Mowing increases turf quality through better tillering, providing more shoots per unit of ground area," explains Dr. R.W. Sheard of the University of Guelph in Canada. "On the other hand, mowing decreases root growth due to the removal of leaf blades which in turn reduces photosynthesis."

Sheard suggests that professional mowers know about the "meristematic region" of the turfgrass plant—that section where active cell division occurs.

In dicots (many weeds), the growing point is located at the tip of the plant so that the youngest leaves are at the top of the stem. In monocots (turfgrasses), the growing point "seldom moves above the soil surface, except where seedhead formation occurs," Sheard says. So when you're



cutting lawns, you're actually mowing the youngest part of any weeds present and the oldest part of the turfgrass.

Repeatedly removing the top of a grass plant (regular mowing) disrupts the normal procedure for plant development. However, turf-type grasses have, over time, developed a certain tolerance to mowing, much like pasture-type grasses developed tolerance to repeated close grazing, Sheard notes.

To maintain healthy turf, you should

use higher cutting heights whenever possible. More tissue on the leaf blades:

- increases photosynthetic activity,
- produces greater root and rhizome growth,
- helps control unwanted weeds in the turf community,
- cools the soil under the turf canopy (see Table 1), and
- enhances disease resistance.

Dr. Eliot Roberts, former executive director of the Lawn Institute, once calculated that each 1/8-inch increase in cutting height of bluegrass adds 375 sq. ft. of leaf surface per 1000 sq. ft. of turf surface.

Use the "One-Third Rule" of mowing: never remove more than one-third of the leaf blade. Because adverse weather may interrupt your mowing schedule, plan it by the grass's growth rate rather than by the day of the week, as much as possible. (See Table 2 for optimum cutting heights.)

"You have to remember that mowing is an injury in progress," says Dr. Kenneth

Diesburg of Southern Illinois University. "You're cutting live tissues. If you take off only a third, it's a mild enough shock that the grass can rebuild these tissues fairly easily. But if you take off too much, the healing process drains energy reserves in the roots and stems, which weakens the plant."

Also, keep mower blades sharp. Turf plants may appear gray and turn brown or straw-colored one to two days after they are mowed with a dull blade. If the blade isn't sharp, it shreds the end of the grass blade rather than making a clean cut. Shredded leaf tips lose water easily, and will turn brown. They are also more susceptible to diseases. Wounded grass blades take more time to recover because of their large surface area.



Thirsty grass

Drought stress usually occurs in the middle of the growing season. You can tell drought-stressed grass by a blue cast that eventually turns brown, curled and folded leaf blades, and footprints that stay in the grass.

Water is critical, even without fertilizer. And the more lush the carpet, the more water it needs. Water not only moves nutrients through the roots, but it keeps soil cool enough to keep the turf growing.

Most turfgrasses need at least one inch of water per week, generally, to a depth of 6 to 8 inches—either rain from the heavens or potable water from sprinkler or irrigation systems. And remember, when it comes to

water, skimping hurts grass far more than starving it.

"[Dormancy] is an adaptive mechanism that all plants have," says Diesburg, "though it's triggered more quickly in grass because the root system is shallow. Dormant grass will be brown, but it won't be dead."

Bow-wow

Soluble salts in a dog's urine may cause spots on lawns. The damaged spots are generally round, and vary from several inches to about two feet in diameter, according to a news release from Davey Tree. The circular areas have a brown interior and dark green exterior.

A partial answer—if you can't protect the grass from dogs—is to water it frequently. Watering helps move the salt below the lawn's roots and helps the lawn look more attractive. □

TABLE 1. Mowing height and soil temperature

Height of cut (inches)	Soil temp.* (°F at 1 in.)
0.75	93
1.00	90
1.50	83

Note: air temperature five feet above turf was 98°F. at time of test; turf surface temperature was 109°F.

TABLE 2. Suggested mowing heights (in inches)

Type	Early summer	Mid-summer
Bentgrasses	1/2 to 1	3/4 to 1 1/2
Bluegrasses	1 1/2 to 2	2 to 2 1/2
Fescues	2 1/2	3 1/2
Ryegrasses	2 to 3	2
Bahiagrass	2 to 3	2 to 3
Bermudagrass	1 to 2	2
Centipedegrass	1 to 2	2
St. Augustinegrass	2 1/2	3 1/2
Zoysiagrass	3/4 to 1	2

SOURCE: DR. R.W. SHEARD

SOURCE: DAVEY TREE EXPERT CO.

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Mulch is an organic or inorganic material that is spread on the soil around and under plants.

All mulches do three basic things: hold soil temperature steady, reduce moisture loss, and help reduce weed growth. But mulch does these things in different ways. Here's a look at what's available, courtesy of Ohio State University:

Peat moss

Generally available and ideal for mulching evergreens and other plants that grow best in acidic soil. It remains effective for one or two years, depending on the amount applied.

Hardwood bark mulch

Shredded hardwood, such as oak, has a nice dark color many people like. Like

other organic mulches, it starts decomposing and becomes organic to feed the roots of plants. Some fungi can form on the mulch, however, if it is left alone. A simple way to prevent this is to freshen your mulch about once a month.

Pine or cypress bark mulch

If you can't or don't want to spend time maintaining your mulch, but still want an organic choice, you might consider a slower decomposing mulch such as pine or cypress. These are not as good for the root-zone and don't have the dark color, however, they do work well as a cover-up, such as when flanking your sidewalk up to your front door.

Straw

Use straw for winter protection and as a summer mulch in fruit and vegetable plant-

ing. It may carry weed seeds, and it is flammable, so use straw away from areas where cigarettes may be thrown. A couple of other hints: don't use hay, and wait until vegetables have started to grow before you mulch to ensure the ground is warm enough for the plants.

Stones

Rocks and pebbles do have their place in mulching, usually in small amounts for color contrast or to highlight a certain area.

Two to three inches of mulch is all you need. Too much will interfere with the root system's oxygen supply. To prevent insect infestation, don't spread mulch right up to your house. Make sure there is about six to eight inches of bare dirt around the foundation. **LM**

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MODEL	MOUNTING	TANK GAL.	PUMP GPM PSI	POWER
VM 100	VEHICLE	100	20 250	6HP KOHLER
VM 160	VEHICLE	160	20 250	6HP KOHLER
VM 125 P/H	VEHICLE	125	20 250	PTO or HYDRAULIC
VM 160 P/H	VEHICLE	160	20 250	PTO or HYDRAULIC
VM 200 P/H	VEHICLE	200	20 250	PTO or HYDRAULIC
TM 100	TRAILER	100	20 250	6HP KOHLER
TM 200	TRAILER	200	20 250	6HP KOHLER
TM 300	TRAILER	300	20 250	6HP KOHLER
TM 500	TRAILER	500	20 250	6HP KOHLER

SDI
 SPRAYING DEVICES, INC.
 PO Box 3107
 Visalia, CA 93278
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Circle 122

Ignore nutsedge at your own risk

This tenacious perennial weed spreads quickly through turfgrass if left untreated.

Nutsedge is an especially troublesome turfgrass weed because of its varied methods of underground propagation and competitive growth habit, according to Dr. Nelroy Jackson.

"Nutsedge produces many underground propagules—rhizomes, basal buds or corms and tubers. These ensure its survival from season to season," says Jackson.

Nutsedge does produce seeds to propagate, but germination rates are low. Tubers—also called "nuts" or "nutlets"—sprout from as deep as 15 inches within the soil, which makes turning the soil an ineffective preventive measure.

How tubers grow

Tubers begin forming four to six weeks after nutsedge emergence. They sprout in warm soil and adequate moisture. As the tubers grow, rhizomes reach vertically from the tuber buds, as roots spread horizontally. Rhizome tips are strong and sharp and can penetrate hard surfaces and mulches.

When the tip of the rhizome reaches sunlight under optimum day/night temperature fluctuations, a basal bud forms below the soil surface. This basal bud contains meristems for leaves, rhizomes, roots and the flower structure.

Several weeks after the primary shoot emerges, secondary rhizomes grow horizontally away from the basal bud. These rhizomes turn upward and create new plants, or secondary basal buds.

Under good growing conditions this process can continue indefinitely and cause massive nutsedge infestations, says Jackson, technical manager for Monsanto.

"A single yellow nutsedge plant is capable of producing 1000 tubers per square meter in a single growing season," says Jackson. "Undisturbed, each one of those tubers can create a dense stand of shoots covering several square meters in just one growing season."

Tubers continue to form in dry weather or "short days," when actual vegetative growth might be slowed, and also remain viable in the soil for two to four years.

Under optimum growing conditions, purple nutsedge is more vigorous and competitive, according to Dr. Jackson.

"In southern and western states, both nutsedges can coexist," Jackson explains. "On unirrigated areas, yellow nutsedge is usually found on low, moist areas, while purple nutsedge prefers well-drained soils."

To control purple and yellow nutsedge, Manage herbicide is available from Monsanto. Other products to manage nutsedge include MSMA, Image and Basagran. □

The wide leaves and fast growth habit of nutsedge make it stand out in turfgrass.



Jackson: Yellow nutsedge tubers cover several square meters in one growing season.

Yellow vs. purple: the differences

Tubers

Distinctive tubers are the most prominent underground feature of nutsedge, and the best way to distinguish between yellow and purple varieties.

Yellow nutsedge tubers are produced on the ends of the rhizomes. The rhizomes are easily broken. Tubers are smooth and brown, and have a pleasant almond flavor.

Purple nutsedge tubers are often produced along the entire length of the rhizome, and form a "tuber chain."

These tubers are generally wiry and difficult to break.

They are covered with coarse, dark, reddish scales and have an unpleasant, bitter flavor.

Stems

"Nutsedges have triangular-shaped stems, while grasses usually have hollow, rounded stems," says Jackson.

Purple nutsedge is confined to soils that stay warmer than 30 degrees F.

Yellow nutsedge tubers can tolerate colder soil temperatures and dry weather better.

Soil test reveals turf nutrition needs

by BILL KNOOP, Ph.D. /
Contributing Technical Editor

Plants require varying amounts of many different nutrients. Nitrogen, potassium and phosphorus, for example, are usually needed at higher rates than micro-nutrients such as iron, zinc or copper.

Table 1 shows the source of turfgrass nutrients.

Not all soils are capable of furnishing the same nutrients or the same amount of a given nutrient, so when managing a landscape, it makes sense to take advantage of the nutrient levels already present in the soil.

If a plant needs more of a nutrient than the soil can furnish, then a fertilizer containing that nutrient must be used. It is always desirable to make sure the landscape has an optimum supply of all the nutrients it needs. This way, all the plants will perform to their best ability.

The best way to monitor the nutrient status of any landscape is through periodic soil testing, a valuable tool in developing the landscape fertility program. It makes little sense, economically and environmentally, to apply unneeded nutrients to the landscape.

Research has estab-

lished or identified the amounts of each nutrient that must be available in the soil for good plant growth (Table 2).

Is soil ready for growth season?

The best time of the year to gather soil for testing is during the landscape's dormant period. This may be in late fall or during the winter months when the fertility status of the soil is fairly stable. Soil nutrient levels constantly change during the growing season. Soil organisms as well as plants use up nutrients. The breakdown of organic matter and soil minerals continuously apply certain nutrients. A heavy rain may leach nutrients down through the rootzone. Taking a soil test too soon after a fertilizer application may produce a false result. The dormant period is the best time to test.

Soil submitted for testing should come from around the root system of the plant. The sample should be free of roots. Do not sample too deeply. Plant roots are typically only a few inches deep.

Soil may vary

The soil found in the front yard of a home may be different than a sample taken from the back yard. Soil samples may also vary from one golf course fairway to another. The larger the area, the greater the chance that the soil may vary, but the only way to know for sure is by taking several "sub-samples."

In a home lawn, take three or four sub-samples from the front and back yards. Put all of them in a container and mix thoroughly. Take the final sample for the analysis from the mixture. This way, the lab results and any subsequent recommendations

Table 1. PRIMARY PLANT NUTRIENTS AND THEIR SOURCE

Macro-nutrients	Primary source
Nitrogen (N)	Fertilizer & soil
Potassium (K)	Fertilizer & soil
Phosphorus	Fertilizer & soil
Sulfur (S)	Soil
Magnesium	Soil
Calcium (Ca)	Soil
<hr/>	
Micro-nutrients	Source
Iron (Fe)	Soil
Manganese (Mn)	Soil
Zinc (Zn)	Soil
Copper (Cu)	Soil
Molybdenum	Soil
Boron (B)	Soil
<hr/>	
Others	Sources
Oxygen (O)	Water, carbon dioxide
Hydrogen (H)	Water
Carbon (C)	Carbon dioxide

SOURCE: TEXAS A&M SOIL TESTING LAB

Table 2. TYPICAL CRITERIA FOR SOIL NUTRIENT LEVELS IN PARTS PER MILLION (PPM)

Nutrient	Low	Moderate	High
Nitrogen (N)	0-10	16-20	21-30
Phosphorus (P)	6-10	11-20	21-40
Potassium (K)	70-119	120-174	175-300
Calcium (Ca)	180-459	460-749	750-3560
Sodium (Na)	99-399	400-999	1000-3000
Magnesium (Mg)	50-99	100-150	more than 150
Sulfur (S)	8-15	16-24	more than 25
Manganese (Mn)	0-0.99	1.00-1.49	more than 1.49
Copper (Cu)	0-0.10	0.11-0.15	more than 0.16
Boron (B)	0-0.39	0.40-0.59	more than 0.59
Iron (Fe)	0-3.19	3.20-4.19	more than 4.19

Nutrient	None	Slight	Moderate	High	Very high
Salinity (ppm)	0-600	601-1200	1201-2000	2001-3000	3000+

Some of the nutrients applied to turfgrass are used in small quantities. It is best to keep the level of all nutrients in the medium and high categories.

will apply to the entire lawn.

It might make sense to take two or three sub-samples from each of the 18 golf course fairways so that a single recommendation can be used for all the fairways, rather than try to treat each fairway differently. Sub-sampling accounts for any variation in the soil over any size area.

Extension or private labs

Several different kinds of soil testing services are available. Some fertilizer companies will run soil samples as a way to prospect for new business. In every state, the local agricultural university offers soil testing for a fee through the cooperative extension service. Your local county extension agent can provide details. Private labs also test soil samples. If you live in a large city, check the Yellow Pages for these labs.

Choose a lab that you trust and stick with it. If you send a sample of the same soil to each of several labs, the results may differ. Not all labs use the same analytical procedures, which accounts for some variation in results. Someone at the lab must evaluate the results and convert them into a recommendation you can use. Just how

good the recommendation turns out to be depends a great deal on the experience of the person making the recommendations. Make sure the lab has had experience in dealing with lawn or ornamental plant soil samples.

Test regularly, watch for changes

A single yearly soil sample can provide valuable information, but one of the true values in soil testing is to track soil nutrient levels over an extended period. In other words, it's important to soil test every year at about the same time.

Make note of any changes from one year to the next. While it's important to know what the soil level of a particular nutrient is, it also is very important to know if those levels in the soil are increasing or decreasing over the years. Most labs will report soluble salt levels. If you're in a part of the country that has possible salt problems, they may show up on the soil test result sheets before you notice symptoms. That gives you time to adjust the management program before any permanent damage is done. **LM**

How to take a soil sample

1. Soil samples should not include any sod or surface debris. Scrape away the $\frac{1}{4}$ to $\frac{1}{2}$ inch of plant debris that occurs at the soil surface before taking a sample.

2. The final sample sent to the lab should represent the soil from the whole lawn. Since urban soils tend to be variable, a series of small samples should be taken from selected sites around your home. If there is a great difference between the front and back yards, you may wish to sample them separately.

3. Remove a small sample of soil from each of the selected sites. There's no need to go deeper than about 6 inches.

4. Mix all the soil from the selected sites together in a plastic bucket forming one large sample. Fill the plastic sample bag with about one cup of soil.

5. Fill out the soil sample information sheet completely. □

Soil textures

Clay: Smaller soil particles with wafer-like shapes that provide greater surface area and higher water holding capacity.

Silt: Between clay and sand in particle size; spherical and cubical in shape.

Sand: Largest particle size; spherical and cubical shapes that provide smaller surface-to-volume ratio and therefore a soil that is better aerated and easier to work. Sand has the lowest water-and-nutrient holding ability.

Loam: A combination of all particle sizes, with the desirable attributes of each. □

SOIL TEXTURE SOURCE: TREE CITY USA BULLETIN



ArborMaster Training combines climbing, rigging and cutting techniques from the logging and tree care industries.



Climbing higher... and safer!

Tim Crowley, owner of Crowley Landscaping, Marion, Mass., has been braving the many hazards of tree work for 10 years. Trained as a landscaper, he gained his tree care experience mostly by trial and error. He and his crews routinely did free climbs and cut improper hinges, two of the biggest dangers in tree care.

Crowley now admits that during the early part of his career, he didn't have the proper tools or specialized knowledge to keep him and his colleagues safe.

The ArborMaster Training Program—with its emphasis on safety and efficiency—changed the way Crowley conducts his landscape business, at least the tree work part of it.

ArborMaster Training teaches anyone who deals with trees the essentials for success: skill, safety and productivity. The program combines climbing, rigging and cutting techniques taken from logging and tree care industries.

Safety often left to chance

Tree work can be hazardous work, and is not something to be learned solely by trial and error.

The National Safety Council says the major hazards to anyone who deals with tree maintenance include:

- ▶ falls from trees
- ▶ contact with electrified limbs
- ▶ trees and branches falling on workers

workers

- ▶ faulty work methods
- ▶ high-speed power equipment.

(The U.S. Consumer Product Safety Commission says that each year, 40,000 chain saw injuries require emergency care.)

- ▶ noise from the machinery

"I think back to all of the brittle trees we took down and how lucky we are not to have been hurt," says Crowley co-worker Timothy Nickerson.

At the ArborMaster training program, Crowley worked with arborists, utility crew and tree maintenance workers in three, one-day sessions. Each

of the course's three days are separated by several weeks, to allow students to absorb and practice the lessons of the previous session.

"The three-level program teaches strong foundational skills, so it can be tailored to individual needs," Palmer says.

More landscapers have become involved in the program as more customers prefer one company to do the majority of work on their property, Palmer says.

Crowley says risk to himself and his employees have been minimized, thanks to ArborMaster. He and his employees also wear uniform safety apparel and follow safety procedures closely.

He's now a firm believer and follower of the "HOPE" system. HOPE is an acronym for—Hazards, Obstacles, Pre-plan and Equipment.

Crowley says ArborMaster Training gave him a new professional attitude.

"Before, he felt like he was missing something, not doing the job the best possible way," Nickerson says of Crowley. The training has also given him added confidence. **LM**

—For more information on ArborMaster Training, call (770) 419-2026; or write P.O. Box 1048, Hiram GA 30141-1048.

Staying productive in the summer heat

It's been a long time coming, but the hot days of Summer '96 are here. But there are ways to keep yourself and your crews productive no matter how high the temperature.

According to the U.S. Department of Labor, nearly 25 percent of the U.S. workforce, like the golf/landscape industry, works in high-heat environments.

In one day, a person can lose as much as two to three gallons of sweat working in a hot environment, according to the National Institute of Safety and Health (NIOSH). If salts and fluids lost through sweat are not replaced, the body becomes dehydrated. Dehydration, if left untreated, can cause heat illness, adversely affect job performance—even cause serious accidents.

Sweating is the body's natural cooling mechanism because it helps the body main-

tain normal functions by reducing excess body heat. When high humidity is added, the risk of heat stress increases because humid conditions prevent sweat from evaporating from the skin. (See Heat Index Chart.)

Here are symptoms that can lead to heat illness: **loss of energy, dizziness or lightheadedness, nausea, muscle cramps and/or headaches.**

"By the time your body tells your brain that it needs fluids, and your brain tells you you're thirsty, dehydration has already begun," says Dr. Bob Murray of the Gatorade Exercise Physiology Lab in Bar-

Hot tips to beat the heat

- 1) Reduce physical activity
- 2) Stay in the shade or wear a wide-brimmed hat.
- 3) Drink plenty of liquids, but...
- 4) Avoid alcohol, coffee and tea, or other drinks that cause fluid loss.
- 5) Do not take salt tablets.

rington, Ill. "The effects of dehydration are cumulative, yet dehydration and heat illness can be prevented if you drink enough of the right kinds of beverages."

Murray says workers should drink at least 4 to 8 oz. of fluids every 15 to 20 minutes

while working in the heat. For every pound lost, workers should drink two cups (16 oz.) of fluids to fully rehydrate their bodies. Besides water, if you can get carbohydrates and electrolytes (sodium, potassium, chloride) into your body, you will perform to higher standards. Fluids like Gatorade provide both. **LM**

HEAT INDEX

		ENVIRONMENTAL TEMPERATURE (F°)										
		70°	75°	80°	85°	90°	95°	100°	105°	110°	115°	120°
		Apparent Temperature*										
RELATIVE HUMIDITY	0%	64°	69°	73°	78°	83°	87°	91°	95°	99°	103°	107°
	10%	65°	70°	75°	80°	85°	90°	95°	100°	105°	111°	116°
	20%	66°	72°	77°	82°	87°	93°	99°	105°	112°	120°	130°
	30%	67°	73°	78°	84°	90°	96°	104°	113°	123°	135°	148°
	40%	68°	74°	79°	86°	93°	101°	110°	123°	137°	151°	
	50%	69°	75°	81°	88°	96°	107°	120°	135°	150°		
	60%	70°	76°	82°	90°	100°	114°	132°	149°			
	70%	70°	77°	85°	93°	106°	124°	144°				
	80%	71°	78°	86°	97°	113°	136°					
	90%	71°	79°	88°	102°	122°						
100%	72°	80°	91°	108°								

90°-105°
Heat cramps or heat exhaustion possible

105°-130°
Heat cramps or heat exhaustion likely; heatstroke possible

130° and up
Heatstroke highly likely

*Combined index of heat and humidity...what it "feels like" to the body

Note: This Heat Index chart is designed to provide general guidelines for assessing the potential severity of heat stress. Individual reactions to heat will vary. It should be remembered that heat illness can occur at lower temperatures than indicated on the chart. In addition, studies indicate that susceptibility to heat disorders tends to increase with age.

SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Events

JULY

15: Michigan Nursery and Landscape Association, Michigan Certified Nurseryman exams, Lansing, Mich. Phone: (800) 879-6652.

25-27: Turfgrass Produc-

ers International Summer Convention and Field Days, Sacramento, Calif. Phone: (800) 405-8873.

28-30: Outdoor Power Equipment Institute's International Lawn, Garden

& Power Equipment Expo, Louisville, Ky. Phone: (800) 558-8767.

31-Aug.1: Professional Grounds Management Society/Midwest Association of Physical Plant Administrators summer grounds maintenance conference, William Rainey Harper College, Palatine, Ill. Phone: (708) 925-6350.

AUGUST

2-4: Associated Landscape Contractors of America, Masters in Management seminar, Chicago, Ill. Phone: (800) 395-2522.

2-4: Associated Landscape Contractors of America, Certified Landscape Technician exam, Front Range Community College, Fort Collins, Colo. Phone: (800) 395-2522.

2-4: North East Green Expo '96, The OnCenter, Syracuse, N.Y. Phone: (315) 682-6542.

7: Illinois Landscape Contractors Association Summer Field Day, Onarga, Ill. Phone: Lenore Dupuis, (847) 272-9542 or Julie Nicoll, (708) 932-8443.

7-8: Penn State Turfgrass Field Days, Joseph Valentine Turfgrass Research Center and Landscape Management Research Center, University Park, Pa. Phone: (814) 863-3475.

10: Associated Landscape Contractors of America, Certified Landscape Technician exam, Prince George's Community College, Largo, Md. Phone: (800) 395-2522.

10-14: International Society of Arboriculture Annual Conference and Trade Show, Cleveland, Ohio. Phone: (217) 355-9411.

15: Michigan Nursery and Landscape Association Summer Workshop, Michigan State University. Phone: Amy Frankmann, (800) 879-6652.

Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

WATER ON THE COURSE...As the perfect working reference, "Guide to Golf Course Irrigation Systems Design and Drainage" covers program scheduling to operation and maintenance of an irrigation program. The 400-page book costs \$45, plus \$3.50 shipping in the U.S. Now available from: Ann Arbor Press, P.O. Box 310, Chelsea, MI 48118; (800) 858-5299.

CUT LEGAL COSTS...The "CEO's How-to Guide for Successfully Managing and Controlling Attorneys, Legal Costs and Litigation Risks" is \$45, but write your order on letterhead and it's just \$22.50. The 1996 edition, based on actual cases, contains more than 30 pages of tips, techniques, tactics and strategies. Information and ordering: Pickering, Bell & Major, 580 Broadway, Suite 121, Laguna Beach, CA 92651; (714) 376-6188.

INSECT TRAPPING..."How Insect Pest Trapping Can Save You Money" is free from Gempler's. It explains the difference between visual, unbaited and pheromone baited traps, and shows how to interpret the results. Contact: Gempler's, Insect Trapping Guide, P.O. Box 270, Mt. Horeb, WI 53572; phone (800) 382-8473 or fax (800) 551-1128.

BIZ TIPS..."Small Time Operator" is a 224-page soft-cover book that carries the subtitle "How to Start Your Own Small Business, Keep Your Books, Pay Your Taxes, and Stay Out of Trouble!" The volume, written by certified public accountant Bernard Kamoroff, contains all the ledgers and worksheets you will need for a year. More than 475,000 copies are already in print. The book is available at most bookstores across the country, but can also be ordered by mail: send \$16.95 (includes shipping & handling) to Bell Springs Publishing, Box 640, Bell Springs Rd., Laytonville, CA 95454. For more information, phone (707) 984-6746.

ALCA REPORT...The Associated Landscape Contractors of America has released its 17th Crystal Ball Report: "Measurements, Reports, and Monitoring in a Total Quality Landscape Company." The report is a compilation of member reporting experiences, with copies of actual forms, reports and procedures used by the companies. Included is an examination of the total quality philosophy and steps to take to measure quality in the landscape industry. The report costs \$8 for ALCA members, \$18 for non-members. To order, contact ALCA at 12200 Sunrise Valley Dr., Suite 150, Reston, VA 22091; (800) 395-2522.

The Tessenderlo Group of Brussels, Belgium acquired **Hickson Kerley**, the manufacturer and marketer of specialty liquid fertilizer products like N-Sure, Formolene-Plus, KTS and Trisert. The company's name has been changed to Tessenderlo Kerley. Jordan Burns is CEO and Livio Lederer is president of Tessenderlo USA.

Jacobsen Div. of Textron announced winners of its Pacesetter Awards: Bill Barrett (Sawtelle Bros., Lawrence, Mass.), Brian VanderBaan (Valley Turf, Grandville, Mich.), Rod Durham (Illinois Lawn Equipment, Orland Park, Ill.), Dave Combe (Rocky Mountain Turf & Industrial Equipment, Salt Lake City, Utah), Bobby Johnston (Horizon Turf, Phoenix) and David Bunting (Capital Ford New Holland, Bryant Ark.).

American Cyanamid's Amdro fire ant insecticide is a new sponsor of "Shadow Traffic" radio broadcasts in Tampa, Orlando and Houston and a special Fire Ant Alert which began in mid-March on the Weather Channel's "Weekend Outlook," "A Look Ahead" and "Gardener's Forecast" segments. The company also named two new territory managers: Scott Turner in the Midwest and Kit Rowe in the Mid-Atlantic.

The Vermeer Charitable Foundation, administered by family members of **Vermeer Manufacturing**, recently made a \$10,000 grant to the National Arborist Foundation. "This money will provide for future scholarships to advance arbori-

culture and horticulture students' educational endeavors," says Paul McFarland of the NAF.

Wade Jacklin is new sales coordinator at **Medalist America**. His responsibilities will be customer satisfaction and blending and shipping coordination.

Dr. Erik K. Nelson has joined **JacklinGolf** to provide agronomic support to **Jacklin Seed Company** distributors located in the U.S. and assist with development of **JacklinGolf** activities. He is in charge of company technical publications, educational seminars and marketing.

United Horticultural Supply has added a Canada Division to service Ontario, Quebec and the Canadian Maritime Provinces, British Columbia and Manitoba, according to U.H.S. president Bert Eddins.

Bill Merrigan has joined **Zajac Performance Seeds** in the newly-created position of production coordinator. He will work out of Albany, Ore.

Zeneca Professional Products has named Matt Giese as product service lead for the Midwestern and Western U.S. He will operate out of Lincoln, Neb.

Paul Beazley is **Sandoz Agro's** new turf & ornamental sales representative for the Midwest: Illinois, Wisconsin and Missouri. He can be contacted at (847) 605-8180.

News from **Hardie Irrigation**: Christopher Todd Walden is sales manager for the Mid-At-

lantic territory; Denise Hoover and Kyle Crooke are specification managers; and irrigation contractors Ty Davis of Austin, Texas and Rick Jones of Bonsall, Calif. are winners of Harley-Davidson Sportster 883 Huger motorcycles from Hardie. David Andersen is product manager for the commercial controller line. He comes to Hardie from the Camcar Division of Textron, where he served as a sales representative and product manager.

Natural Fertilizer of America has acquired the business operations of **Sustane Corp.** and Bio Grounds Keeper. Sustane's new corporate headquarters is located with its manufacturing facility in Cannon Falls, Minn.

Five college landscape students are participating in **Hunter Industries'** 1996 Fellowship Program: Penny Batelli (Univ. of Ariz.), Mark Battaglino (SUNY Cobleskill), Steven Beattie (W. Va. Univ.), Dennis Golya (Cuyamaca College) and Greg Harteagan (Kansas St. Univ.). Mike Kearby is Hunter's new vice president of marketing.

The Homestead Co. of Slatersville, R.I. changed its name to **The Homestead Nitrogen Corp.** The company's methylene urea product, Nutralene, which has been sold through **AgrEvo USA**, is now marketed by Homestead. **Lebanon Seaboard Corp.** will be the distributor of Homestead bagged products.

The Scotts Co. has a new interim chief executive officer, Tadd C. Sietz, the current chair-

man of the Board of Directors and former CEO. Seitz will sit until a replacement is found for Theodore J. Host, who resigned. Scotts' common stock is now listed on the New York Stock Exchange, using the symbol SMG, to represent the Scotts/Miracle-Gro merger.

A new four-color catalog featuring its 1996 product line is now available from **Husqvarna Forest & Garden**. The 56-page catalog is available by calling (704) 597-5000.

Briggs & Stratton's 5K Fun Run/Walk competition will be held on Monday, July 29, the second day of the Outdoor Equipment Expo in Louisville, Ky. The event is open to all show attendees and will be held on Expo grounds. Interested contestants may register at Briggs & Stratton's inside booth in the South wing of the exhibit area, #3510. The race will benefit the Special Olympics.

Snapper, Inc. has promoted Mark Smith, a 10-year company veteran, to the position of Commission Distributor Sales Manager. Smith joined the equipment company in 1986.


Highway Equipment Company is folding its Groundskeeper line into its widely-known Hi-Way line. The Hi-Way line has been selling its Model P and Super P pickup-mounted salt and sand spreaders to lawn and landscape businesses for more than 25 years. With the addition of the Groundskeeper line, Hi-Way will continue to target this

A FEW WORDS ABOUT NEW CHIPCO ALIETTE SIGNATURE.

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Circle No. 119 on Reader Inquiry Card

> SUPPLIERS CORNER

market by manufacturing the pickup and trailer-mounted AG-18 leaf vacuum; the AM-23 and AM-30 axle-mounted leaf vacuums; and the fully-hydraulic, pickup-mounted Dump "E" dump box.

Carlos Ryes and Charles Wise received scholarships from the **O.M. Scott/Golf Course Superintendents Association of America (GCSAA) Scholarship Program**. Each received \$2500. As part of the scholarship program and selection process, both Reyes and Wise served as 1995 summer interns with Scotts.

The Promersberger Company, a full-service marketing, advertising and public relations

agency specializing in the construction and industrial markets for more than 20 years, has been named agency of record for **Burkeen Manufacturing Company**. Burkeen makes and markets trenching equipment, including vibratory plows, hydraulic walk-behind trenchers, and hydrostatic riding trenchers.

Richard H. Elyea has joined **Tee-2-Green Corporation** and **Turf-Seed, Inc.** as a turfgrass consultant. Elyea provides domestic and worldwide site-specific recommendations on turfgrass, agronomic and environmental issues for golf course architects and designers. Elyea earned a degree in horticulture from Iowa State Univer-

sity, specializing in turfgrass management. A former golf course superintendent, Elyea has 10 years of experience in marketing seed and fertilizer to golf course and sod production accounts.

Foley United and American Equipment Leasing will jointly offer lease financing to help golf courses acquire Foley United reel grinding equipment. Foley United, a division of Foley-Bel-saw, is a leading maker of reel grinding equipment, located in River Falls, Wisc.

Tom Duffy has been named national sales manager of **Morbark's** E-Z Beaver Sales Company. He will head up sales of the company's line of hand-fed E-Z Beaver brush chippers.

FMC Corporation has named Amy Gabrielian sales representative for the Midwest. She is responsible for promoting the company's line of pest control products in a nine-state territory. Gary Cramer is FMC's new technical representative for the Western region. Janet Holland now represents the company's lawn and tree products for landscape and golf course industry in 12 Midwestern states.

At **Seed Research of Oregon, Inc.**, Stephanie Ward has been promoted to advertising manager. Ward has been with the company since 1987.

Virgil D. Meier, Ph.D., of **The Scotts Company**, recently received the John A. Long Excellence in Research Award. Meier has been with Scotts for

25 years. He is an expert in turfgrass variety development.

Rain Bird Sprinkler Manufacturing Corp. will enter a float in the Tournament of Roses Parade, scheduled for January 1, 1997. The float will have an Egyptian theme, as the ancient Egyptians invented many irrigation techniques.

Gempler's, makers of personal protective equipment and tools for integrated pest management practitioners, has hired Dr. Rami Soufi as a member of its team of technical specialists. Soufi earned a Ph.D. in Plant Pathology from Oklahoma State University.

Warren's Turf Nursery, Crystal Lake, Ill., was sold in May to E.J. Woerner & Sons, Inc., of West Palm Beach, Fla. The acquisition is meant to broaden Woerner's geographical base by adding operations in Georgia, Virginia, Indiana, California and Hawaii.

Jerff Carowitz is marketing manager for **Hunter Industries'** residential, commercial and large turf products. He oversees domestic and international marketing activities for the irrigation equipment manufacturer.

Ransomes is the exclusive turf maintenance supplier for the St. Andrews Links in Fife, Scotland. Under a three-year rolling agreement, only Ransomes, Cushman and Ryan equipment will be used to maintain the six public golf courses which comprise St. Andrews. **LM**

WAIT'LL YOU HEAR WHAT ECHO'S DOING TO

GET NOISE PROBLEMS
OFF YOUR BACK!

ECHO
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Circle 112

**Last Year, It Was Daconil Ultrex®
To Bring Fast, Thorough Mixing
To Dry Fungicides.**

**Now, It's New Daconil Weather Stik™
To Bring Greater Sticking Power
To Flowables.**

These Micrographs Show It.



Daconil Weather Stik

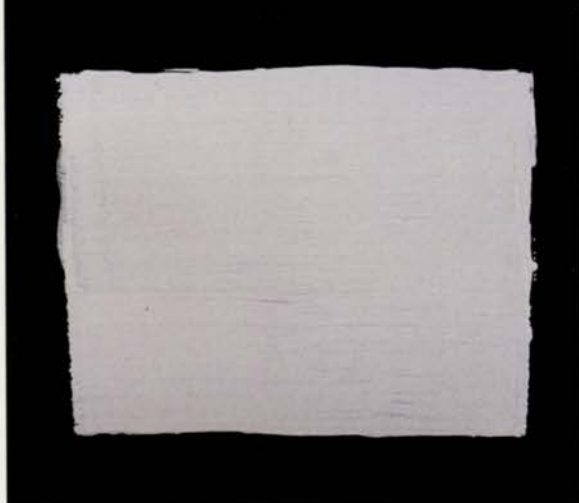
Chlorothalonil Fungicide
after a 1/2" rain stress (SEM - 330X)*



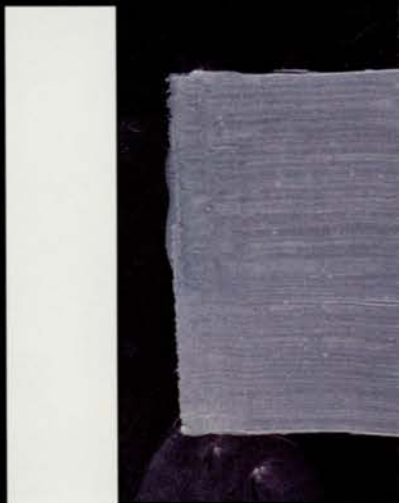
Flowable Generic

Chlorothalonil Fungicide
after a 1/2" rain stress (SEM - 360X)*

Daconil Weather Stik Chlorothalonil Fungicide



Initial Application

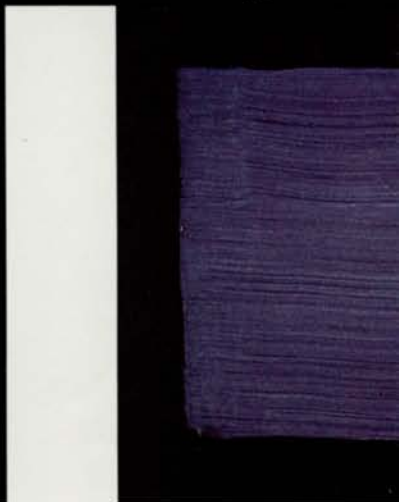


After Moderate Simulation

Flowable Generic Chlorothalonil Fungicide



Initial Application



After Moderate Simulation

And Wash-Off Tests Show It, T Sticks And Stays Like T

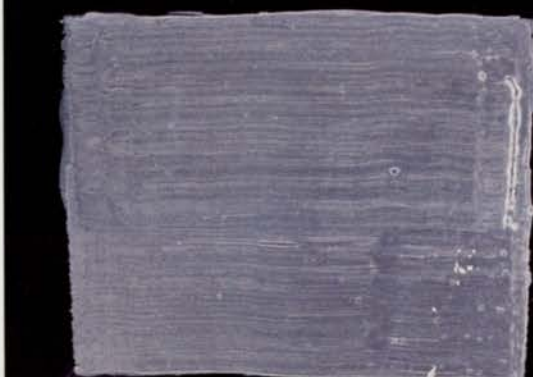
They say seeing is believing, and here's enough seeing to make anyone a believer. Because high magnification scanning electron microscopy of treated turf samples shows it. And so do Plexiglas[†] wash-off studies — studies that have been shown to correlate directly to real-world performance. New Daconil Weather Stik[™] fungicide sticks and stays like the competition can't.

So when other fungicides might wash away, you can continue to count on Daconil Weather Stik for control of major turf diseases on both warm and cool season grasses. That includes brown patch, leaf spot, melting out, dollar spot, anthracnose, rust, red thread, and snow mold. Plus control of most ornamentals plant diseases and algal scum, too.

le



ed Rainfall/Irrigation



After Heavy Simulated Rainfall/Irrigation



ed Rainfall/Irrigation



After Heavy Simulated Rainfall/Irrigation

Too. New Daconil Weather Stik The Competition Can't.

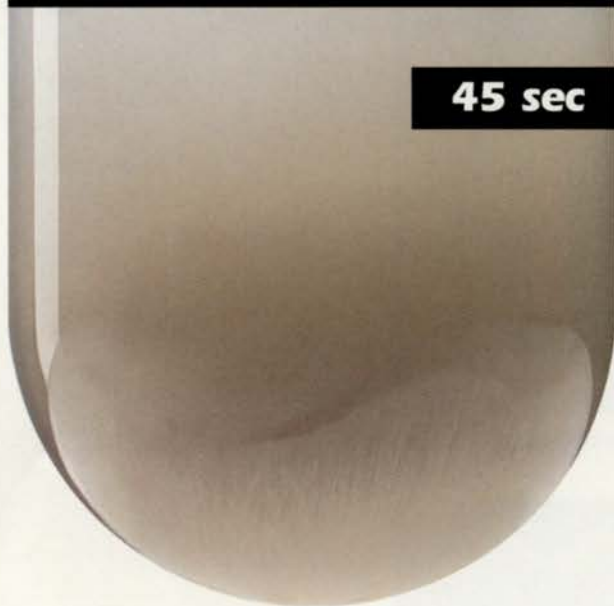
In addition, Daconil Weather Stik can be tank-mixed with a wide range of turf and ornamentals fungicides (consult label), so you can also count on it for broad-spectrum support of your systemics, as well as disease resistance management. Remember, there's never been a documented case of disease resistance to a Daconil brand fungicide in over 25 years.

And Daconil Weather Stik is more concentrated than prior formulations, so you'll have fewer jugs to get rid of, too. Which simply says from better protection to easier disposal, Daconil Weather Stik is the right flowable choice for you.



**Daconil Ultrex
Chlorothalonil Fungicide**

45 sec



**Dry Generic
Chlorothalonil Fungicide**

45 sec



Daconil Ultrex goes into suspension in less than a minute and stays in suspension even after six hours for consistent coverage from start to finish.

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Get advanced spray-dry Stable Suspension Daconil Ultrex® fungicide. The breakthrough dry alternative that goes into suspension faster and stays in suspension to give you consistent spraying from start to finish with less settling out and fewer problems with clogged nozzles. Because of that same breakthrough technology, Daconil Ultrex pours completely out of the bag, so you eliminate all need for rinsing.

Of course, because bags are easier to get rid of than plastic jugs, and you have fewer of them, disposal is that much easier. Now add the sticking and staying power of our Weather Stik® formulation for exceptional broad-spectrum control of some 70 diseases that attack turf, ornamentals, and trees, and it all adds up to another great choice for you. ISK Biosciences Corporation, Turf & Specialty Products, 1523 Johnson Ferry Rd., Suite 250, Marietta, Georgia **ISK BIOSCIENCES™** 30062.

Always follow label directions carefully when using turf and ornamentals plant protection products. ® Registered trademark of ISK Biosciences Corporation. ™ Trademark of ISK Biosciences Corporation. † Plexiglas is a trademark of Rohm and Haas Co. * Micrographs have been colorized for demonstration purposes.

The green industry continues to develop new ideas and career-building products. The golf/grounds industries provide numerous opportunities for employment and growth. Golf construction is trying to keep up with demand. There seems to be plenty of room for leaders, and followers are always welcome.

So many advancements have come along in the past seven or eight years: water injection aeration; plant growth regulators; and natural turf grown outdoors and sustained indoors for soccer.

Recently, we've seen new bentgrass varieties—such as the Lofts L-93 and Penn "A" and "G" series—that grow best at minimum heights and have incredibly dense growth habits.

We can make all kinds of new and improved products, yet we have trouble when it comes to finding, getting and enjoying cooperation from people.

Superintendents tell us of their struggle to find good help among American youth. One says it's been a couple years since a teen has even walked

in to apply for work at his golf course!

Try this message in your next ad:

"Golf course seeks eager, energetic, curious people for outdoor summer work.

"You'll earn \$6/hour, and not have to take drive-thru orders for burgers and fries at 1 a.m. You get to work with people who can teach you a thing or two about the value of hard work, get a feel for an exciting and growing industry, and you'll also get free golf. We want you to be happy here!"

(That \$6 might seem high, but it's part of the draw. Fast food's paying \$5.)

If that doesn't help bring in more able-bodied youth, there's still that alternate labor pool, composed of seniors, more women and migrant workers. They want to contribute and aren't afraid of work.

Products are easy to work with, people are not.



Terry McIver

TERRY McIVER
Managing Editor

GOLF/GROUNDS

PAGE 2 G ▶

Develop a greens rating system

PAGE 6 G ▶

Semi-tropical management tricks

PAGE 10 G ▶

Floods and freezes hard on turf

PAGE 12 G ▶

Quality control for new greens

PAGE 14 G ▶

Serenity is yours if you want it

PAGE 17 G ▶

Cart paths not part of the game

Many superintendents still walk a narrow corridor between employment and dismissal, as their fates rest in the hands of club members who don't know what it takes to grow healthy turf-grass. Rainy weather or drought not only means the turf's in trouble; somebody's job might also be on the line.

Athletic field managers face a different problem, as funds from municipalities are cut.

It'll be nice when the business management consultants decide that it's time to start investing more in overhead.

That's when quality—all-around quality—will again be a desired commodity. **LM**

Comments? Write Terry at 7500 Old Oak, Cleveland, OH 44136; **phone him at** (216) 891-2709, **fax him at** (216) 891-2675 **or e-mail him at** 75553.502@compuserve.com.

Why greens 'flunk'

USGA Mid-Continent

Director Jim Moore proposes

a grading system (like in

school) to point you and your

greens committee members to

a workable greens improve-

ment program.

by RON HALL / Senior Editor

Forget that you're a golf course superintendent and pretend that you're a grade school teacher. Ask your

greens committee members, even golfers at your course, to participate. Your task—all of you—is to grade each and every green on your course.

Do any of your greens deserve an "A"? Mark down a "C" in the column denoting average greens. Hopefully, you don't have many "F's" because if you do...well, as a superintendent, you know what's going to happen.

Why stop there?

James F. Moore, USGA director in Waco, Texas, suggests that the grading also extend to each performance category and stress factor affecting every green. This past winter he worked up a "Greens Performance Rating Sheet" for just that purpose. (See accompanying chart.)

For example, say the fifth green at your course is located on a slight rise with nothing surrounding it except two small bunkers, while the green at hole six, a much smaller green, is in a depression, surrounded on three sides by mature trees.

Which of the two greens is more prone to problems?

You might give the fifth green an "A" or "B" in the categories of "sunlight" and "air

circulation," and a "B" for "size." Meanwhile, the sixth green would probably receive lower grades in all three categories.

While it's unlikely you could upgrade or rebuild the sixth green into an "A" without materially changing its character, you could, perhaps, remove some of the trees or branches, and install fans to improve it a grade or two. That, in fact, may be enough to satisfy your membership.

The Greens Performance Rating Sheet provides two immediate benefits.

It gives you, the superintendent, greater insight into why some greens are so easy to maintain and, conversely, why others are seemingly always in trouble. It demon-



The USGA's Jim Moore says you can educate members with a greens grading system.

Common failures of new greens

Your new greens are suffering and you need answers.

You've been a superintendent long enough to know that there is no specific maintenance formula that you can follow to ensure each green's success, including those built to USGA specifications.

Being a good turf detective, you focus on factors that could be affecting your new greens. You don't limit your thinking to a single cause, but consider combinations of causes, too.

To start the process, James Moore, USGA Mid-Continent Director, offers some trouble-shooting suggestions. You may have others.

► Greens open for play before

they're ready. Tender new grass plants aren't yet strong enough to sustain traffic.

► **Improper or incomplete cultivation** of the green, particularly after seeding or sprigging.

► **Poor location** leading to poor growing conditions. Are your trouble greens located in areas with shade and/or poor air movement?

► **Too much traffic.**

► **Improper fertilization** causing slow establishment. Pay attention to phosphorus. Phosphorus will move through sandy soils.

► **Poor water quality.** It's becoming common as more courses irrigate with treated wastewater.

► **Temperature extremes.** Do bent-grass greens make sense in the Deep South?

► **Pest/disease problems.** They're often associated with other factors such as lack of air movement and heavy traffic. Nematodes will become more of a problem as treatment options shrink.

► **Improper watering.** New greens require more precise irrigation than established greens. Their water requirements change as they mature.

"The first year of a new green's life will probably be the most difficult year of that green for the next 10 years," says Moore. "It's hard to bring in a new green. It's not normal maintenance."

strates that rarely does a single factor cause a green to suffer. It's usually a combination of factors.

But perhaps the bigger benefit is that the rating sheet will act as an educational tool. It will, hopefully, open the eyes of your greens committee and/or membership to the complexities involved in delivering top-quality greens.

"For the first time, you might get them (green committee members) to realize that improving a problem green is not just a matter of buying just one more piece of equipment, or planting the right grass," says Moore. "They'll realize that they have to look at all of the factors on the check list."

Moore says that any superintendent is welcome to use the Greens Performance Rating Sheet, or to adapt it in any way they feel will most help them.

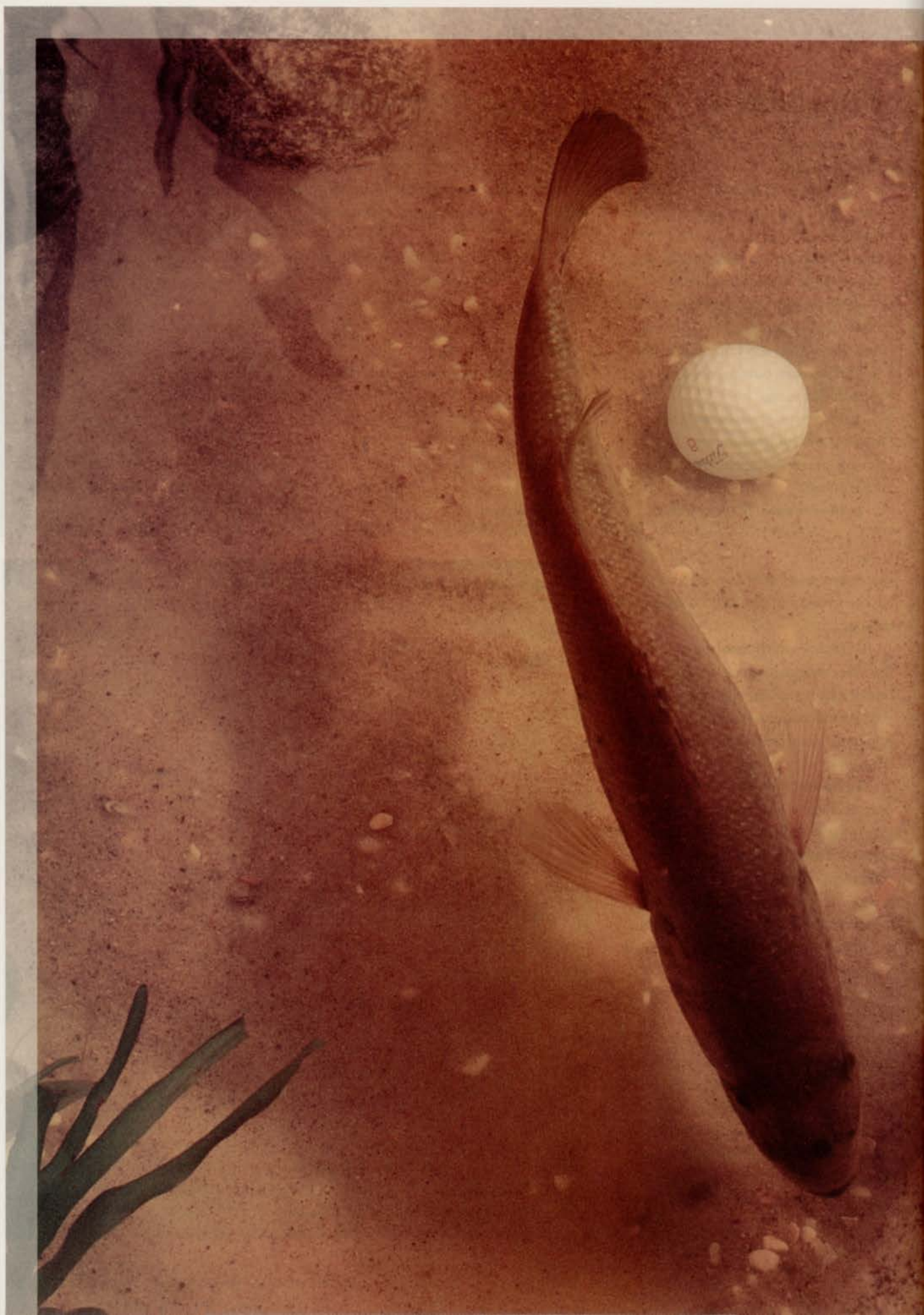
"I cannot emphasize strongly enough the benefit of involving green committee members and golfers in the grading process. If nothing else, it helps drive home the point that successful green management requires their support and understanding," he adds. □

Greens Performance Rating Sheet

Stress Factors	Green Number						etc.	PG
	1	2	3	4	5	6		
Sunlight exposure	A	B						
Air circulation	C	B						
Root competition	B-	B-						
Purity of stand (Poa/bent)	B	C						
Disease pressure	B	B-						
Insect pressure	A	D						
Walk on/off	D	C						
Cupping area	C	C						
Size	C	F						
Surface drainage	B	C-						
Internal drainage	B	C						
Irrigation coverage	C	D						
Overall historical performance	B-	C						
Greens construction*	1	2						

*Construction key: 1-USGA Spec Green 2-Modified USGA Green 3-Pushup Green (native soil)

Instructions: Assign a letter grade--A, B, C, D, F--to each performance category or stress factor. Consistency in your ratings is key--as is assigning a grade for each green's overall performance. This will show the combined impact of the various stresses and which greens deserve the most immediate attention.





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INCLUDING THOSE WHO
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Maintaining a showplace golf course goes beyond beautiful turf.

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MERIT lets you control grubs, mole crickets and other insects while
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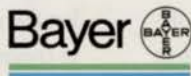
In fact, MERIT is effective at rates 85% to 96% lower than other
conventional soil insecticides. And when applied in the spring to control billbugs
and black turfgrass ateniens, MERIT provides enough residual
activity to effectively control grubs throughout the summer.

To find out more, contact Bayer Corporation, Specialty Products,

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Do it for those in golf who actually like landing in trees

and splashing in water hazards.





Semi-tropical

Use these maintenance hints to bring paradise—or a reasonable facsimile thereof—to your neighborhood.

by STEVE & SUZ TRUSTY

Think of Hawaii—sandy beaches, perfect soils, ideal weather and lush vegetation. But even paradise needs a little help from its friends to meet tourists' vacation expectations.

The island of Kauai's "red dirt"—a sticky, mucky clay—is one hindrance to plant growth at the Kauai Marriott Resort and Beach Club in Hawaii. Landscape superintendent Kevin Gavagan, however, has a multitude of answers to local problems.

"Red dirt is hard to push a shovel into, and it sticks to the shovel when you dig it out," explains Gavagan, who adds that the material drains and dries quickly to compensate for high moisture. "We create specific, pot-like planting areas for plants that prefer lighter soils. We tailor fertilization programs by plant type to include sufficient nitrogen at the proper intervals to sustain even plant growth."

▲ Salt-resistant seashore paspalum thrives on the lawn areas bordering the ocean.

▶ Gravel beds were added to the water features so they'd serve as biological filters.

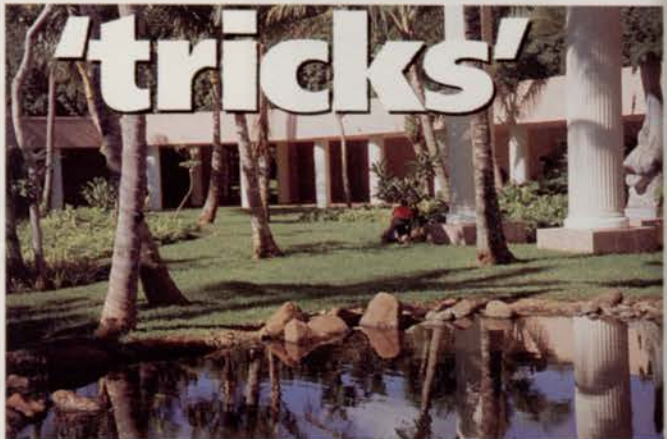
High moisture, low light

It rains nearly every day in Kauai, so little irrigation is needed. And while the stunning rainbows breaking through the clouds delight tourists, light levels are too low for some sun-loving plants.

Almost unbelievably, seasonal fluctuations are also a factor.

"Though seasonal changes are minimal by most stateside standards, by December we've gradually lost one hour of light and five degrees of temperature, so adjustments must be made," says Gavagan.

"We do frequent changeouts of the annual beds to keep color at its peak. Impatiens here hold prime condition for about two months. In similar settings on Maui, they'll last five months. We also use the annual beds to create seasonal effects, such as the massive plantings of poinsettias during December."



Other solutions

Gavagan increases landscape color with a wide variety of trees and shrubs so that several different plants will be in bloom at any given time. Some provide only a few weeks of color, but add texture and shape to the overall design. Others, like the bougainvillea, bloom year-round.

"Plants grow rapidly here, so tree and shrub trimming is a constant task," observes Gavagan. "At approximately 40 pounds each, a falling palm frond could cause injury or property damage. To avoid liability, coconuts must be removed when they approach the size of oranges."

Coconuts washing up on the beach become seedling trees. Windborne seeds sprout wherever they find a foothold. Small plantlets form in the blossoms of plants like

red ginger, and when the weight of the bloom drops the tip of the plant to the ground, these plantlets quickly root. Even trimmings left in place for a few days put out roots. So selective removal is as important as planting in maintaining the integrity and diversity of the design, Gavagan notes.

Invasive weeds and grasses also require constant attention. As aggressive kalinga grass struggles for a foothold on the sandy beaches, Gavagan fights back with the equally aggressive salt-resistant seashore paspalum on the lawn areas bordering the ocean.

Battling high costs

Any landscape renovation on Kauai is compounded by the natural limits of the remote islands—space, materials, equipment and transportation time and costs.

"We're gradually crowding out weeds and bringing existing turfed areas up to our standards," Gavagan says. "With labor costs included, sod runs \$7 per square foot. We can stolonize an area for \$1 per square foot, including labor. We've been working with St. Augustine planted in furrows of rhizomes spaced six inches apart. Our red dirt is deficient in phosphorous, so we incorporate 10-30-10 fertilizer during soil preparation to get it down to the rootzone.

"With our low light levels, it takes twice as long to establish here, about eight weeks, as compared to an average of four weeks on Maui. We'll get full fill-in by five months. To keep existing turf thick and thriving through all the rainfall, we keep steady fertility levels with applications of slow-release nitrogen every three months. Other nutrients are added according to soil

Kevin's tricks:

WHAT: Create pot-like planting areas for plants that prefer lighter soils.

WHY: To correct areas with heavy soils.

WHAT: Frequently change annual beds so plants are seen at their peak.

WHY: To create seasonal effects where seasons are subtle.

WHAT: Shape and control taller plants.

WHY: To allow sun penetration and air movement to understory plantings, turf and groundcover.

WHAT: Selectively remove some new plants promulgated by Mother Nature.

WHY: To maintain diversity of the original design.

WHAT: Use seashore paspalum on areas bordered by salt water.

WHY: To keep invasive weeds and grasses from getting a foothold.

WHAT: Avoid susceptible plant materials; use cultural practices to discourage pests.

WHY: To let natural predators work and avoid extreme pesticide use.

WHAT: Use ferns and vines as groundcovers.

WHY: To provide cover for natural predators when people traffic becomes intense.

test results."

In the hard-to-establish shady areas, Gavagan also is using "El Toro" zoysiagrass, which is a good blend of texture and color with the St. Augustine. Because of its performance in tough spots, Gavagan plans to integrate "El Toro" with the bermudagrass in the sunny areas as well.

A little design

Gavagan worked with Kauai Nursery & Landscaping to create an open, interior courtyard with a meandering stream from what had been one massive pool.

"We brought in cranes and earth-moving machines to change the pool to a con-

crete 'pot,'" he says. "We planted mature trees through the membrane of the pool and used its existing suction lines for underground drainage. We added gravel beds to the water features so they'd serve as biological filters. Once excess water works its way through the natural organisms within the gravel beds to the suction lines, it's pure enough for landscape use. Smaller trees and shrubs were selected for their color, texture and form as well as their bloom cycles, so there's always something to see, night or day." □

—The authors are frequent contributors to LANDSCAPE MANAGEMENT.

Native grasses are imports

Tourists seeing the Hawaii of today assume all the lush plants are native to the area, but many are tropical imports. Most are propagated for landscape use; others have escaped cultivation and "naturalized"

throughout the islands.

To retain some of that original biodiversity, and to spread interest in and appreciation of the Islands' unique beauty, Gavagan plans to establish "pockets" of native areas on the property. "We'll plant natives in natural settings, mark the plants with their botanical names and Hawaiian names, the background of the plant, including the

story behind its name, and its original and current use.

"For example, the kikuyugrass that holds the beach together against winds and washing was named for the priests, the kikuyus of the old island culture who held the people together throughout adversity."

—S.T.



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Plus, Eagle comes in premeasured, water-soluble pouches. Just toss them right in the tank. No measuring, no mess.

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TO-160

2/96



Of floods and freezes...

Consider this:

► One million cubic meters of material were layered over the Nicklaus North Golf Course in Whistler, B.C., to bring it up to the flood elevation required by law.

► Fairways were raised six feet to ensure proper drainage to meet specifications for the 100-year flood (that is, a flood of a severity not seen but maybe once in 100 years).

► Greens and tees were raised 10 feet to meet the standards for the 200-year deluge.

► A finishing layer of sand, six inches thick, was brought in to ensure proper drainage and better rooting in the substructure.

The turf requires more fertilizer and water, but these considerations made it possible to seed the course in August of 1994 and begin play exactly one year later.

Moving water

To deal with drainage problems, 20 miles of sub-surface drainage and a fully-automated irrigation system supply 1000 gallons per minute through 900 irrigation heads.

The design called for smooth-wall pipe rather than perforated pipe to increase water flow. Total cost for the upgrade: \$24,000.

Three lakes surrounding the course are interconnected with a 1.5 percent grade. Using



Darren Burns plays two rounds a week at Nicklaus North: one to take notes, and another round for fun.

18-inch perforated pipe helps minimize erosion, percolating out unwanted sediment. Superintendent Darren Burns adds that the bunkers were designed with a minimum 1% slope to ensure drainage. USGA-specified sand from nearby Harrison Lake fills the bunkers.

"The drainage issue has been solved as best we could," says Burns. "With all the grating, catch basins and pipes, we keep the water moving. Even on this new course we have no standing water."

Water from Green

Lake is free, but its temperature is between 34 and 52 degrees. Early in the spring, with soil temperatures near freezing, Burns must ration irrigation to prevent freeze burn on greens and tees. The staff's only recourse is to use water sparingly, and wait for warm weather. Two greens are in constant shade and require hand watering with warmed water.

Integration

A Vegetation and Habitat Management Plan integrates the course design with existing terrain, using topographical maps made

Be sure that your greens care does not further aggravate heat-stress conditions.

from aerial photos. Seven thousand trees—firs, cedar, spruce, pine, mountain ash and hemlock—were replanted, and 12- to 24-inch fescue were replaced as habitat for small mammals.

About 30,000 shrubs and aquatic plants were planted, and 120 bird, wood duck and bat boxes were placed around the course.

An Audubon Sanctuary certificate is another of Burns' goals.

As a golfer, Burns is able to view the course from a player's perspective and that of a superintendent. He plays one round a week to take notes, and another round for fun.

Just ask

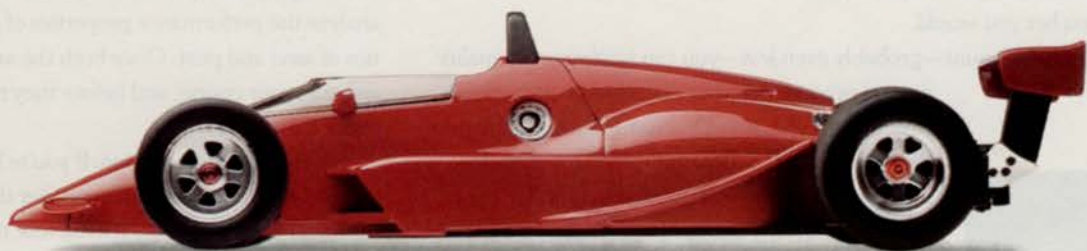
Burns is a talker. He'll answer questions from golfers, and he knows how to communicate with his staff.

Burns holds weekly meetings with his 24-man crew. They discuss positives and negatives to course maintenance. Burns relays what looks good and how it got that way.

He doesn't expect his crews to be as driven as he, but says, "I want the crew to think of the consequences when they are working. They need to evaluate their work and promote our product." □



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Primo® gives you a dramatically quicker transition by doing what it does best: slowing the growth of existing turf by 50 percent.

This makes existing turf less competitive, and allows more sunlight, oxygen,

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Which means you get a faster stand and a higher rate of germination.

And since Primo is foliar absorbed, it has no effect on new seedlings.

So this year, be sure to use Primo. It's like turbo-charging your overseeding program.



A SMALL PRICE

to pay



► The grade of the gravel layer should follow the contours of the green, and be 12 inches below finish grade across the green.

by RON HALL /
Senior Editor

If you could spend an extra \$1,000 during the construction of greens on your golf course, and eliminate problems that might later cause you sleepless nights, would you do it?

You bet you would.

For that amount—probably even less—you can implement a quality control program for your course-wide greens construction project, says Dr. Norm Hummel, Jr., president of Hummel & Co., a consulting and testing firm headquartered in Trumansburg, N.Y.

While a quality control program doesn't guarantee success, it reduces the risk of failure, explains Hummel. Here are stages of the greens construction process where quality control is essential, he says:

Subgrade and installation of subsurface drainage. Is the green's subgrade stable and compacted? Are the cavity edges firm? Do drain lines cover the entire green cavity? Are all pipe connections cemented properly?

Gravel layer. Test to ensure it conforms to the correct particle size. (The USGA provides guidelines for selection of gravel.) Make sure that the gravel that's delivered to your golf course is what you originally approved and accepted.

Grade of the gravel layer. It should follow the contours of the green, and be 12 inches below finish grade across the green. If the gravel layer is not uniform, it will result in varying depths of rootzone mix in different areas of the green. This could result in wet and dry spots on the green, and make the green difficult to irrigate properly.

Rootzone mix materials. Whatever the mix ratio, have the sand tested for correct particle size, and select a high quality peat. A laboratory can do tests to analyze the performance properties of different ratios of sand and peat. Once both the sand and peat arrive at your course, and before they're blended, check them again.

Rootzone mix production. If you're buying pre-blended rootzone mix from a supplier that sells mainly to the turf market, it's still wise to pre-approve 500 to 1,000 one-ton stockpiles prior to delivery.

If you're blending the rootzone mix at the golf course, establish a sampling procedure for each 500 to 1,000 tons. (Some professional blenders like the Kurtz Bros. in Ohio bring a quality control laboratory to the site.)

To get a rootzone sample, use a long narrow sampling tube known as a sand robber, but a length of PVC pipe works almost as well. Collect rootzone mix by sticking the tool into different areas of the pile.

Dump the material on a piece of carpet, mix it up, split it in half, mix the remaining amount, then collect about a gallon to be tested at a laboratory.

If you're in a hurry to find out about the rootzone mix, some laboratories provide priority testing services and can return results within 24 or 48 hours.

Hummel says all the quality control procedures he recommends won't add any more than \$1,000 to the cost of a greens' construction project, a small price to pay for added peace of mind. □



Hummel: Some laboratories can have soil test results within 24 or 48 hours.


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*Geoffrey R. Blind
Golf Course Superintendent
Hillendale Country Club
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Circle No. 130 on Reader Inquiry Card

The sun does shine, after all

Winter's officially over, thank goodness. Now, for your own peace of mind, remember that it's more how you feel about what you do than what you do.

by JERRY ROCHE / Editor-in-Chief

Call the winter long, harsh, cold, mean and nasty. Call a handful of golf course superintendents angry, shaken, perturbed, disgusted and scared.

But, as spring was breaking, Alan Culver was the picture of serenity. The GCSAA-certified superintendent at Mahoney Golf Course in Lincoln, Neb., was looking forward to the 1996 season with unbridled enthusiasm.

"The last 12 months have been the harshest I've ever seen," says Culver. "We had two months of non-stop rain last spring, followed by two months of absolute heat and blowtorch-type winds that caused ryegrass and bluegrass to go dormant. Then, we had a -50° wind chill factor in the fall that didn't give the grass a chance.

"Last night (April 28th) was the first decent rain of more than one inch that we've had since last June.

"You could fire every superintendent in Nebraska and the greens wouldn't have been any greener. Even the guys who have been around longer than me (20 years) have dead grass."

Culver was luckier than most, though an astute observer might add "smarter." Mahoney was ready for the spring onslaught of golfers, even though the course lost about 10 percent of its tees and fairways, and about 35 percent of its bluegrass/ryegrass roughs, which never came out of dormancy.

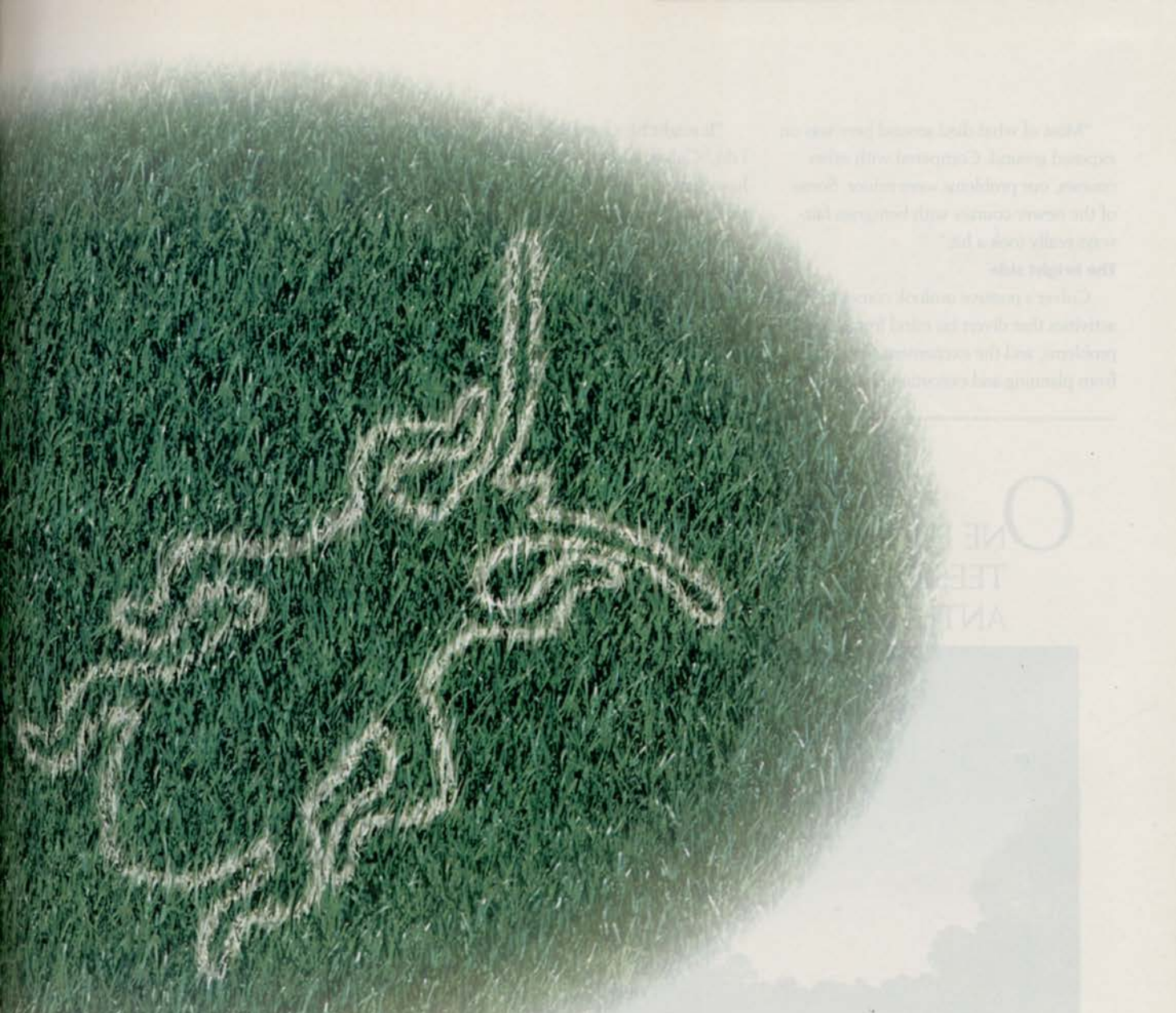


◀ *'You could fire every superintendent in Nebraska and the greens wouldn't have been any greener.'*

Helping the grass

"There are certain things that we do religiously in the fall that helped our greens survive the winter," he says. "We give them a real heavy sand topdressing to where just the tips of the grass show and the crowns are covered. We also require 'Soft Spikes' from Nov. 15 to April 15 so we don't get damage from normal spikes on frozen greens."

This spring, 4000 lbs. of bluegrass/ryegrass seed went down on the course. Next comes spring deep-tine aerification to 9-10 inches. The greens will be overseeded again with the fall aerification.



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Circle No. 113 on Reader Inquiry Card

"Most of what died around here was on exposed ground. Compared with other courses, our problems were minor. Some of the newer courses with bentgrass fairways really took a hit."

The bright side

Culver's positive outlook comes from activities that divert his mind from the job's problems, and the excitement that comes from planning and executing new projects.

"It might be a hard job, but I love what I do," Culver admits. "But you've got to have some escapes. If the job is the only thing you've got, it'll drive you nuts."

His "escapes" are three: playing golf; spending time with his wife Jan, daughter Jennifer, 24, son Justin, 16, and six horses on a 20-acre farm; and interacting with his peers. He's an officer of the local superintendents' association.

"We get together and play golf once a week, what we call our 'travelling circus.' All the courses and country clubs and private people: superintendents, their assistants and sometimes crew members. Terry Riordan and Roch Gaussoin (turf faculty at the University of Nebraska, just down the road) come out, too, and every fall we have a tournament/supper with them and their students."

Rarin' to go

He's involved in two special projects this summer: planting prairiegrass (little bluestem, big bluestem and switchgrass) in out-of-play areas that don't require a lot of mowing; and installing a new \$500,000 double- and triple-row irrigation system "to help avoid the fairways getting toasted like they did last summer.

"Getting the new irrigation system is something I look forward to, because I didn't have a lot of experience when we put our first one in, back in 1975. I've shopped around. In Lincoln, the courses use a combination of two brands and four different computer-controlled systems, all less than five years old.

Aqua Engineering of Fort Collins, Colo., is designing an electric valve-in-head, computer-driven, state-of-the-art system for the course. "I'll be like a little kid in a candy store," Culver notes. "I'd like a radio-controlled system because then you can control any head on the course from your hand, and flow control so the pumps run as efficiently as possible."

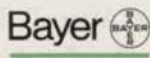
The last two years, water for irrigation cost \$60,000. Culver is convinced computer-based irrigation will reduce that. He's also convinced that the new system will free up most of the 10 to 15 hours a week his crews normally spend on irrigation repair. "Hopefully, it'll be a phased-in installation in the fall and we'll pull as much pipe as possible so that we don't have to trench the fairways and make a mess. Play shouldn't be interrupted. We'll also have water on the driving range for the first time." □

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Circle 104

Cart paths bring materials and labor costs into play

by STEVE & SUZ TRUSTY

Cart paths provide a hard-surface route for golf carts at frequently-damaged spots on the course, or in a course-wide trail. In times of wet weather, golfers can still play when cart paths are in place as an alternate route for fairway traffic.

Many superintendents believe cart paths are a convenience to the golfers, and that they help speed up play without adversely affecting course aesthetics.

The road less travelled

Probable ball landing zones help determine path routes. Cart paths should be close enough to fairway landing zones to allow easy access for golfers, yet not so close the paths come into play.

Hiding cart paths from view along the edge of the roughs may be best for aesthetics, but forcing players to walk long distances from car to ball and back slows play. Construction materials that blend with the environment or accent other course features make visible

► **Cart paths should be wide enough and sturdy enough to support passage of heavy equipment.**

paths seem less intrusive.

The most appealing, functional and cost-effective cart paths are developed cooperatively between the architect, developer, course owner and superintendent. In today's litigation-happy environment, a civil engineer may be required in cart path design to insure structural integrity and user safety.

Environmental concerns should be addressed in the initial design stages. Paths, even on bridges or elevated crossovers, in wetlands or other environmentally fragile areas, generally require pre-approval by the appropriate regulatory agencies.

Cart paths, especially curbed ones, can be used to channel and control water runoff.

Material mix

Material options have expanded greatly in recent years. Stone and simulated stone pavers come in a wide variety of sizes, shapes and finishes. Traditional rock and wood mulch materials have been joined by such "natural" by-products of regional industries as hulls and crushed shells. Concrete costs have dropped and installation methods improved. Textile reinforcement materials extend the life of asphalt and make spot repairs

more practical.

Native soils of sand or heavy clay may allow natural surface cart paths over most of some courses. These can be augmented in extremely wet or dry sections and heavy traffic areas with concrete, asphalt or pavers.

Consider maintenance costs

Upfront costs, projected cart path "life" and long-term maintenance costs all must be considered.

Degree of use, site-specific characteristics and regional weather conditions influence cart path life. Natural and mulched paths may need annual renovation. Asphalt path life can range from 12 to 18





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years; concrete and interlocking paver paths may last 50 years.

"Bring the superintendent into the golf course design process early on to assess long-term maintenance," of cart paths, suggests Nolan Meggers of John Deere.

Meggers says to consider:

- Labor hours and cost
- Equipment needed to maintain paths
- Turf bordering the path

The superintendent, says Meggers, will see the practical aspects that better balance the cost equation.

"Maybe an elevated section of the path with sloping sides is planned to keep golfers from driving onto the fairway at a critical point," suggests Meggers. "But too steep a bank may limit mowing options or require considerable hand work with a string trimmer. Upkeep of a natural mulch path in a heavily wooded area may be less labor-intensive than continual removal of slippery fallen leaves from a concrete path."

A clearer picture of true costs can be obtained by tracking labor hours related to maintenance of cart paths and bordering turf in various sections of the course. This information is essential in plotting future budgets or when considering

cart path renovations.

Wide bodies

Consider equipment use throughout the course, notes Meggers. Cart paths become the preferred route in transporting equipment to the work site and such traffic does add to path use. Paths should be wide enough and sturdy enough to support passage of heavy equipment. Well-maintained paths expose equipment to fewer bumps and bounces, resulting in less adjustment, maintenance and repair time.

Cart paths are becoming wider, up to eight feet on single paths. Double lane paths of 12 to 14 feet accommodate heavy traffic near the club house, two-way traffic, double-back routes and stop-offs on par 5s.

Wider paths increase upfront construction costs but may pay for themselves in reduced maintenance because the biggest issue with cart paths is keeping golfers on them.

The "two wheels on the path, two wheels in the grass syndrome" of golf car maneuvers creates patches of turf wear and destruction at tees, greens and prime fairway landing zones. Curbs at these spots make it more difficult for drivers to stray from the path. Performed curbing "strips" or pres-

◀ **Fairway width and the flight of the ball make it difficult to keep paths entirely out of play.**

sure-treated lumber can be used to add curbing to existing paths. But consider extra string trimmer maintenance time that may be required along curbed areas.

If major path widening or renovation isn't possible, creating graveled or mulched cut-outs at regular intervals in heavy use areas may encourage golf car drivers to park or pass at those points.

Some cart paths cover only small sections of a course, often at tees. This results in extra turf wear at entry and exit points. A flared cart path at these points helps to spread the traffic over a wider section of turf, reducing the wear on any one spot.

A new angle

When golf cars stray from cart paths, the exit points along the fairway bear the brunt of wear, even when golfers are urged to employ the "cross at 90 degrees" rule. A system of changing those exit points daily, such as movable decorative

fencing, can keep turf damage within the manageable range.

During wet conditions, golf car entry onto the turf often can be restricted at specific sites by ropes strung along portions of the cart path. While this eliminates turf damage at those spots, it often transfers damage to the next most convenient exit point.

Even with rules in place, drivers of turf vehicles will often make sharp turns or sudden stops and starts, and tire tracks and turf wear patterns remain.

Wear-resistant turf

Grass varieties selected by the superintendent for wear, compaction tolerance and regional adaptability may better withstand moderate golf car stress. A well-planned program of cultivation, topdressing, irrigation, fertilization, mowing height adjustments and thatch level monitoring will increase turf density. Restricting turf access during overly wet or dry periods, when still-green turf is frozen or while turf is dormant can eliminate severe damage.

LM



The biggest issue with cart paths is keeping golfers on them.

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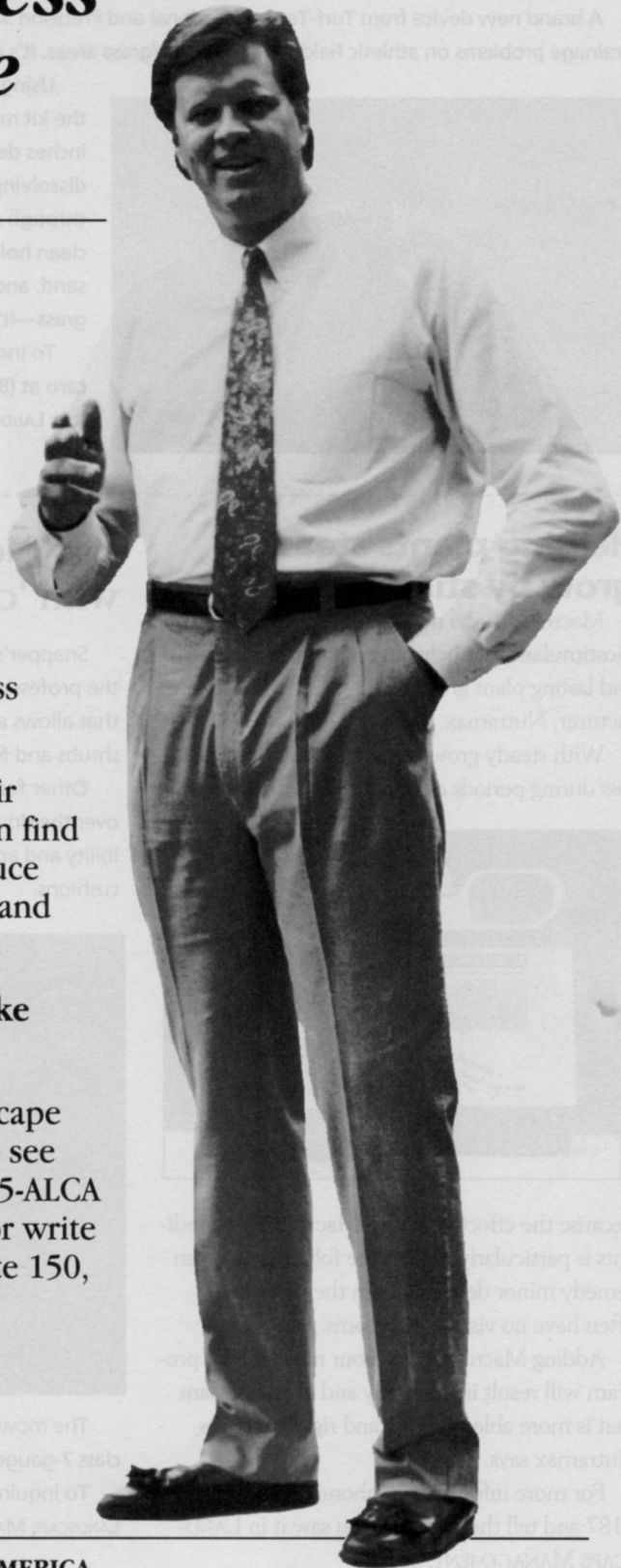
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To inquire further, contact John Mascaro at (800) 258-7477 and tell him you saw it in **LANDSCAPE MANAGEMENT**, or

Circle 266

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Easy access comes with 'cruisin' mower

Snapper's TurfCruiser outfront mower for the professional market has a low-profile deck that allows access for mowing under trees, shrubs and fences.

Other features: users are positioned directly over the drive wheels for enhanced control; zero-turning radius steering; wide visibility and an ergonomically-designed adjustable high-back seat with padded vinyl cushions.



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Circle 268

S. Carolina gets label

Pinpoint 15 granular insecticide has been approved for use in South Carolina against mole crickets in residential lawns, athletic fields, parks and commercial landscapes. According to Valent USA, the granular formulation makes Pinpoint more user-friendly in public areas such as golf courses.

For more information, phone (510) 256-2700 and mention **LANDSCAPE MANAGEMENT**, or

Circle 269

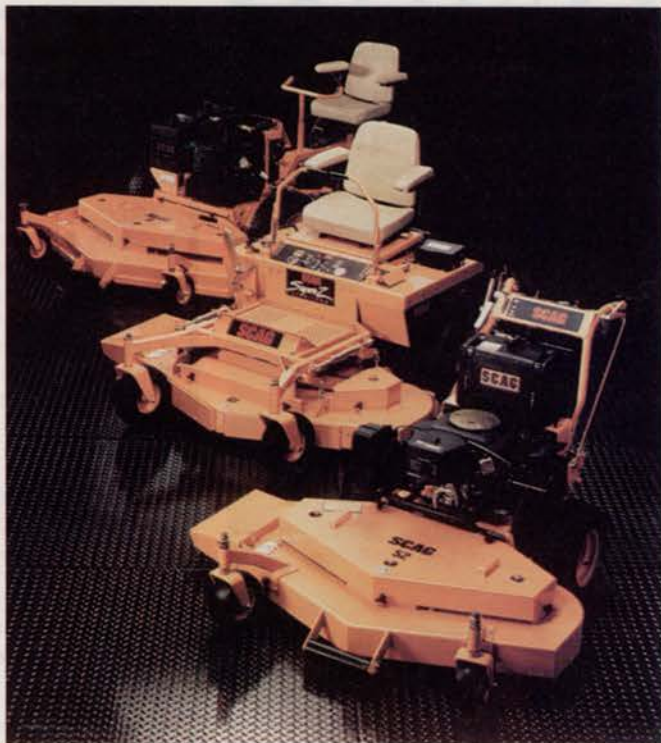
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Circle 270



Two new mowers, diesel and bagging, on display this month

The two new models of Scag commercial mowers, the Magnum III and the Turf Runner, are on display at the OPEI Expo 96 this month in Louisville.

The Magnum is the new diesel three-wheel riding mower and the Turf Runner is the new bagging mower that converts to side discharge with a flip of a lever.

Also on display from Scag are the Super Z zero-turn rider and the STHM three-wheel rider.

For more information, visit Expo 96, call (414) 387-0100 and tell the operator you saw it in LANDSCAPE MANAGEMENT, or

Circle 273

Herbicide gets supplemental label for water use situations

Reward landscape and aquatic herbicide has received a supplemental label affecting water use restrictions, according to Zeneca Professional Products. The new label allows for a shorter waiting period—1 to 3 days instead of 14 days—following the application of Reward in all water use situations. According to the supplemental label, there is no waiting period following the application of Reward for swimming and fishing.

For more information, phone (302) 886-4224 and mention LANDSCAPE MANAGEMENT, or

Circle 271

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Blaster 808 Small Engine Tune-Up solution restores power and compression to two- and four-cycle engines, according to Preventive Maintenance Products.

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BOX NUMBER REPLIES: Mail box number replies to: LANDSCAPE MANAGEMENT, Classified Ad Department, LM Box #, 131 W. First St., Duluth, MN 55802. Please include box number in address.

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Long established full service company based in Sarasota, Florida. Looking for top quality landscape maintenance & construction division managers and project managers for our Orlando, Tampa, Sarasota and Ft. Myers Offices. Minimum 5 years experience.

Year round positions with excellent pay plus benefits program. The salary ranges for these positions are based on experience:

Project Managers
\$26,000 to \$36,000

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For confidential consideration, send resume with salary history to

Horticultural Industries, Inc.

Personnel Dept., P.O. Box 21297, Sarasota, FL 34276
or Fax (941)924-0170



U.S. Lawns Jacksonville

Full-service landscape management company has a position available for Operations Manager, servicing the Jacksonville, Florida and Beaches area. This challenging position requires 3-5 years experience. Strong communication, organizational and supervisory skills are essential.

Send/fax resume with salary requirements to
P.O. Box 331044, Atlantic Beach, FL 32233.
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PROFESSIONAL GROUNDS, INC.

Established company in Washington, D.C. area has career positions in our landscape division for supervisor and foreman.

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(703) 339-0600
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For additional information call: 1-800-548-6063

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SALES/MARKETING REP

Philadelphia/Princeton based landscape firm seeks marketing professionals. Successful candidates will be involved in client development and promotion of grounds maintenance services. Directly responsible for estimating, bidding and selling of services. Good growth potential for the right persons. We offer an excellent benefit package, including salary, commission, health benefits, 401(k), etc.

Qualified candidates should have a horticultural related degree, and/or a good knowledge of the landscape industry. Production and sales experience preferred. Strong organizational, interpersonal, and communication skills are required.

Please send or fax resume to:

Pennink Arrimour, Inc.

1965 Byberry Road
Huntingdon Valley, PA 19006
Fax: (215) 659-9317

LAWNCARE - LANDSCAPE MANAGEMENT IMMEDIATE OPENING

We are a highly successful, national "lawncare" company seeking the right manager to develop our Florida business. Resumes will be considered from Florida C.P.O. license holders only. This position is a long term, corporate growth opportunity for an aggressive, creative, problem solving career seeker with a record of success in Florida.

- Salary will be based on your record and immediate value to us.
- Industry leading benefits package.
- Corporate growth potential excellent.
- Operate from your city in Florida - no relocation.

Submit résumé and salary expectations to:
LM Box 517

Grounds Maintenance and Enhancement Supervisors & Managers

Become a part of one of Maryland and Virginia's fastest growing team of landscape professionals. Come and work for a company that recognizes quality as a daily occurrence and knows that customer satisfaction is a successful driving force.

Positions are full-time with exceptional compensation, benefits, and advancement opportunities. Mail or fax your résumé today to: Tom Davis, Bozzuto Landscaping Company, 15127 Marlboro Pike, Upper Marlboro, MD 20774, Fax No.: 301-627-7011.

LANDSCAPE POSITION AVAILABLE

SEASONAL COLOR SPECIALIST to develop & implement an annual/perennial color program for large commercial sites including design and planting. Strong horticultural or floricultural background and experience with annuals and perennials needed. Advancement opportunities.

Send resume to: ENVIRONMENTAL CARE, INC.
825 MABURY ROAD, SAN JOSE, CA 95133

MAINTENANCE SUPERVISORS The Brickman Group, Ltd., one of the nation's largest and fastest growing full service landscape companies, has an immediate need in principal cities east of the Mississippi for maintenance supervisors with 2-5 years experience. Brickman seeks energetic, team oriented college graduates with proven leadership, communication and interpersonal skills. Brickman offers full-time positions, excellent advancement opportunities and exceptional compensation and benefits with an industry leader building on a 56-year tradition of uncompromising customer service. For immediate confidential consideration, please send or fax your resume with an indication of your geographic preferences and willingness to relocate to: **The Brickman Group, Ltd., Corporate Office, 375 S. Flowers Mill Road, Langhorne, PA 19047, 215-757-9630, EOE.** 7/96

FLORAPERSONNEL, INC. In our second decade of performing confidential key employee searches for the landscape/horticulture industry and allied trades worldwide. Retained basis only. Candidate contact welcome, confidential, and always free. 1740 Lake Markham Road, Sanford, FL 32771. PHONE (407)320-8177. FAX (407)320-8083. 11/96

Fastest Growing Company in Southern Florida seeks Management and Supervisory Personnel for Pest Control, Lawn, and Termite Control. Excellent growth potential. Full benefits package. All replies strictly confidential. Send resume to: P.O. Box 7011, West Palm Beach, FL 33405-7011. 12/96

Landscape Maintenance Foreman - KT Enterprises, Inc., a large Northern VA landscaping firm, is currently seeking highly qualified individuals to supervise within our commercial maintenance division. Candidates must have strong supervisory skills, solid horticulture background, CDL licensing and certified pesticide applicator license. Excellent wages, complete benefit package, 401(k) retirement plan and unlimited advancement. Submit resume with salary history to: Human Resources Department, 4001 Westfax Drive, Chantilly, VA 22021. (703)222-0449, fax (703)222-0578. EEO/AAP 7/96

Send Box Number Replies to:

Landscape Management
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COMPLETE NURSERY, RETAIL SALES and MAINTENANCE BUSINESS in PIEDMONT, NORTH CAROLINA... HIGH GROWTH RETIREMENT and RESORT AREA. On busy highway. Thriving and growing. Owner will stay for transition. Call John McKeithen, Gouger, O'Neal & Saunders, Inc., 800-672-2228 or 910-692-2696. 7/96

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October 1996	9/4
November 1996	10/4
December 1996	11/6

(Please call Sales Rep to confirm dates.)

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1985 F-600 W/GRAHAM SPRAY BODY-1150 GAL TANK W/100 GAL TORPEDO, BEAN 20/20 PUMP, LOW MILES, NEW PAINT, \$14,000. PICTURES CAN BE PROVIDED UPON REQUEST, CALL FOR DETAILS (610) 436-5098. 7/96

BUCKET TRUCK: Hi Ranger 65', 57', 50'. Sky-workers with chip boxes. Asplundh bucket trucks with chip boxes. Asplundh brush chippers. Bean 55 gal. sprayers. Pete Mainka Enterprises, 633 Cecilia Drive, Pewaukee, WI 53072. 800-597-8283. 12/96

HOWARD 180 HYDRO Lawn mower diesel, power steering. Low hrs. Cuts 15 acres an hr. Ready for the season. Excellent cond. (313)464-8440 7/96

GROUND MAINTENANCE FIRM Upper Midwest based year around ground maintenance firm specializing in large contracted property maintenance, mowing, pruning, weed and feed, and snow removal. Revenues exceed \$2MM. Experienced staff in place. Outstanding reputation, offers turnkey opportunity with established client base. Reply to LM Box 519. 8/96

1987 3/4 TON GMC VAN with 300 gal. tank plus 30 gal. saddle tank. Has a fiberglass bulkhead & floor in the spray compartment. Runs great. Needs body work. Asking \$7,900. Call 708/932-8839 & ask for Jerry. 8/96

Landscape/Maintenance Old established Northern Colorado landscaping, maintenance & snow removal business. Grossing over \$1,000,000. Owner anxious to retire. Terms. **VR Business Brokers 970-407-1000.** 8/96

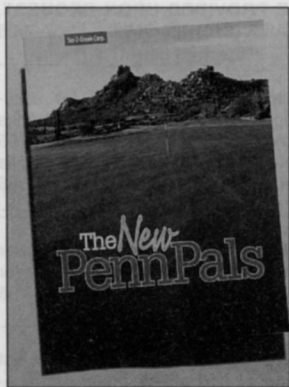
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Read all about it

A booklet entitled "New Penn Pals" is available free to golf course superintendents, architects, builders and managers from Tee-2-Green Corp.

In the booklet, Dr. Joe Duich discusses development and maintenance of the new generation of creeping bentgrasses for putting green use. Several superintendents also evaluate the new cultivars—Penn A-1, A-2, A-4, G-1 and G-6. They are typically lower growing and must be maintained at a cutting height of 1/8-inch.

For your free copy, contact Charlotte Flowers at (800) 547-0255 and tell her you saw it in LANDSCAPE MANAGEMENT, OF

Circle 275

Fertilizer reacts to change in temperature

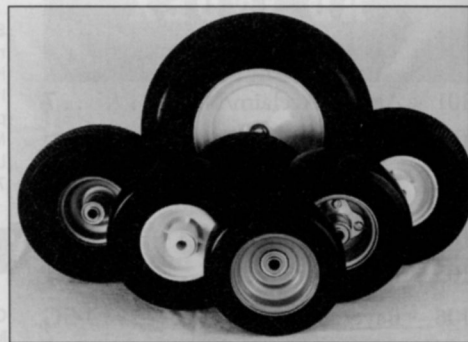
Pursell's Polyon coating technology allows for controlled nutrient release for up to 16 weeks.

Polyon fertilizers are manufactured according to a patented Reactive Layers Coating process, which creates a micron thin polymer coating that is literally bonded to the nutrient compound itself. The process creates a tough polymer membrane around the nutrient that is highly resistant to breakage, won't soften or melt with heat or swell with water absorption. Polyon reacts to only one environ-

mental element: temperature.

For more information, phone (205) 245-5282 and mention LANDSCAPE MANAGEMENT, OF

Circle 276



Here's a new tire that's flat-proof, long lasting

Carefree Tires, now available for the landscaping industry, are completely flat-free and long-lasting.

Carefree tires are airless, oil-resistant, non-marking, available in different colors and—most important—made in the U.S.A. Typical applications for the golf/landscape industry include hand trucks, lawn mowers and wheelbarrows.

For more information, phone (213) 249-7500 and tell the operator you saw it in LANDSCAPE MANAGEMENT, OF

Circle 277

Sonar now approved in California

Sonar aquatic herbicide is now approved in California for the control of aquatic weeds such as egeria, hydrilla, Eurasian watermilfoil and duckweed.

For more information, phone SePro at (800) 419-7779 and mention LANDSCAPE MANAGEMENT, OF

Circle 278



Mower reduces mowing, clipping handling time for turfgrass jobs

Bush Hog's new mower/mulcher technology, with counter-rotating blades, can reduce mowing and clipping handling time by 50 percent, the company says. The counter-rotating concept was originally developed by Bush Hog to shred and mulch cotton and corn stalks.

The mowers come in 60- and 72-inch cutting widths. Larger 15- and 17-foot tri-deck mowers will be released soon. Future Bush Hog zero-turn mowers and walk-behind mowers will also feature the counter-rotating concept.

Circle 279

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FIRM _____
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A. LANDSCAPING/GROUND CARE AT ONE OF THE FOLLOWING TYPES OF FACILITIES:

- | | |
|--|--|
| 01 <input type="checkbox"/> 05 Golf Courses | 08 <input type="checkbox"/> 40 Private/Public Estates & Museums |
| 02 <input type="checkbox"/> 10 Sport Complexes | 09 <input type="checkbox"/> 45 Condominiums/Apartments/Housing Developments/Hotels/Resorts |
| 03 <input type="checkbox"/> 15 Parks | 10 <input type="checkbox"/> 50 Cemeteries/Memorial Gardens |
| 04 <input type="checkbox"/> 20 Rights-Of-Way, Maintenance for Highways Railroads & Utilities | 11 <input type="checkbox"/> 55 Hospital/Health Care Institutions |
| 05 <input type="checkbox"/> 25 Schools, Colleges & Universities | 12 <input type="checkbox"/> 60 Military Installations & Prisons |
| 06 <input type="checkbox"/> 30 Industrial & Office Parks/Plants | 13 <input type="checkbox"/> 65 Airports |
| 07 <input type="checkbox"/> 35 Shopping Centers, Plazas & Malls | 14 <input type="checkbox"/> 70 Multiple Government/Municipal Facilities |
| | 15 <input type="checkbox"/> Other (please specify) _____ |

B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:

- | | |
|--|---|
| 16 <input type="checkbox"/> 105 Landscape Contractors (Installation & Maintenance) | 20 <input type="checkbox"/> 125 Landscape Architects |
| 17 <input type="checkbox"/> 110 Lawn Care Service Companies | 21 <input type="checkbox"/> 130 Land Reclamation & Erosion Control |
| 18 <input type="checkbox"/> 112 Custom Chemical Applicators (Ground & Air) | 22 <input type="checkbox"/> 135 Extension Agents/Consultants for Horticulture |
| 19 <input type="checkbox"/> 120 Tree Service Companies/Arborists | 23 <input type="checkbox"/> 140 Irrigation Contractors |
| | 24 <input type="checkbox"/> Other Contractor or Service _____ |

C. SUPPLIERS:

- 25 210 Sod Growers, Turf Seed Growers & Nurseries
26 215 Dealers, Distributors, Formulators & Brokers
27 220 Manufacturers

2. WHICH OF THE FOLLOWING BEST DESCRIBES YOUR TITLE? (check ONE only)

- 28 10 EXECUTIVE/ADMINISTRATOR: President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Director of Physical Plant
29 20 MANAGER/SUPERINTENDENT: Arborist, Architect, Landscape/Ground Manager, Superintendent, Foreman, Supervisor
30 30 GOVERNMENT OFFICIAL: Government Commissioner, Agent, Other Government Official
31 40 SPECIALIST: Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
32 50 OTHER TITLED AND NON-TITLED PERSONNEL: (please specify) _____

3. SERVICES PERFORMED: (check ALL that apply)

- | | |
|--|---|
| 33 <input type="checkbox"/> A Mowing | 41 <input type="checkbox"/> I Landscape/Golf Design |
| 34 <input type="checkbox"/> B Turf Insect Control | 42 <input type="checkbox"/> J Turf Weed Control |
| 35 <input type="checkbox"/> C Tree Care | 43 <input type="checkbox"/> K Paving, Deck & Patio Installation |
| 36 <input type="checkbox"/> D Turf Aeration | 44 <input type="checkbox"/> L Pond/Lake Care |
| 37 <input type="checkbox"/> E Irrigation Services | 45 <input type="checkbox"/> M Landscape Installation |
| 38 <input type="checkbox"/> F Turf Fertilization | 46 <input type="checkbox"/> N Snow Removal |
| 39 <input type="checkbox"/> G Turf Disease Control | 47 <input type="checkbox"/> O Other (please specify) _____ |
| 40 <input type="checkbox"/> H Ornamental Care | |

4. WHAT IS YOUR ANNUAL BUDGET FOR EQUIPMENT, CHEMICALS, SUPPLIES? (please check one)

- 48 1 Less than \$50,000 51 4 \$250,001-500,000
49 2 \$50,000-\$100,000 52 5 More than \$500,000
50 3 \$100,001-\$250,000

101	119	137	155	173	191	209	227	245	263	281	299
102	120	138	156	174	192	210	228	246	264	282	300
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108	126	144	162	180	198	216	234	252	270	288	306
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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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31 40 SPECIALIST: Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
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GIE is sponsored by:

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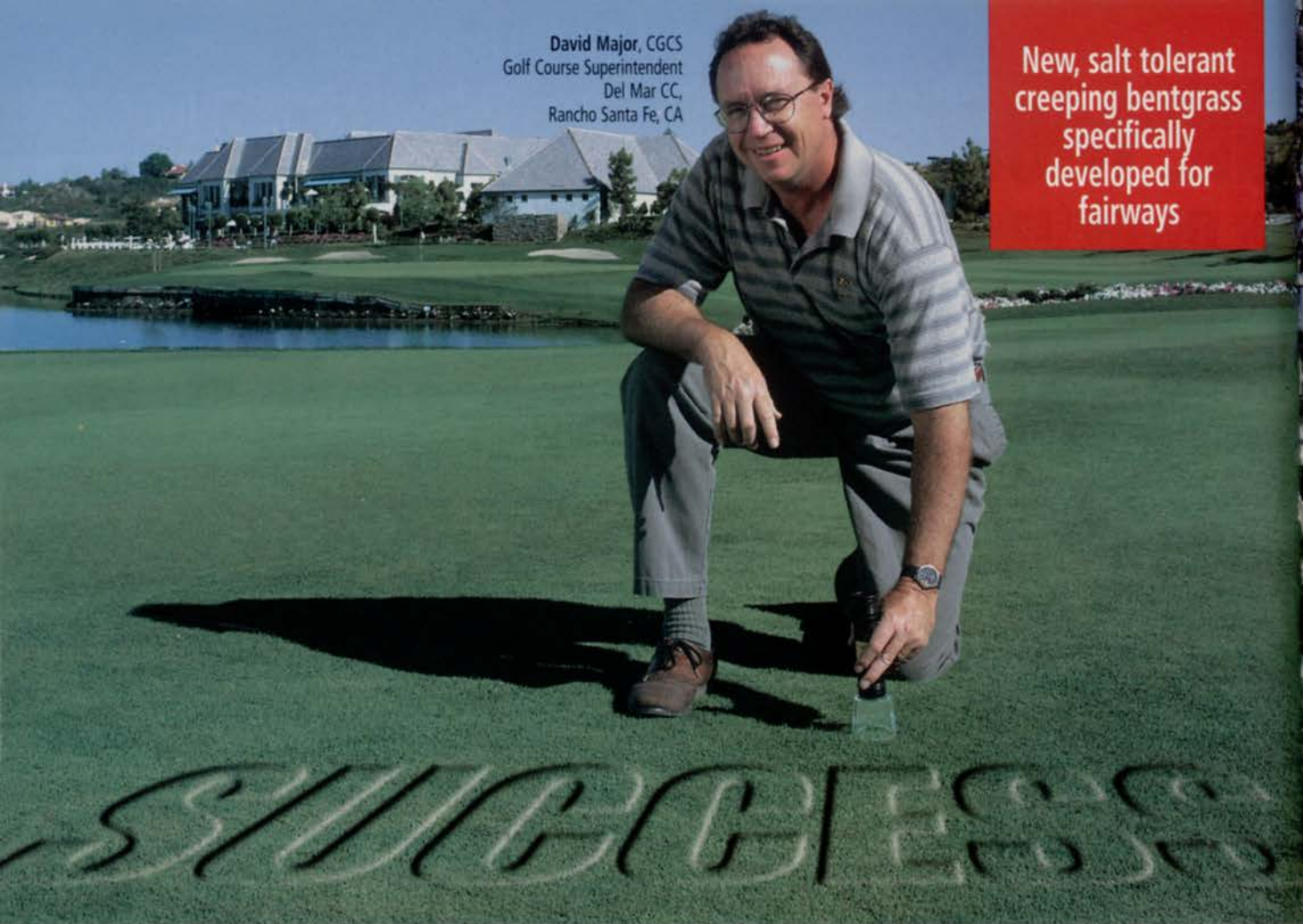
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