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AS WE SEE IT

TERRY McIVER, MANAGING EDITOR



2,4-D's stamina proves that truth is stronger than fiction

The scientists who concocted 2,4-D 46 years ago deserve a debt of gratitude that extends well beyond their scientific achievement.

Thanks to them, thousands of others have found a cause, have "gotten a life," so to speak: to ban the production and use of the most well-known, highly-praised, bitterly-reviled and hotly-disputed herbicide.

Many of these crusaders are themselves scientists, who might like nothing better than to say they helped ban this solitary product. That would be a grand achievement, because—like health care "reform"—we don't need to do it, but it would be big news if it ever happened.

If 2,4-D were a living patient, it would have croaked years ago from the rigors of the exam. It's opened wide and said "ahh" more times than a room full of measles-infested kids.

"There are 94 epidemiological studies we're aware of that are pertinent to 2,4-D," says Don Page, executive director of the 2,4-D Task Force, an interest group composed of agricultural control product manufacturers, "and you can add to that the probable 4,000 toxicological studies that have been done on 2,4-D."

The Journal of the American College of Toxicology reported that more than 40,000 scientific articles and technical reports addressing 2,4-D had been published by 1978.

Most recently, an April 1994 report by an EPA panel determined that existing 2,4-D studies showed no demonstrable link between 2,4-D and cancer in farmers who used it, or in animals.

The panel said it was impossible to determine whether the studies were detecting a risk that was related to the herbicide or to some other aspect of farming as an occupation.

The risk from using 2,4-D, said the study, "did not seem to be much higher than the risk of farming as a general work exposure."

There is also new doubt about the

accuracy of some prior surveys.

According to Page, the National Cancer Institute (NCI) has received \$25 million over the years to finance studies of 2,4-D, in laboratories or through surveys of end-users or end-user family members.

Those statements by family members—called proxy statements—have recently cast a shadow of doubt over the validity of 2,4-D surveys.

Page says a review of data by the U.S. Centers for Disease Control and Prevention showed that—in the NCI studies done in Kansas, Iowa and Minnesota in the 1980s—there was less than 50 percent agreement between cancer-case users and the family members who spoke on their behalf.

"And the self-respondents in the Nebraska study show no association between product use and lymphoma; the next-of-kin respondents do," adds Page.

In other words, the farmers who used the products were the only ones who should have been surveyed, since they would be best able to recall how they used the product and how often.

The Task Force has completed 85 percent of the tests required to reregister 2,4-D, and by the time it's done, it will have spent \$28 million.

But it won't end there. Report that there's no link between a product and disease, and you prompt a halcyon cry for more money and more study.

There are 1100 chemical compounds up for reregistration, but Page says fewer than 450 of those will last, due to the more than \$3 billion it would cost the manufacturers.

Why conduct all this research if you continually question the results?

These scientists must all be guys: They just can't commit.

LANDSCAPE MANAGEMENT

"WE KNOW YOUR TURF"

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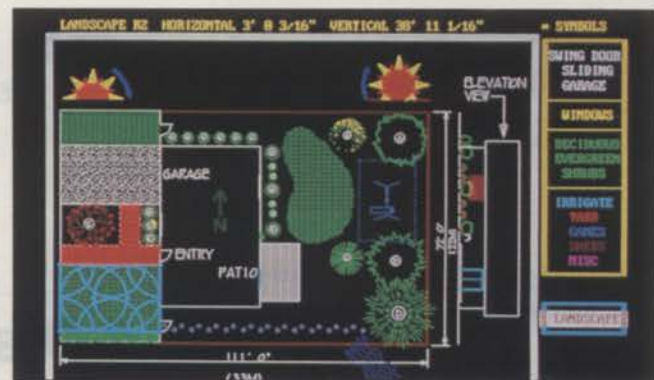
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SIXTH ANNUAL Seed Pocket Guide

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LM READER ADVISORY PANEL

Joe Alonzi

*Westchester Country Club
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Rod Bailey

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Jack Robertson

*Robertson Lawn Care
Springfield, Ill.*

Steve Wightman

*Jack Murphy Stadium
San Diego, Calif.*

**LANDSCAPE
MANAGEMENT**
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EDITORIAL STAFF—Fax: (216) 891-2675

JERRY ROCHE, Editor-in-Chief: (216) 826-2830

TERRY McIVER, Managing Editor: (216) 891-2709

RON HALL, Senior Editor: (216) 891-2636

MICHELLE THERRIEN, Graphic Designer: (216) 891-3101

MAUREEN HREHOCIK, Group Editor: (216) 826-2829

BUSINESS STAFF—Fax: (216) 891-2675

JON MIDUCKI, Publisher: (216) 826-2855

RAY LENDER, Group Publisher: (908) 549-3139

ROBERT EARLEY, Group Vice President: (216) 826-2816

JUDY PAWLOWICZ, Production Manager: (218) 723-9281

ROSY BRADLEY, Senior Production Mgr.: (218) 723-9352

DEBI HARMER, Production Director: (218) 723-9325

DIANE BIAS, Administrative Coordinator: (216) 891-2750

ADVERTISING OFFICES

CLEVELAND (HEADQUARTERS) OFFICE

7500 Old Oak Blvd.
Cleveland, OH 44130
Phone: (216) 243-8100
Fax: (216) 891-2675

JON MIDUCKI, Publisher: (216) 826-2855

ROBERT OHLSEN, National Sales Manager:
(216) 891-2682

ANNE LANGHENRY, Promotion/Research Mgr.:
(216) 891-2739

DIANE BIAS, Administrative Coordinator:
(216) 891-2750

SEATTLE OFFICE

1333 N.W. Norcross
Seattle, WA 98177
Phone: (206) 367-5248
Fax: (206) 367-5367

BOB MIEROW, West Coast Representative

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Chris Baxter: (218) 723-9477; Fax (218) 723-9437



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ASK THE EXPERT

DR. BALAKRISHNA RAO



Galls on Scotch pines

Problem: We see galls on a client's Scotch pines. Two trees have many galls, while six more pines have just a few. Some of the galls have yellowy spores on them. Is this a rust gall? (Canada)

Solution: Based on the description of your field observations, the problem on pines appears to be related to pine gall-rust disease caused by *Endocronartium harknessii*. This disease is also known as western gall rust. It has been reported on two- and three-needled pines in Canada and the United States.

The rust fungus produces round or sometimes pear-shaped woody galls primarily on branches but also on stems. These galls enlarge year after year until the branches are girdled. This causes dieback of affected branches. Often, secondary fungi or canker-causing fungi can also affect these trees.

The fungus infects young branches on the stalk of female cones. From the cones, the fungus moves down the branches. During the year of infection, no symptoms appear; however, galls begin to swell the following year. They can enlarge to 1 to 10 centimeters in diameter. By the second or third year, galls may develop bark collars at one or both ends. Secondary fungi and insects can attack these galls and kill them. The galls break open annually and release yellowish-orange spores during pine-candle elongation, beginning two to four years after infection.

The galls produced by the pine gall-rust fungi *E. harknessii* would be difficult to distinguish from the globose galls also produced by pine-oak galls rust caused by *Cronartium quercuum*. Generally, if rust-galls on pines are seen in the absence of oaks (alternate host), the problem is attributed to pine gall-rust caused by *E. harknessii*. For further diagnosis, laboratory analysis of spore germination is necessary.

As far as managing the pine gall-rust problem on pines, consider treating once with fungicides, such as mancozeb, when yellow pustules of rust break through bark on galls. Selectively prune branches with rust-galls and discard them or preferably rogue them before May 1. Severely infected trees may be unstable and subject to windthrow. Therefore, proper care of infected plants is highly desirable.

Read and follow label specifications.

Managing Kudzu

Problem: What is the best way to manage Kudzu weeds growing around residential and parking lot properties? We have used Roundup with some luck. (North Carolina)

Solution: Kudzu (*Pueraria lobata*) is a difficult weed to manage. It presents a serious problem close to wooded areas. You could use Roundup as in the past to manage this. Label recommendations are to use four quarts/acre, if broadcast spraying, or a 2 percent solution, if using a backpack sprayer.

Roundup should be applied when the plants are actively growing. Repeated applications may be necessary. Roundup is a nonselective post-emergence herbicide, so be careful while applying it

around desirable plants. Even a small drift can injure desirable plants.

Arsenal, from American Cyanamid is a non-selective systemic pre- and post-emergence herbicide for grassy and broadleaf weeds. Generally, one application should be enough per season.

Pre-emergent activity should last three to four months when applied at a rate of 4 to 6 pints/acre. Because of its pre- and post-emergence activity, this would be your best choice to manage Kudzu. It gives good residual activity against a wide variety of annual, perennial grass and broadleaf weeds. Make sure the weeds are actively growing. For optimum control, Arsenal should be applied at a rate of 70 gallons of water per acre, according to a company spokesperson. Also, since it is a non-selective herbicide, avoid contact with desirable plants.

Arsenal is a slow-acting herbicide; therefore, the plant may not show chlorosis or necrosis of newest leaves for two to three weeks, and complete kill may not occur for several weeks. Do not apply in areas where potential for soil erosion exists, or herbicide may be washed off to non-target sites. In these situations, the roots of desirable plants may absorb this herbicide and may be injured.

Read and follow label specifications for better results.

Poison ivy control

Problem: What is the best way to control poison ivy? (New York)

Solution: Treatments with Amitrol (trade name: Amizole, Aminotriazol or Weedazol), a post-emergence herbicide, reportedly provide excellent control of poison ivy. It is a non-selective herbicide made to be applied on foliage of perennial broadleaf weeds such as poison ivy.

Avoid contacting desirable, non-target plants because it will turn the leaves yellow, white and then brown. Use Amitrol as a spot treatment for perennial weeds like poison ivy in or near nursery crops or landscaping. For best results, treat weeds at full leaf, about four to six inches high, and before blooming.

Check with your county extension agent for clearance to use this product in your area. All registrations for the use of Amitrol on food crops, including pastures, have been canceled. Avoid using in an area where there is a chance for food or feed contamination. A waiting period of six to eight weeks is required before planting any plant material.

Roundup is also registered for managing poison ivy plants. Apply four to five quarts of Roundup per acre as a broadcast spray or as a two percent solution with hand-held equipment.

Dr. Balakrishna Rao is Manager of Research and Technical Development for the Davey Tree Co., Kent, Ohio.

Mail questions to "Ask the Expert," LANDSCAPE MANAGEMENT, 7500 Old Oak Blvd., Cleveland, OH 44130. Please allow two to three months for an answer to appear in the magazine.

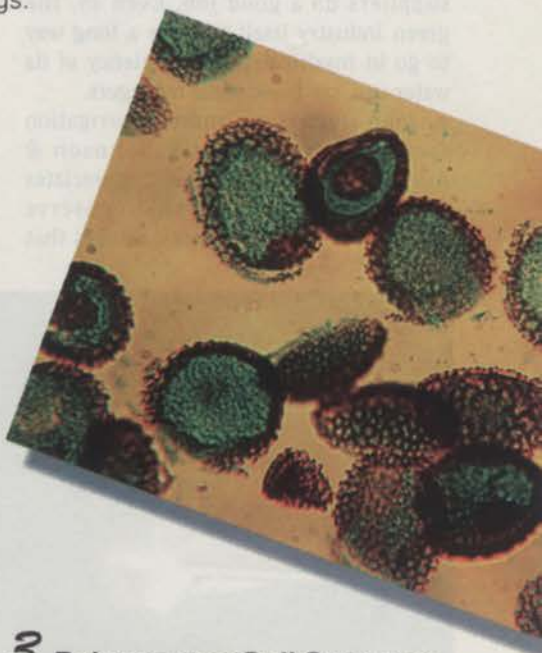
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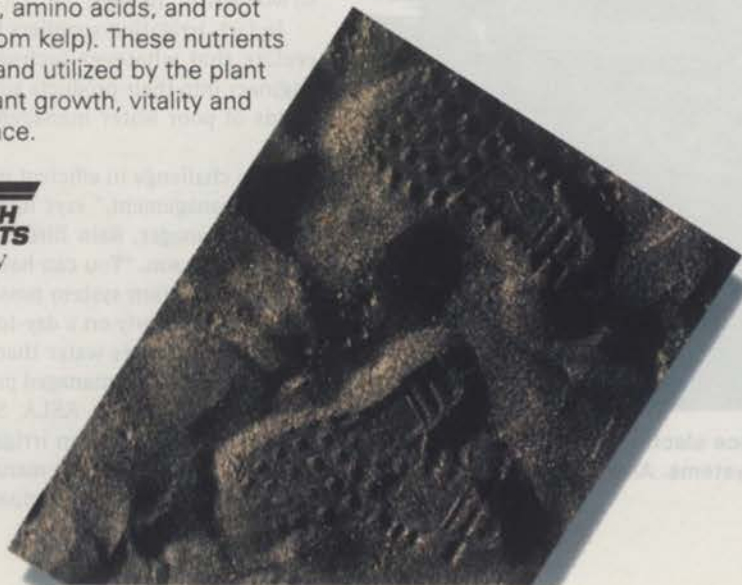


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Playing catch-up with ? IRRIGATION INNOVATIONS

■ Turfgrass and landscapes cannot survive without water. The continued availability of fresh water is an ever-growing challenge to the green industry—perhaps its greatest challenge. The charge to irrigation suppliers is to provide innovative products for ever-more-efficient turfgrass and landscape irrigation.

Turfgrass and landscape managers say suppliers do a good job. Even so, the green industry itself still has a long way to go in maximizing the efficiency of its water use, say these same managers.

John Gustavson, landscape irrigation specialist with Carole R. Johnson & Associates, Cambridge, Mass., appreciates irrigation innovations that conserve water: soil moisture sensors, devices that

Even with a profusion of efficient water-saving irrigation equipment on the market today, WHO—and not WHAT—makes the difference.

automatically detect broken underground irrigation pipes, drip emitters, and the newest generation of controllers.

"The water supply here in the east isn't as critical as, say, in Colorado, but it's getting critical as far as cost," says Gustavson. "I think the Northeast is backing into real conservation from a matter of cost as opposed to out-and-out lack of availability. The incorporation of some type of water conservation element is something I've been putting into a lot of my projects."

But products, no matter how innovative, function only as well as their operators allow them, and even Gustavson admits that "the potential to over-water is great." In the Northeast anyway, irrigation isn't normally critical to landscape plant or turfgrass survival. Typically, irrigation supplements natural rainfall during summer drought or drier-than-normal autumns.

"The tendency is—and this is most true in some corporate centers—'Hey, we've got it (irrigation). We're going to use it.' People sometimes like to turn on their system and watch it because it looks so wonderful," he says.

In fact, irrigation suppliers themselves realize that whatever technology they engineer into their products suffers at the hands of poor water management practices.

"The challenge in efficient irrigation is one of management," says Ron Wolfarth, product manager, Rain Bird Commercial Division, Tucson. "You can have the most efficient irrigation system possible, but if it's managed poorly on a day-to-day basis, you can waste more water than an inefficient system that is managed properly."

Richard A. Fisher, ASLA, San Diego, believes this gap between irrigation technology and proper system management is more prevalent in municipal systems



Golf course superintendents continue to replace electro-mechanical irrigation systems with computerized, central control systems. Also, look for more handheld radios in the coming years.

than on golf courses. For one thing, a golf course superintendent's livelihood is tied to water management. Usually, the superintendent is intimately aware of the system. In city parks and boulevards, on the other hand, systems aren't inspected or managed as intensely.

"The labor force in the landscape maintenance industry has not improved to the magnitude that the equipment has," claims Fisher, who heads up the Landscape Architecture Division of BSI Consultants. "And—at least here in California with its struggling economy—it would probably be naive to believe it will change in the short term. The competitiveness in the bidding of landscape maintenance has become extreme.

"We're not seeing the operation of the equipment coming close to its potential," he adds.

Sometimes forces outside the industry drive it to more efficiency. Fisher feels that may be the case with California's Assembly Bill 325.

That legislation, initiated in 1991 and now being adopted, requires that California communities adopt water laws that:

- encourage groupings of plants

according to water needs (it does not prohibit or require specific species);

- encourage use of automatic irrigation systems with water conserving designs;

- focus on proper grading and drainage, as well as the using mulches, to promote healthy plant growth and prevent excessive erosion and runoff;

- promote the use of reclaimed water;
- recognize regional differences, including fire prevention needs;

- provide economic incentives to promote efficient use of water; and

- require routine irrigation system repair and adjustment, water audits and prescribing the amount of water applied per landscape acre.

"We find that the developer or the homeowner is putting a greater investment in their irrigation systems," says Fisher. "We see an overall better effort on the research of irrigation design. There's a more conscientious concern about what the soils report says, looking into evaporation coefficients, those types of factors rather than programming the system to apply an inch of water a week and leaving it at that."

"Technologically, we think the manufacturers have come a long way in providing us with advanced equipment, particularly with controllers. The timing capabilities of controllers can now be extremely flexible so that we can apply water to particular hydrozones efficiently."

Among the irrigation trends that Fisher sees:

- ✓ Increased use of reclaimed water. "In some of our park projects, even though reclaimed water is not available yet, the city is telling us to design the system so that it can be converted to reclaimed water when it becomes available," says Fisher. Although there are strict regulations about applying reclaimed water, its use will definitely grow.

- ✓ More drip systems. "There are challenges to both the installer and the maintenance personnel when you get into a drip system, but from a water conservation standpoint they work," says Fisher.

- ✓ More use of sensors that monitor soil moisture, shut off systems during rain, detect leaks and system failures.

—Ron Hall

WHAT'S NEW IN IRRIGATION

(MORE ON PAGE 10)

■ Some innovations in the irrigation equipment market look like something out of Buck Rogers of the 21st Century. Hey, after all, it is almost the 21st century.

Take Toro Irrigation's Greenkeeper controller, expandable with two-station modules.

"The controller would be able to expand even after it is installed," explains Tim Tousignant, Toro's residential/commercial marketing manager. "The benefit is the flexibility it gives the end user in terms of aftermarket installation without reinvesting in all new hardware."

This and other controller improvement, Tousignant says, give golf courses, municipalities, even homeowners "more sophisticated approaches" to their water management needs.

Scott Morgan, Toro's golf marketing manager, says golf course superintendents are continuing to replace electro-mechanical systems with computerized, central-control systems. Also, hand-held radio controls will be more common.

Curt Thompson, national sales manager for Buckner Irrigation, says "the high-tech advancements have come about because the cost of micro-circuitry and the hardware that the software drives has become affordable." Even so, adds Thompson, the system has to be designed for the irrigation guy and not the computer guy.

"We don't design ours to be hard to operate. If you can pick

your nose, you can run our system. It only takes one finger," he claims. His company offers systems that monitor pump activity and flow, automatically shut master valves off, and even electronically page the operator when there's a concern.

But not all irrigation product advances involve radios, electronics or controllers. Some are as basic as rotors and valves.

Ron Wolfarth, a product manager at Rain Bird, points to his company's Rain Curtain technology and its new sprinklers that provide excellent and more even close-in watering, efficient irrigation for the 1/4 area closest to the closed-case rotor itself.

The Rain Curtain technology, he says, produces an even "curtain" of water without heavy spots, and dispenses larger water droplets that resist wind drift.

Mike Saliwanchik, Senninger Irrigation Inc., Orlando, Fla., says the rising cost of energy (to operate a system's pumps) and the growing use of reclaimed water also spur irrigation product development and improvement.

A new Senninger product, the T-Spray, responds to those concerns and is directed toward nurseries and plant growers. Saliwanchik describes it as a device that runs a higher volume of irrigation water to the plants without the clogging problems of other micro-spray or sprinkler products.

Other neat stuff we found in product catalogs, in no particular order:



Solatrol: Light Energized Irrigation Technology (LEIT-Link). Universal control units that operate under ambient light, even in the heaviest shade. It looks like a parking meter but it's a lot handier.

Circle No. 251 on Reader Inquiry Card

King Technology: Waterproof safety connectors. Sparkproof, silicone-filled, twist-on. Splices solid and/or stranded wires. Meets NEC coded direct-bury standards.

Circle No. 252 on Reader Inquiry Card

Kifco: Water-Reel traveling irrigation machines. Portable, can irrigate a complete football field in a single pass. Relatively inexpensive but labor saving. Good back-up for in-ground systems.

Circle No. 253 on Reader Inquiry Card

Glen-Hilton Products: Freeze-Clik preset temperature sensor to keep sprinkler systems from operating during freezing or near-freezing temperatures. From the same folks who manufacture the Mini-Clik II rain sensor shut-off.

Circle No. 254 on Reader Inquiry Card

Salco Drip Irrigation: Drip emitters—single outlet, six outlet and bubbler. Flexible drip hose made of PVC. Full line of drip irrigation accessories.

Circle No. 255 on Reader Inquiry Card

Olson Irrigation Systems: Threaded sprinkler riser. Raise or lower a sprinkler with minimum digging. Pressure-Compensated Emitter. Patented silicone cylinder, self-cleaning pulsating action.

Circle No. 256 on Reader Inquiry Card

Aquapore Moisture Systems: Porous pipe. Handy in raised beds, perimeters, planters, median strips. Applies precise amounts of

water to plant root zones. Uniform distribution of water along length of pipe.

Circle No. 257 on Reader Inquiry Card

Greenlawn Sprinkler: Valves, valves and more valves. Also, heads and risers, manifold tees, and nozzles, including plant and shrubbery nozzles.

Circle No. 258 on Reader Inquiry Card

Murdock Water Sensor Equipment: Hydrants (post and flush-box). Drinking fountains. Emergency showers and eye wash equipment. Sturdy.

Circle No. 259 on Reader Inquiry Card

Smith Precision: Liquid fertilizer injectors. Seven models. Operate on water flow. No lubrication or adjustment required.

Circle No. 260 on Reader Inquiry Card

Remote Control Technology:

Hand-held remote controls. At the touch of a button, turn on any valve from up to 1/2 mile from the controller.

Circle No. 261 on Reader Inquiry Card



COVER STORY II

by Mark L. Dlugoss

A sure cure for equipment ills

■ The worst possible thing that can happen to a landscape manager is "downtime." The most common reason for downtime?—equipment breakdowns.

If any piece of equipment is neglected over a length of time, a problem is sure to become serious, such as a hose or belt breaking; even worse, an oil seal blowing out and leaking. Now a simple repair of \$5 to \$10 has escalated to \$300 to \$400. While expenses increase on the repair, money is also lost because of not being able to perform a contracted job. Time and productivity is also lost with idle workers, who, incidentally, are still being paid while a repair is made.

"Knowing all that, then, why don't landscapers maintain their equipment on regular basis?" asks Mike Goodwin, worldwide service manager, commercial division, the Toro Co., Bloomington, Minn. "The main reason is time. Everyone is in a hurry to get the job done,

Visual checklists are the most basic kind of preventive maintenance, according to experts.

to meet a schedule, and everything is secondary to that point."

But time—and money—can be saved in the long run by creating a preventive maintenance program, which also helps avoid expensive repair costs and downtime and to extend the life of the equipment.

Developing a program—Begin with the manufacturers. Each piece of equipment has recommended service intervals.

"Most manufacturers have a detailed suggested maintenance program that they provide with their equipment," declares Joseph O'Reilly, service advisor for Kubota Tractor Corp., Compton, Calif.

continued on page 12



ALL THE ANSWERS FROM KUBOTA

When the question is how to work smarter, Kubota gives you multiple choices!

Kubota's new L-35 has performance features that include a GST transmission for clutchless shifting on the go through all 8 forward and reverse speeds, hydrostatic power steering, and a roomy ISO-mounted operator's platform that reduces vibration. An optional hydraulic port offers the versatility to use hydraulic breakers and other tools.

The rugged B-20 offers a liquid-cooled 20 HP diesel engine with hydrostatic transmission, integral power steering, and standard 4WD for greater traction and power.

Both the B-20 and L-35 feature a loader-integrated reinforced frame that withstands rigorous work. Loader operation is simplified with a single-lever control, and the durable backhoe can be attached or detached in just a few minutes without the use of any tools. For even more versatility, a Rear-PTO and 3-point hitch capacity allow you to till, scrape, mow, and more.

When the question is how to work smarter, Kubota responds to your needs with tractors that are at the top of their class!

Feature	B20	New L35
Kubota Diesel Engine, (gross HP)	20	35.1
Hydraulic Pump Capacity, (gpm)	12.7	17.3
Loader Lift Capacity, (lbs)	926	1,653
Loader Breakout Force, (lbs)	1,543	2,744
Loader Maximum Lift Height, (in)	85"	105.5"
Backhoe Digging Depth, (in)	92.9"	111.3"

Kubota



KUBOTA TRACTOR CORPORATION
 P.O. Box 2992, Dept. LM
 Torrance, CA 90509-2992

Financing available through Kubota Credit Corporation

continued from page 10

"Landscapers should follow that as their minimum guideline."

When a piece of equipment is scheduled for its interval maintenance check, manufacturers suggest it should be taken out of the field and serviced according to specifications. They also urge that landscapers use only OEM or OEM-approved parts and fluids.

A preventive maintenance program *does* require an investment: make sure to stock parts that are normally used. Items, such as bearings, seals, filters, belts and oil, should be made available for scheduled maintenance intervals and emergency situations.

Each working day, a designated time should be set aside for basic preventive maintenance. Don't wait for slack time. A lubrication schedule, based on hour-meter readings—daily, weekly or monthly—should be established for all equipment.

The responsibility for each preventive maintenance function should be delegated to either a mechanic or an operator, depending on the size and structure of the landscaping operation.

Operators, working off a daily checklist, should visually check:

- fluid levels;
- air cleaner;
- blower housing;
- hoses and hydraulic lines, making sure they are not frayed nor leaking;
- belts for wear;
- radiator and transmission levels; and
- mower blades for sharpness.

They should also conduct a general clean-up.

"All of these things sound relatively simple," says George Thompson III, director of corporate communications at Briggs & Stratton, Wauwatosa, Wis., "but you'd be surprised at how many landscapers tend to do one and not the other, or don't do all of them regularly."

'3S' approach—John Oldenburg, manager of technical services at Jacobsen-Extron, Racine, Wis., advises operators to incorporate a "3S Approach" in their daily checks—"sight, sound and smell." *Sight*: look for the obvious things that could go wrong. *Sound*: listen to whether the machine is running properly or not. *Smell*: detect odors from burning electrical systems or leaky hydraulic lines.

"If you use those three things, you're going to detect a lot," points out Oldenburg. "Mark them down and give them to the appropriate person in charge of repairs, and get them taken care before it becomes a failure."

Someone—supervisor, head mechanic or technical expert—should be assigned the

EQUIPMENT: DAILY CHECKLIST

DATE _____
UNIT/SERIAL NO. _____
EMPLOYEE _____

ENGINE

- ___ Oil level
- ___ Fuel levels
- ___ Air cleaner
- ___ Blower housing
- ___ Hoses
- ___ Hydraulic lines
- ___ Belts
- ___ Water level (on water-cooled engines)
- ___ Cooling fins (on air-cooled engines)
- ___ Radiator level (riding mowers)
- ___ Transmission level (on riding mowers)

OTHER

- ___ Overall visual inspection
- ___ Blades (on mowers)
- ___ Bolts
- ___ Belts
- ___ Day-end lubrication
- ___ Day-end clean-up

responsibility to oversee the program. His responsibility should include keeping accurate service records.

However, the ultimate responsibility for the program should rest with owner, according to Mark Wagner, engineering manager of Ransomes Inc., Johnson Creek, Wis. "If the owner doesn't place any emphasis on it, the next guy down the line is not going to pay any attention to it."

If you maintain a logbook on every piece of equipment—and you should—it will provide a history of the equipment and all repairs. It can also allow you to look at costs per hour in operation. And if a unit demonstrates a consistent problem, it allows you to create a necessary parts inventory to cover emergency situations.

Notes Paul Scholten, manager of service and technical publications, engine division, the Kohler Co., Kohler, Wis.: "If there is a record of how much expense they put into it, maybe there is a piece of equipment that does the same job and has a lower maintenance cost. Another thing is that, if you have any comebacks for the manufacturers relative to the warranty, you have a permanent record."

As the saying goes: "An ounce of prevention is a pound of cure!"

—The author is a freelance writer based in Cleveland, Ohio. This is his first assignment for *LANDSCAPE MANAGEMENT*.

Preventive engine maintenance

by Tom Brink

■ Your equipment operator's manuals contain tested, proven care and maintenance procedures. Before questioning them, consider these common sense "whys" behind some of these service procedures.

Read the operator's manual. It contains nearly everything you need to know about service. You'll save time and money by reading the manual *before* working on the machine—not *afterward* to see what should have been done, or what must be redone.

Avoid over-servicing. An example of over-servicing is the air filter on diesel engines. When the air filter looks dirty on the outside, that's a sign that it's doing its job. As dirt collects within the outer portion, the air cleaner works even better. Its holes become smaller, preventing smaller particles from passing through. When the holes become clogged, the filter needs replacement. But never clean an air cleaner; always replace it.

Use proper replacements and hardware. For example, when shear bolts (soft, break-away bolts used to attach accessories) break, they free the attachment from the gear box or drive shaft. If the shear bolt is replaced with a hard bolt, the accessory remains attached even when an object becomes trapped. The unit continues to operate, and transfers stress and damage to a more expensive part of the machine.

Another example: a "will-fit" belt probably won't do the job. Even when a belt looks like it fits in the sheave correctly, it may not. If a belt is worn or too small, it will slip. Worn or wrong-sized belts can actually change the shape of the sheave itself.

Sand can also affect the sheave. Small particles grind against the sheave as they move along the belt. This damage may not be apparent when looking at the sheave from above, but can be detected by examining it from the side. A straight-edge placed against the sheave will reveal the "belly" worn in it by the sand particles.

Check the sheaves when belt problems occur, before placing the blame on the belts.

Be careful when washing. Frequent washing is important, especially for equipment exposed to fertilizers and other chemicals that can cause rust.

Wait to wash the machine until after it

The next generation of perennial ryegrass. For a number of reasons.



Advent perennial ryegrass has shown clearly that it's a new class of turfgrass in Rutgers University performance trials. Advent scored top marks for heat and drought tolerance, improved disease resistance and high density. Which makes low-growing Advent the top seed for home lawns, golf course fairways, tees and roughs.

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Request Advent by name from Jacklin. Or simply ask for the next generation of perennial ryegrass. We'll know what you mean.

WHAT → DOES WHAT

Shaking or batting oil filters.	Crumbles parts of the elements or damages rubber seals.
Blowing air through air filters.	Creates holes that allow dirt and dust to pass through them.
Using hard bolts for attachments in place of shear bolts.	Can force attachments to continue operating, transferring stress and damage to a more expensive part of the machine.
Using the wrong belt.	Can slip or change the shape of the sheave, cutting power output.
Using big hoses or power washers to wash equipment, especially when equipment is hot.	Water can leak or be forced into seals and housing cavities, contaminating oil and grease.
Not changing oil before storing.	Sludge accumulates in the bottom of the crankcase.
Operating the machine in partial choke.	Overfuels the machine and fouls the spark plugs. Cuts efficiency of cooling system, lets carbon deposits build up, fouls spark plugs.
Not keeping engine clean.	Can reduce engine cooling capacity and cause engine failure.
Using dull blades.	Makes turf look ragged and wastes engine power.
Not cleaning underside of mower decks daily—more often in wet conditions.	Alters air flow pattern in the deck, thereby lessening mowing efficiency.

—T.B.

has cooled. Use a low-pressure hose. After washing, grease all fittings to force out any water that may have accumulated in seal areas and housing cavities.

Use fresh fuel. It should be the fuel specified for the season and the machine; it should be clean and stored in a contamination-free container.

Gauge the amount of pre-mixed fuels needed so that supplies are depleted at the end of the season.

Change oil at recommended intervals. Always use the oil specified for the machine for the conditions.

Change oil before storing the machines. Even changing oil at the beginning of the season may not flush the sludge remaining at the bottom of the crankcase. You may be adding fresh oil to it.

Don't operate in partial choke. Engines are designed to function at wide-open throttle for maximum power and longest engine life.

Keep the engine clean. On air-cooled engines, the build-up of debris can reduce engine cooling capacity and cause engine failure. On liquid-cooled engines the air intake screen and cooling fins must be clean to allow air passage to the radiator.

—Tom Brink is product service coordinator for John Deere's Lawn & Grounds Care Division's Horicon (Wis.) Works.

Preventive maintenance for hand-held equipment

by Pete Fernald

Two-cycle engines

- 1) Maintain good fuel quality.
 - Avoid oxygenated gas whenever possible; if necessary, use MTBE over alcohol.
 - Follow manufacturer's fuel/oil mix ratio recommendations; use only quality oil for two-cycle engines.
 - Drain fuel tank and run carburetor dry before long-term storage (more than 30 days) to reduce potential problems with fuel filters, diaphragms and inlet needles.
- 2) Keep carburetor on spec.
 - See dealer regularly for proper adjustment, thus avoiding poor performance.

- Follow manufacturer's recommendations for appropriate fuel/oil mix ratio, and use quality oil.

3) Attend to the essentials.

- Routinely inspect for debris build-up, particularly on cooling fins and air intake ports.
- Keep all air and fuel filters clean, replacing as necessary.
- Check spark arrestor in muffler for carbon and clogging; keep mounting bolts tightly secured.
- Watch electrical system, checking for bad wiring or out-of-spec spark plug gap; replace plug annually or after 50 to 80 hours of use.

Chain saws

- 1) Don't cut with a dull chain; it causes damage to the bar, sprocket and chain itself.
- 2) Routinely check the depth gauges and lower per manufacturer's recommendation.
- 3) Clean guide bar groove and oil port to assure proper oil transfer.
- 4) Make sure the chain is properly tensioned by following manufacturer's recommendation.
- 5) Ensure the oiler is working; bar-end splatter is a good indicator of proper operation; adjust or repair as necessary.
- 6) Clean clutch drum area (especially around chain brake mechanism), removing oil and chip build-up.
- 7) Check for drive sprocket wear and lubricate clutch drum bearing.

String trimmers

- 1) Grass trimmer maintenance:
 - Routinely clean and apply fresh grease to flex-shaft cables.
 - Watch solid-shaft gear case for signs of leaks; make sure to lubricate at recommended intervals.
 - Routinely inspect blade for integrity, and keep it sharp.
- 2) Hedge trimmer maintenance:
 - Blade sharpness is most important.
 - Maintain proper blade tension following manufacturer's recommendation.
 - Lube blades daily before use.
 - Routinely inspect gearcase and lubricate as needed.

—The author is technical services manager for Shindaiwa, Inc., Tualatin, Ore.

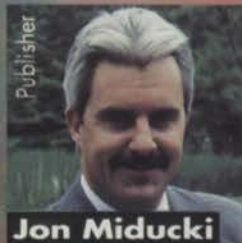
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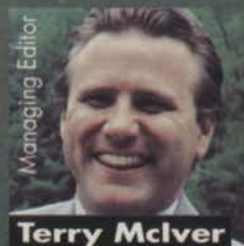
Jon Miducki



Jerry Roche



Ron Hall



Terry McIver

Big or small, trenchers have wide range of landscape uses

■ If you've got trenching to do—whether it's to install irrigation pipes or just to slip lawn edging into place—suppliers to the green industry have the right tool for you. From "major league" trenchers to small, walk-behind units to vibrating pipe pullers, landscape managers can fit the equipment to the task.

For instance, Vermeer's V-3550 is a 45.5 hp riding tractor that can trench up to 12 inches wide, up to 60 inches deep. Also in the large category is Ditch Witch's Model 5110, a 50-hp multi-purpose underground construction machine that can trench and vibratory plow.

On the other end of the spectrum is the Kwik-Trench "Earth Saw," a walk-behind machine with a small disc blade that trenches up to two inches wide to a depth up to eight inches.

In between are various attachments to tractors or skid steer loaders you might already own. Some, like the Bradco Model 612, operate off PTOs. Others, like the Lowe Model 21 and the Yeager-Twose Big K 14, are hydraulically driven.

For more information on any of the equipment listed in the chart accompanying this article, circle the corresponding number on this month's Reader Service Card, and the manufacturers will contact you within weeks.

—Jerry Roche

The Du-AI 1250 comes with a 18-35 hp tractor attachment.



Ditch witch trenchers reach a maximum depth of up to 80 inches.



Lowe's Model 21 has a skid-steer attachment and 13-25 gpm hydraulic drive.



Vermeer's 45.5 hp Deutz-powered rider hydrostatic Lawn Plow is narrow for small entry.



TRENCHERS FOR THE GREEN INDUSTRY

SUPPLIER	MODEL	DIG WIDTH	DIG DEPTH	TYPE OF MACHINE
Bradco Circle No. 311	612	6", 8", 10", 12"	to 60"	20-30 hp tractor PTO attachment
	617	6", 8", 10", 12"	to 48"	skid steer attachment; 2-pos. side shaft
	630	6", 8", 10", 12"	to 60"	skid steer attachment; multi-pos. side shaft
	650	6", 8", 10", 12"	to 60"	skid steer attachment, hydraulic 22-36 gpm
Ditch Witch Circle No. 312	400sx	3.5"-12"	to 48"	40 hp diesel engine vibratory plow
	5110	6"-24"	to 80"	50 hp mechanical drive
	3500	6"-12"	to 63"	35 hp with hydraulic digging chain drive
Du-Al Circle No. 313	1250	4"-12"	to 54"	18-35 hp tractor attachment; worm gear drive
	1200	4"-12"	to 54"	compact tractor PTO attachment
Kwik Trench Circle No. 314	K-T200	2"	to 8"	V-belt disc blade drive
	K-T1200	2"-3"	to 10"	walk-behind unit
	K-T2400	2", 3", 4"	to 12"	walk-behind unit
Lowe Circle No. 315	21	6"-12"	36"-60"	skid steer attachment; 13-25 gpm hydraulic
Vermeer Circle No. 316	V-3550	5"-12"	38"-60"	45.5 hp Deutz-powered rider
	LM-40	4"-6"	to 42"	hydrostatic Lawn Plow, narrow for small entry
Yeager-Twose Circle No. 317	Big K 14	1.5" pipe	to 14"	hydraulic vibrating pipe puller mounts on Yeager-Twose TC Turf Conditioner

Source: LM phone/mail survey, May, 1994

Kwik Trench models include two walk-behind units.



Three of Bradco's trenchers have skid-steer attachments.

A hydraulic vibrating pipe puller mounts on the Yeager-Twose TC Turf Conditioner.



Trencher applications:

- ✓ irrigation installation
- ✓ landscape edging installation
- ✓ surface root pruning
- ✓ "invisible fence" installation
- ✓ drainage pipes
- ✓ electrical lines in conduit/nightlighting

Some trenching features and attachments available:

- drill pipe racks
- hydraulic leveling systems
- rubber track drives
- backreamers, wing and cone-compaction
- side shifts
- foot pedals with creep overrides
- backfill attachments
- spoil augers
- earth saws
- vibratory plows
- anti-back flex digging chains
- dual-position trench assemblies
- fertilizer, sand and polymer injection
- worm gear drives

Speak with respect

What supervisors say, and how they say it, can affect employee productivity and company profitability.

by Ed and Todd Wandtke

■ In consulting assignments across the country, we have frequently encountered supervisors who are doing more to lose business and employees than to increase retention and morale.

In the following examples, you will read typical supervisor comments to employees. The first alternative weakens morale and lowers employee productivity. The second approach encourages employees.

Employee respect and response is directly influenced by the words that a supervisor uses. As you read the following typical situations, you may be surprised to recognize some of your own actions.

→ Giving instructions

Supervisors need to deal with employees who just don't seem to remember what to do—no matter how many training films they've viewed or how often they've heard directions.

● **Bad:** There is only one way to take the equipment off the truck. I've told you this time and time again.

Better: Let me show you the correct way to take the equipment off the truck to avoid hurting yourself or damaging the equipment.

Rationale: Correcting or changing employee behavior requires that you be positive, persistent, patient and practical. Avoid being vague or generally abstract. Harshness, embarrassment and ridicule do not motivate an individual.

● **Bad:** When are you going to learn how to use the weed wacker in the most efficient way?

Better: Fred, the best way to use the weed wacker is with a two-step motion. Here, let me show you.

Rationale: Degrading employees seldom brings out the best in performance. Taking the time to become personally involved with the employee's training lets him or her know that you care about his/her success.

→ Disciplinary problems

Delivering disciplinary action is hard for most supervisors.

● **Bad:** You have been late, one or two days a week, for the past three weeks. How are you going to solve this problem?

Better: Being late five times in the past three weeks has caused your crew to work overtime. You have left me no option but to write you up for being tardy. One more time and you will be given the day off with no pay.

Rationale: Learning when an employee is becoming such a problem that formal action is required takes time. Be consistent and establish standards for all supervisors in your company to use.

● **Bad:** Don't forget what we talked about yesterday. I'll be watching you.

A technique to help reduce the pressure on an individual who doesn't work well under pressure is to remove the pressure.

Better: Hi, Tom! Good to see you at work today!

Rationale: In this instance, greet the employee cheerfully, indicating how happy you are to see him or her at work. Keeping morale up after having to discipline an employee is difficult. How you handle the next day is crucial.

→ Performance reviews

An employee evaluation can be a dumping session, or it can be a building block for the employee. How you handle and encourage two-way communication can make a difference.

● **Bad:** Let's go over your evaluation. Here's how I rate you. Do you have any questions?

Better: (Handing the employee the written evaluation): As you can see, you haven't done well. Let me suggest some training. It's essential to the progress of the company, we all need it, and it looks good in your records. I would like to schedule you for the

Dale Carnegie sales course on Tuesday and Thursday evenings. It's a great program. How does that sound to you?

Rationale: Providing an employee a copy of your evaluation demonstrates that you care about his or her future with the company. It will also help identify areas where improvement is needed, without your involvement.

→ Absent-mindedness

Some employees have a problem remembering instructions. Writing them down often proves useless.

● **Bad:** (Looking at a five-inch stack of papers in the "in" basket): Helen, how long will it take to get the billing out today?

Better: Remember, Helen, you are to get the billings out each day as the jobs are completed. That's your main job. Let's go through your basket of papers after you complete the billing.

Rationale: Employees handle pressure and a long list of duties differently. Remove the pressure from an employee who doesn't work well under stress. Pace the work flow to an employee to provide them a level of encouragement and realization that they can achieve the desired results.

→ Company clowns

Here's a tip on how to keep good employees busy and avoid clowning-around time.

● **Bad:** Why are you just standing there? We have a lot of other tasks to perform on this property before we can go.

Better: Let's look at the schedule of what has to be done on this property. Then you'll know what to be working on next.

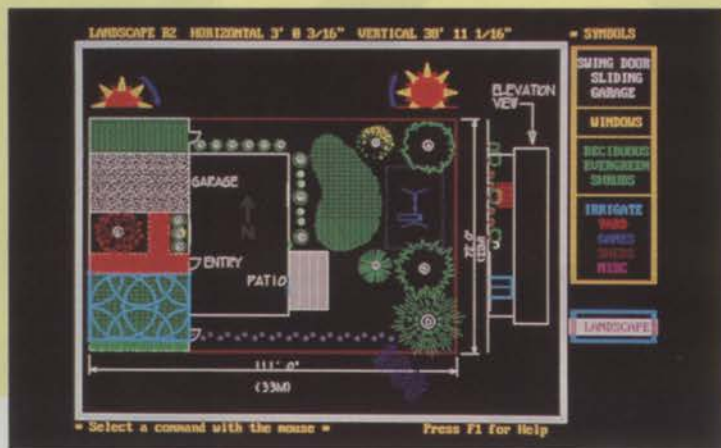
Rationale: Having job activities detailed on the work order will make it easier to assign the next task as work is completed. Keeping low priority assignments readily available for any employee to do will avoid having individuals standing around. Crews need to maintain involvement from everyone.

— For more information about this and other business subjects, write Wandtke & Associates, 2586 Oakstone Dr., Columbus, OH 43231; or phone (614) 891-3111.

Computers help landscapers

conquer the fourth dimension

Computer-aided designs help the client envision his or her dream landscape and see how it will change over the years.



By James E. Guyette

■ The landscape manager who feels at home with a computer will also be much more at home when discussing a client's needs. Not only is computer-aided designing quickly becoming a competitive requirement, but other computer uses such as inventory control are also important.

"One of the biggest changes within the industry is the use of computers," says Dr. George Longnecker, professor of landscape horticulture at the University of West Virginia. "A lot of people really haven't gotten into this yet," he acknowledges, "but the young folks coming into the profession really need to know this."

Students who balk at learning about bytes can chalk up a hard lesson when trying to land a landscaping job, cautions Longnecker, who spoke at the Northeast Ohio Green Industry Educational and Winter Trade Show. "Our alumni are telling us, 'If they don't have a computer background, don't bother sending us a letter or resume,'" he reveals.

"There are so many ways that computers have changed the industry," Longnecker points out. For the astute landscape manager and designer, computers are aiding efforts to conquer the always-pesky fourth dimension.

"The fourth dimension is *time*," he explains. "The computer is going to help us: with a computer we can actually predict that fourth dimension. You take space and time and it equates with *change*."

Booting up—In the landscape industry,

you can plot the normal changes that crop up within a property's design characteristics. Adjustments to drawings can be made and future plant growth can be projected and planned for. "We're dealing very strongly with that dimension."

By using the assorted software programs available, landscape designers can make detailed, lifelike drawings that can be altered with a simple movement of a mouse in response to the customers' reactions.

"You can actually bring in an image of the front of their house or building. You can put in plants and things and show them what it looks like," Longnecker notes.

"They can see what it is they're getting. When the client says, 'That isn't really what I want,' you can change it right then," he points out.

"With a computer you just plug in the changes; changes are cheap," Longnecker reports. "You used to have to go back and redo the drawings," he recalls. "You'd spend all that time, and if they didn't like it you'd get upset. Now, re-drawing is so simple."

Computer drawings allow you to portray the growth patterns of the selected plant materials proposed for the job. "Once a landscape is planted, it's just the beginning and it's going to change." As an example, previously a landscape design might have included certain high-growing species of plantings around a house. "Twelve years later you couldn't see the house," Longnecker observes.

A computer helps you avoid overplanting. "They may look good when they're planted, but five years later you have to rip half of them out," he laments. No more.

"You're now putting the right plant in the right place," he says. If a client wants a certain species to be planted in an area that just happens to be underneath power lines, you can demonstrate what the project will look like years later. The customer will see right away that the treasured evergreens could some day be sparking up a storm. "Those are obvious things that people need to be aware of."

The changing of the seasons can be another matter to discuss with the client. A design that works well in the summer could be doomed when that same scene is viewed under the smothering cover of a winter snow pile or a heavy helping of poisoning road salt.

Getting on line—The landscape manager or designer can better sell the level of his or her professionalism via the computer, too. This can come in handy when dealing with do-it-yourselfers who may not have the proper shopping expertise. "They'll put something in that's not even going to grow there," Longnecker points out. "You're not going to get the right advice from the folks pushing the plants," he adds.

"Usually when they go out and put in several hundred dollars worth of plants (that aren't right for the yard or climate), they realize they need some help." For landscape professionals witnessing this type of spectacle in the making, "You have to get it across to the public that with the *plant* comes the *knowledge*. This is one of the extras you get from the pros," Longnecker explains.

—The author is a freelance writer specializing in the green industry. His office is in South Euclid, Ohio.

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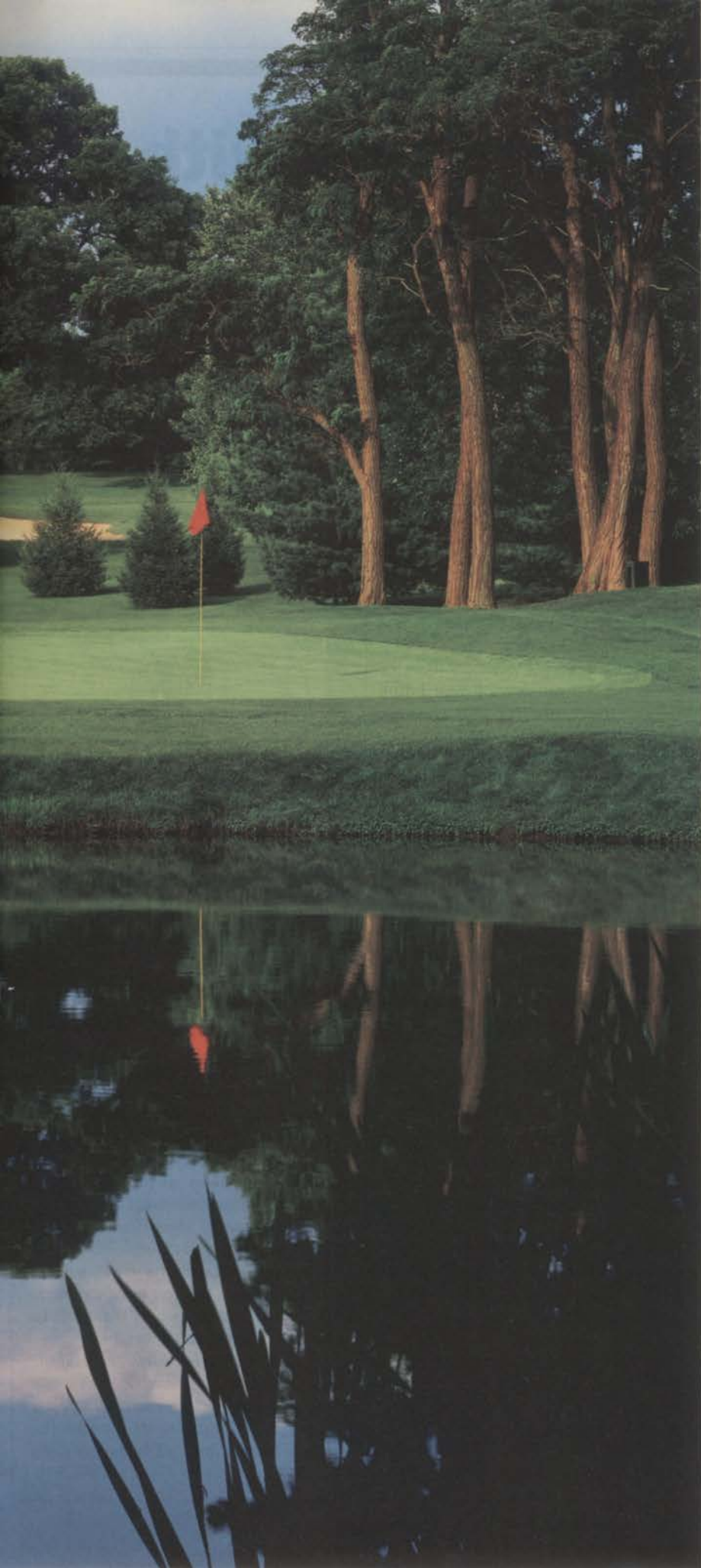
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Circle No. 112 on Reader Inquiry Card

Be more profitable with creative accounting

by Dan Sautner

Accounting statements, by their very nature, are based on historical information. What will happen in the future, however, is up to you. And you can use this month's information to help increase your profits next month.

First and foremost, you need to change the way you think while reading your income statement. Use it for laying out the same time period in the future. Ask yourself the following "will" questions:

- 1) Will my sales be the same for the next period?
- 2) Will my gross profit be the same next month?
- 3) Will labor costs remain the same next period?
- 4) Will my supplies/inventory balances increase or decrease?
- 5) Will my cash balance change next period?
- 6) Will my new income change next period?

Now, based on the answers, you can move to the next set of "how" questions:

- 1) How can I increase sales?
- 2) How can I reduce labor as a percentage of sales?
- 3) How can I increase my gross profit margins?
- 4) How will sales affect my supplies/inventory balances?
- 5) How can I increase my cash balances?
- 6) How can I increase net income?

After answering these questions, you have the basis for a financial plan. But be sure to test each aspect of the plan against the current financial information.

Assuming that you can increase sales, what numbers from the most recent period will change? Labor costs may or may not change. Fixed costs are unlikely to change, but part of the increased sales revenue may be coming from additional advertising or promotional expenses. Net income under

Three plans for using your monthly profit-and-loss statements to bump your bottom line.

this new model will probably change, and will this be for the better?

By using the income statement from the prior period, you can develop your future plans. Just make sure that your plans are simple, with only a few objectives each period, so as to not overwhelm yourself and diffuse your focus.

What if???—A second approach is to use the "what if" question on your financial information—a variation on the "will and how" idea. In this approach, you need to review each line of your income statement with the following question in mind: What if I increase or decrease this revenue/-expense line by 10 percent?"

For example, "What if I increased my advertising expense 10 percent? Would my revenues more than compensate for the additional expense?"

Or, "What if I reduced my advertising expense 10 percent? Would my revenues decline beyond my savings in expense?"

Once you have examined each line in this manner, look beyond the next financial period. Sometimes short-term gains result in long-term losses. We often look at ways to decrease expenses instead of looking at "good" investments that may temporarily increase expenses but will result in long-term net income gains. Look in both directions.

Remember: only you, as owner, can answer the "what if" questions. Net income is on a curve, not a pillar. A small change will not cause your net income to go to zero, but rather to another position on the curve—perhaps a better position. Experiment to find the

range of possible outcomes.

Keeping score—Finally, you can use the income statement as a scorekeeper, to keep track of your progress toward defined goals.

At the beginning of the year, set up three major financial goals for your company. The goals should be exact, and mathematically expressed. Your reach should exceed your grasp. For instance: increasing sales by 19.5 percent, reducing labor to 4.5



percent of sales, increasing average cash balance to \$10,500, etc.

At the end of every financial period, review where you are. Set up a chart in your office. Pin notes on your desk. Make the representations as visual as possible. Then, each month, adjust your progress based on your financial reports.

Financial reports, on the whole, tell you where you've been. But you spend too much time, energy and money on them not to squeeze every last benefit out of them.

—Dan Sautner is chairman of Padgett Business Services, Athens, Ga. This is one of a series of articles on accounting he is writing for *LANDSCAPE MANAGEMENT*. For more information, call Padgett at (706) 548-1040.

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The Gateway Arch in St. Louis commemorates America's westward expansion.

Start your planning now for spring garden shows

By James E. Guyette

■ Consumer home and garden shows are great ways to market your landscape company, and now's the time to plan for shows scheduled in spring of 1995.

For more than a decade, McHenry Landscaping in Chesterland, Ohio, has participated in such shows. It reports a remarkable rate of selling success. "We probably generate 30 percent of our work from that," says landscape construction supervisor Kevin Czajka.

Patrons at these events will seek advice by running a proposed landscape design by the assembled staffers—and often they can be convinced to sign-up as a client, although sometimes the results are not immediate.

"People recognize you year after year. I've seen this happen a thousand times. They'll call and say, 'We talked about this (project) three or four years ago and we want you to do it,'" Czajka recounts. "It's a

Trade shows can accommodate just about any landscape display.

long-term process. We get a lot of leads and we have to go through them."

The type of people passing by the display can vary greatly depending on the caliber of the show itself. Attendees will range from the very wealthy to just plain folks.

"At the Cleveland Flower Festival we get more high-dollar residential," says Czajka. Other shows may attract more commercial clients or those with fewer

needs, he adds. "Sometimes you'll get someone who just wants one tree. It depends on the show."

Part of McHenry's marketing strategy is tracking which show produces more suitable results.

Smell the roses—A company considering a display at a home and garden show needs to check the quality of the other landscapers involved and the quality of the show itself, Czajka advises.

A home and garden show display can cost from \$10,000 to \$30,000. The show itself will pay a company a per-square-foot "subsidy" to erect a garden scene, but that money is inconsequential.

"They should expect to spend three to four times the subsidy," reports Paul J. Schrimpf, associate show manager at Advanstar Expositions, producer of the Cleveland Flower Festival. "But the subsidy is a good starting point."

Proper planning is the key to presenting a successful show scene, according to Czajka and Schrimpf. "It's a different world indoors, so seek advice," Schrimpf says. "Things look different under indoor lighting."

By discussing indoor displays with landscape managers in other towns you can determine such things as plant selec-

continued on page 26



Dan Schultz, left, and Kevin Czajka of McHenry Landscaping say planning is most important when presenting a display at a home and garden show.

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continued from page 24

tion, pond placement, pump technology and worker scheduling.

Asking for advice from other landscapers in the same show that you're considering may not be the best idea because of the competition involved for the coveted ribbons. "There are a lot of bragging rights and prestige that go along with those awards," says Schrimpf.

"You're competing against the best guys (and gals) in the city," Czajka points out.

From the ground (floor) up—Putting together the display itself takes plenty of careful advance work. The planning stage alone can take 20 to 30 hours. At McHenry, Czajka meets with owner Tom McHenry and landscape maintenance supervisor Chris Dowhan to plot the general thrust. If it's a "celebrity garden" based on a local personality, the subject's favorite plants, colors and lifestyle habits are considered. Landscape designer Dan Schultz then steps in to draw the plans. All this starts in September for a February show.

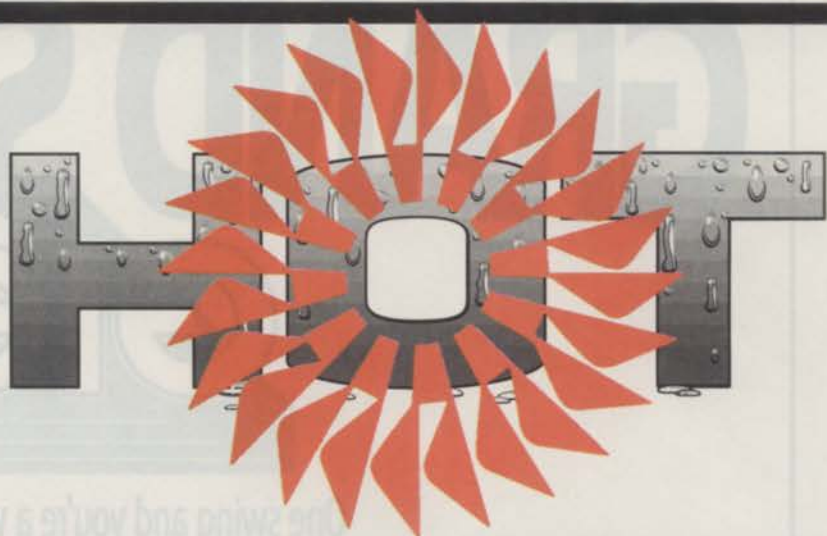
As much as possible is constructed at company headquarters. "If it can be built ahead of time we'll do it and haul it down on a trailer," Czajka says. With a walkway or patio, the stones are assembled and numbered and then taken apart to be toted to the site. Flowering plants are forced at the McHenry greenhouse.

At the convention center, a layer of sand is placed as a base atop plastic sheeting, then topsoil is brought in with the rest of the materials. "It's very similar to doing it outside," says Czajka. "It's watered every day by hand—normal maintenance."

If a landscape manager wishes to keep valued employees busy during the off-season, mounting a display project can reach that goal. "This year we brought back three people who normally would have been laid off during the winter," Czajka reports.

In addition to boosting the company's bottom line through increased visibility and sales, producing a home and garden show scene can help improve worker morale. Says Czajka: "All of us look forward to it every year. You meet and talk to a lot of people."

—The author is a freelance writer specializing in the green industry. He is based in South Euclid, Ohio.



Beware summer heat stress, fatal in 1 of 10 severe cases

■ Now that the warm season is just around the corner, and you and your co-workers will be spending long hours outdoors, you need to keep on the lookout for signs of heat stress.

Heat stress is the illness that occurs when your body is subjected to more heat than it can cope with. The personal protective equipment worn during pesticide handling activities can increase the risk of heat stress by limiting your body's ability to cool down.

Mild forms of heat stress will make you feel ill and impair your ability to do a good job. You may get tired sooner, feel weak, be less alert, and be less able to use good judgment.

Severe heat stress is fatal to more than 10 percent of its victims—even young, healthy adults. Many who survive suffer permanent damage. Sometimes, the victims remain highly sensitive to heat for months and are unable to return to the same work.

Learn the signs and symptoms of heat stress and take immediate action to cool down if you suspect you or one of your colleagues might be suffering from even mild heat stress.

Symptoms—Signs and symptoms may include:

- fatigue (exhaustion, muscle weakness)
- headache, nausea and/or chills
- dizziness and/or fainting
- severe thirst and/or dry mouth
- clammy or hot, dry skin
- heavy sweating or complete lack of sweating
- alerted behavior (confusion, slurred

speech, quarrelsome or irrational attitude).

Drink!—When you work up a sweat or need to quench a thirst, remember the cheapest, healthiest, most readily available refreshment there is: water. A body needs six to eight 8-ounce glasses of fluids every day. Water is non-caloric and non-fattening. By drinking lots of water, your body learns to retain less fluid. And always drink past the point of quenching your thirst; the extra water will guard against dehydration.

First aid—It's not always easy to tell the difference between heat stress illness and pesticide poisoning. The signs and symptoms are similar. Don't waste time trying to decide what's causing the illness. Get medical help.

First aid measures for heat stress victims are similar to those for persons who are over-exposed to pesticides:

- 1) Get the victim into a shaded or cool area.
- 2) Carefully remove all personal protective equipment and any other clothing that may be making the victim too warm.
- 3) Cool the victim as rapidly as possible by sponging or splashing the skin—especially the face, neck, hands and forearms—with cool water. If possible, immerse the victim in cool water.
- 4) Have the victim, if conscious, drink as much water as possible.
- 5) Keep the victim quiet until help arrives.

—Information courtesy of the Professional Lawn Care Association of America, through its newsletter

Soil compaction is trouble in hiding

■ It's the green industry's version of an oil leak or tooth decay.

You don't know it's there until you notice something's wrong, and by then it may be too late. But when you look for it, it's hard to miss.

It's soil compaction, and it's often responsible for weakening turf to the point of susceptibility to other problems.

The key area of concern in cool-season turf is the top three to four inches which contain the bulk of the roots, says soil expert Dr. Paul Rieke of Michigan State University.

Aerate droughty turf every year. Remove cores $\frac{1}{2}$ to $\frac{3}{4}$ inches in diameter, at a depth of up to six inches. This will improve permeability of the sod to rain and watering. This treatment also improves soil aeration and deeper rooting. Since the core holes permit much easier and deeper penetration of fertilizer and lime in situations which merit such treatment, aerification will help root development, and the yearly accumulation of dead roots will improve soil structure to the depth of rooting.

Certain soils compact more easily than others. The situation gets worse when you add heavy traffic to the picture, as on a golf green.

Compaction prevents moisture and nutrients from reaching the turf roots. Wet, waterlogged soil in heavy traffic com-



pacts quickly. Grass will begin to thin out, and eventually bare spots and weeds will result.

Solution: aerify and remove soil cores in late fall or early spring. Go in several directions for best coverage.

Do a light overseeding, then water heavily. The water will wash the seed into the newly formed core holes. Fertilize and seed bare spots before watering.

Some turf experts believe core aeration is best when done after Labor Day, so the holes can heal over before winter. In cool-season turf regions, soil is drier in fall and the temperature and moisture

conditions are more favorable and more predictable, and you have more time to fit it into your schedule.

—Sources: "Turfgrass Management" by Dr. Al Turgeon, Reston Publishing, 1980; "Ask The Lawn Expert," by Paul N. Voykin; MacMillan, 1976.

Coring cures COMPACTION

■ Coring offers a solution to compacted turf, but not without some disadvantages.

ADVANTAGES

- release of toxic gases from the soil
- improved wetting of dry or hydrophobic soils
- accelerated drying of persistently wet soils
- increased infiltration capacity, especially where surface compaction or thatch limits infiltration
- stimulated root growth within the holes
- disruption of soil layers resulting from topdressing
- control of thatch, especially where soil cores are reincorporated or where topdressing follows coring

- improved turfgrass response to fertilizers

DISADVANTAGES

- temporary disruption of the turf's surface
- increased potential for turfgrass desiccation as subsurface tissues are exposed
- increased weed development when conditions favor weed-seed germination
- increased damage from cutworms and other insects that reside in the holes.

Soil amendments can be used to alleviate soil compaction. Companies which manufacture these amendments include Aquatrols, headquartered in Cherry Hill, N.J.; Bonide Products, Inc. of Yorkville, N.Y.; Four Star Services, Inc. of Bluffton, Ind., and Innova Corp. of Westminster, Colo.

Earthworms: we need attitude adjustment

Turf managers want to get rid of them, but earthworms are a vital part of the turf ecosystem.

by Pam Elam

■ Every season, I receive calls from concerned golf course managers, landscapers and homeowners about the little piles of soil that are brought up each day by industrious earthworms.

While their concern is noted, it is important to understand the valuable role earthworms play in the overall turfgrass ecosystem:

- Earthworms help to mix surface organic layers, or thatch, with the underlying soil profile.

- In their burrowing activity, earthworms increase aeration and water movement into the soil and increase root health of the turf.

- Earthworm castings help soils develop good structure and lower soil bulk density.

All of these activities are important to maintain a healthy and long-lived turf.

The types of conditions that support or deter the development of earthworms are associated with the same management practices that correlate to thatch accumulation.

For example, acid or soil pH of 5.0 and below favors thatch development. And research shows that few earthworms reside

under turf in acid soils.

Also associated with acid soil conditions are poorer soil aggregation, higher soil bulk density and greater resistance to penetration. In 1985, Dr. Daniel Potter reported that an increase in soil acidity due to acid-type nitrogen fertilizers (like ammonium sulfate) brought with it a concurrent increase in thatch and a decrease in earthworms.

Earthworms prefer moist, medium to fine textured soils with high amounts of organic matter, adequate amounts of calcium and a moderate soil pH.

Another factor that might be associated with earthworm activity is pesticide use. Clearly, chlorinated hydrocarbon-type insecticides are toxic to earthworms. Some herbicides, specifically DCPA (Dacthal) have been associated with decreased earthworm activity. However, Cole & Turgeon (1978) suggest that thatch accumulation was not related to reductions in earthworm activity after DCPA application but rather primarily attributed to reduced microbial activity.

With other herbicides such as bensulide (Betasan), the data show no significant extra thatch development. Dr. Turgeon, in fact, found less thatch with some pre-emergence herbicidal treatments, possibly due to a reduction in grass growth and herbicide toxicity to earthworms and other soil organisms.

So it is unclear how much pesticides affect earthworms. What is also unclear is how much and how direct the link is to pesticide use, thatch development and earthworm activity.

While it is known that earthworms are important in thatch reduction, we don't know how much and to what percent might be more attributable to other micro-organisms. We also don't know enough about the effect of pesticides on earthworms, micro-organisms and to other critters in the soil.

Considering the importance of soil organisms in the breakdown of nitrogen to available forms for plant use, organic matter decomposition and other soil process, research in these areas could have a significant impact on our management practices. However, what is clear are the other benefits of earthworms to the development of good soil structure and what they tell you about the quality of your turf and soil ecosystem.

So what is needed is an attitude adjustment about earthworms bringing up little piles of soil. Look at alternatives to managing earthworms rather than trying to totally prevent them.

Some suggestions:

- 1) Sweep golf greens regularly with a broom to remove the castings and dirt piles.

- 2) On residential turf, consider mowing higher where the symptoms are not so obvious.

- 3) Drop soil pH by using acid-type fertilizers.

- 4) Increase soil aeration by core aeration and/or vertical mowing which may reduce the degree of burrowing.

However, remember the consequences of such actions: decreased soil aggregation, more thatch, greater bulk density and a possible increase in moss and algae.

—Pam Elam is a farm advisor in environment horticulture for the Fresno (Calif.)

County Extension Service. This is an excerpt from a piece in "Pro-Hort News," Spring, 1993.

Here's how to save water

■ Here are some tips on saving irrigation water from the University of California Cooperative Extension Service:

Turf:

- Early AM watering cuts evaporation.
- Water lawns separately from trees, shrubs and groundcovers, if possible.
- Remove thatch in spring if it's more than one-half inch thick. Thatch should not be removed in the heat of the summer.
- Weeds steal nutrients; control them.
- Fertilize moderately, apply at the low end of recommended rates.

- Keep lawns mowed at the right height: 1.5-3" for tall fescue, 1.5-2.5" for perennial ryegrass and Kentucky bluegrass; 0.5-1" for bermudagrass and zoysiagrass; 0.5-1.5" for St. Augustinegrass.

- Aerate to prevent soil compaction. Proper aeration requires removing plugs. Clay soils need regular aeration.

Trees:

- Water trees separately from surrounding plants. Trees prefer fewer, deeper waterings than grass.

- Water to a depth of two to three feet to help promote deep rooting.

- Keep turfgrass and other plants at least one foot from tree trunks.

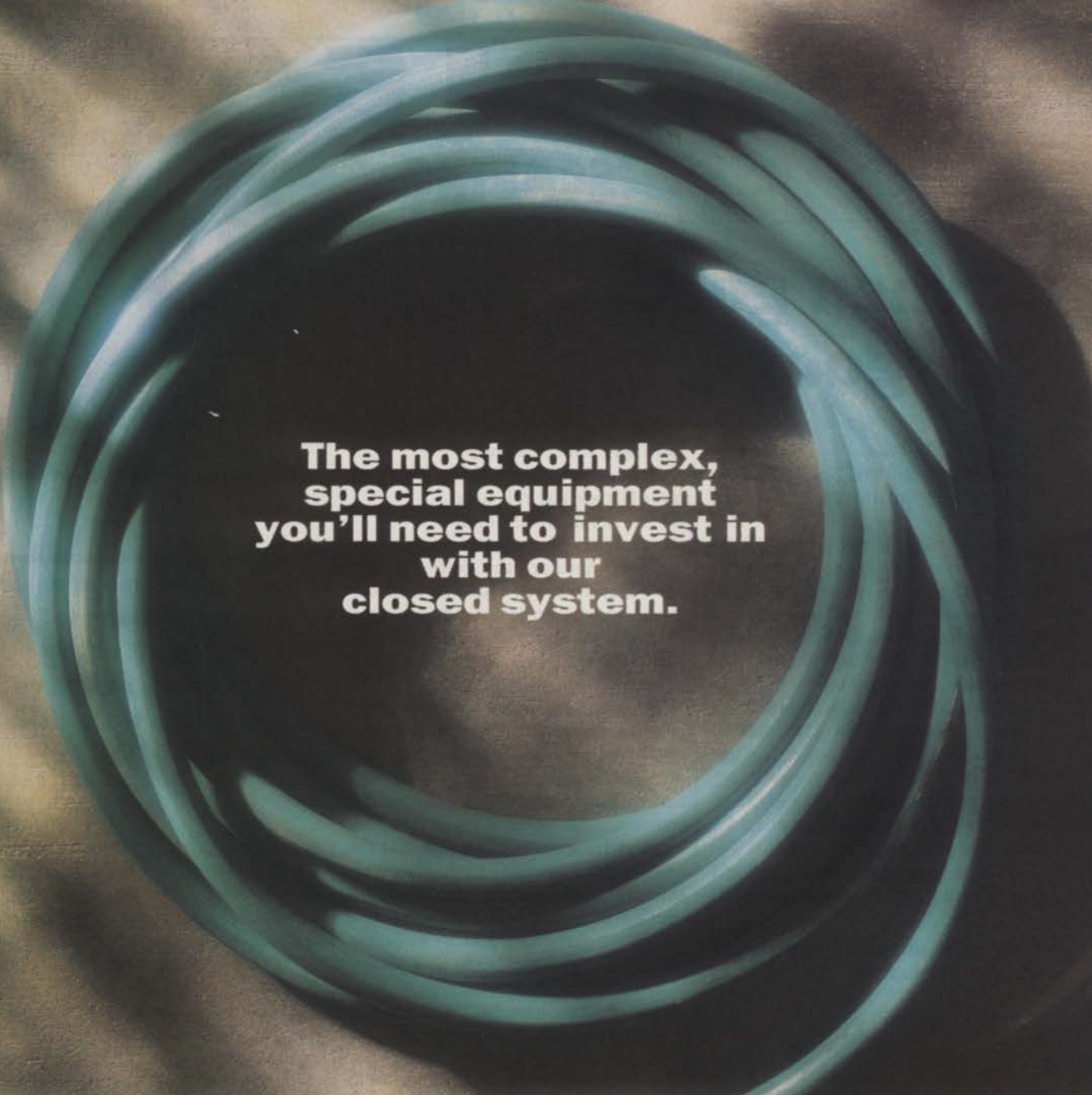
- Apply mulch around trees, keeping it a few inches away from tree trunks.

- Control weeds around trees.

- Avoid soil compaction around trees.

- Do not routinely fertilize landscape trees.

- Prune only when necessary: remove dead and diseased wood, dangerous branches, and suckers growing from the base of the tree.



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GOLF 'SCAPING

When golfers goof off

■ BAM! POW! WHACK!

You're Batman, and abusive golfers are the Penguin, the Joker and the Riddler.

Ever feel like that's what you'd like to do to players who abuse the course? Unfortunately, when you've done all you can to preach respect, all you can do is keep your eyes open for blatant abuse, and hope for the best from the majority of your players. It's easy to spot the troublemakers: no shirts, and using language normally reserved for the likes of Madonna. They treat the golf course like a rented car.

And the popular culture doesn't help. Perhaps you've seen that commercial for a brand of casual slacks: the barely 20-somethings, with caps on backwards and pants rolled up to the knees, hit balls

Iceman: cooperative players help him stay cool, keep the course beautiful.



here and there as they recite a litany of their favorite rock and roll tunes. All the commercial doesn't show is the beer.

Then there are the golfers who—while they dress well and mind their language—insist on leaving bare divots, shuffling spiked feet on greens and driving carts in areas where they don't belong.

For that reason, we have “the sign” and the seed mix, and the verbal warning, and the pleading, and finally, the outright begging. It's all you can do, really, short of expelling people from the course.

Rod Ice-man, superintendent at the Shady Hollow Country Club, Massillon, Ohio, has very little trouble getting his golfers to cooperate—probably because he's done everything possible to deliver the message. Sure, being at a private course, the members treat it more like it's their own, but human nature always slips up, and that's where signs and other tools help.

Prudent about cart paths—“I'm not a firm believer in cart paths throughout the entire golf course,” says Iceman. “When we renovated, we paved only the areas that were beat up badly by carts.”

Two years ago, four of Shady Hollow's greens were re-designed.

That makes sense. Why put a path

Signs are hard to miss when they're big and bold.



'The membership at a private club wants to take a little bit of pride in the course, so they're going to help out a little bit more.'

where you don't need one? You save money, and the course looks more “natural.”

“Scatter” signs at the end of tee areas or on approaches direct cart traffic.

Both Iceman and his golfers prefer the scatter signs to ropes.

“They don't fade, and golfers don't run into them as they do with ropes,” says Iceman.

All directional signs are moved up and down the fairway, depending on where the traffic has done the most damage.

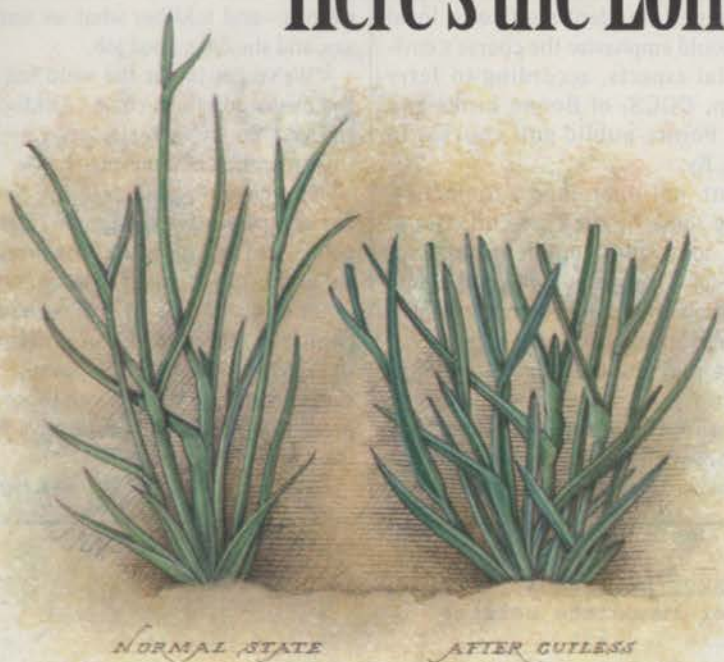
Help it grow back—Columbia ParCar offers a wide-mouthed bottle as an accessory, which Iceman has installed on each of his 60 carts. It's a simple, yet effective tool. There's also a hinged box at each tee filled with a seed mix.

continued on page 32



Scatter signs make the message clear: 'Spread out!'

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Cutless helps suppress poa annua and assists bentgrass conversion.

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- Excellent for trim and edge applications

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For the complete story of Cutless, or to place an order, contact a LESCO Sales Representative or call **1-800-321-5325**.



LESCO™

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continued from page 30

"We've asked membership to use the seed mixes on tees or fairways if there's no divot to replace," says Iceman. "The tee box seed mix was an idea we weren't sure was going to work. A lot of times (golfers) think that's what the employees are hired to do."

Riders, of course, are asked to cross at 90-degree angles. Another simple axiom: if you don't have to cross the fairway, don't. Stay near the edge.

Shady Hollow is a private course with



Seed mix is hard to miss, but players often think their divots won't hurt.

325 members. In June, it played host to the Ohio Amateur tournament.

Iceman, a progressive superintendent, recently added ornamental grasses along the approach to some holes.

"I didn't think I was going to be a big fan of ornamental grasses," he says. "Then I heard Bill Hendricks from Klein Nurseries speak at an Ohio Turf Foundation meeting one year. In certain places they do have their uses. They're becoming popular in home landscapes, why not see them in golf course landscapes?"

The choice of machinery used around the course has also changed from time to time in Iceman's 10-year stay there. Lightweight riding units are used more often, and greens are mowed with walk-behind mowers to reduce compaction.

Iceman changes control products often, a lesson he learned from Joe Vargas at Michigan State.

—Terry McIver

Press releases should emphasize environment

■ Any press releases sent from the golf course superintendent's office to local media should emphasize the course's environmental aspects, according to Jerry Coldiron, CGCS, of Boone Links and Lassing Pointe public golf courses in Florence, Ky.

Recent national media reports—including those by the *New York Times*, CBS-TV, and radio commentator Paul Harvey—have castigated golf courses and the materials they use as being detrimental to health and nature.

"We're real proud of the communication job we do here," notes Boone Links/Lassing Pointe superintendent Jerry Coldiron. "We hired someone who has done some writing for us—Andrea Conroy,

a local writer with Rivertown Communications—and told her what we wanted to say, and she did a good job.

"We've got to get the word out before the media questions come," Coldiron continues. "So we've really been pounding this environmental message home."

The courses also feature Audubon Society/native area signage at 15 strategic points, and "no-spray" buffer zones around the entire 150-acre golf complex.

Though details of the course itself (which appeared in the original release) have been omitted, the sample below shows how press releases can be worded in order to be received in a positive light by the community.

—Jerry Roche

PRESS RELEASE

For immediate release

June 3, 1994

For further information, contact:

Jerry Coldiron, superintendent, phone no.

Jeff Kruepleman, golf pro, phone no.

Lassing Pointe, Boone County's second public golf course, celebrated its Grand Opening on May 18. The course, nominated as one of the top municipal courses in America, is located in Union, Ky.

Designed by Michael J. Hurdzan Golf Course Design in Columbus, Ohio, Lassing Pointe...was created on 160 rolling, wooded acres in central Boone County. Says golf superintendent Jerry Coldiron, "This is a beautiful piece of property and all involved remained committed to keeping it environmentally sound in every way. In addition to adding a much-needed course for our growing population, we have created a greenspace and nature preserve in a part of the county which is undergoing substantial development."

A 15-acre parcel of mature forest, commonly called Lassing Woods, remains nearly untouched and borders on holes 10, 12 and 13.

Boone County Golf Course and Hurdzan Design worked with the Audubon Society, the Department of Natural Resources, the EPA and the U.S. Army Corps of Engineers to ensure as little disturbance to the wildlife as possible and to minimize use of pesticides and fertilizers.

Says project manager David Whelchel of Hurdzan: "Land that is well-maintained needs a minimum of pest and weed control since healthy turf is less prone to disease and weed infestation. Boone County's golf courses receive excellent care and should need little chemical treatment."

LAWN CARE INDUSTRY

A change in priorities

■ Just barely into his 30s, Tim Doppel admits it's time to slow down. It's not that he can't keep up any more. He's just refocusing his efforts, he maintains.

That's because Tim and his wife, Alice, are busy with their three children—ages 10, 8 and 4. Second comes the business: Atwood LawnCare, Sterling Heights, Mich.

Then—and this is a switch from just a few years ago—Doppel says he'll help out with any industry affairs that he can. But, he's definitely casting a sharper eye to the time he can devote to industry affairs.

In 1984 Doppel, then just two years out of Michigan State University, bought Atwood LawnCare. Since then, in addition to starting a family and running the business, Doppel served on the board of the Professional Lawn Care Association of America (PLCAA), participated in the Michigan Turfgrass Foundation, and was the managing director of the Lawn Sprayers Association of Michigan. He also keeps close ties with MSU and is a frequent, and entertaining, speaker at the Michigan Turfgrass Conference in Lansing each January.

"Now I'm doing Cub Scouts, and baseball and all those kinds of things," he laughs. That, and running Atwood, keeps Doppel on his toes.

"The lawn care business around here is incredibly competitive. The last time I looked, metro Detroit had close to 500 licensed lawn care applicators. It's beyond being a real challenge now."

Tim started with Atwood LawnCare several years before he bought it from its founder who had decided to move to warmer climes. A student at MSU, Doppel worked weekends each fall and spring and

'The days of easy lawn care are over,' claims this suburban Detroit LCO, but geographical considerations help keep his company thriving.



Manager Scott Brunais, left, and President Tim Doppel, Atwood Lawncare, Sterling Heights, Mich.

full time in the summer. Atwood LawnCare had been started in 1970 and was named after a resort lake in Ohio, and because it would appear near the beginning of the listings in the Yellow Pages. Nobody by the name of Atwood ever worked at the company, says Tim. "When somebody calls up and asks for Mr. Atwood, I know it's either a sales person or

an irate customer."

Atwood's headquarters are about a 35-minute drive northeast of downtown Detroit. It carries 15 employees through spring and 10 to 12 in the summer and fall.

The company offers a full range of lawn care services, excluding mowing, and tree/shrub fertilization to a 30-mile radius of customers, mostly in the northern and

eastern Detroit suburbs. It does little work within the city itself. "Detroiters seem to prefer to buy from Detroiters," he says.

"I prefer to get tighter in the areas that we're already in rather than expanding geographically. We've been sticking to that strategy and it seems to be working for us," he says. The acquisition of a smaller company helped to make last season, 1993, strong, he adds. "It helped fill in some areas where we were relatively weak. And we were able to up sell some of these customers areation and tree service, too."

Doppel admits that national companies like Tru-Green/ChemLawn and Bare-foot maintain a strong presence in the Detroit market.

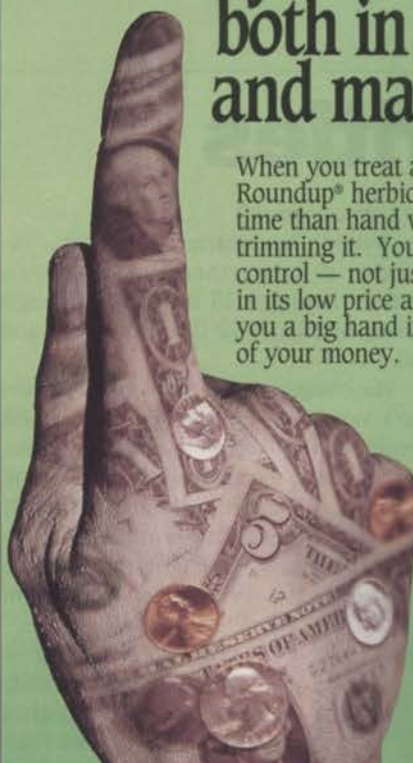
"I don't worry about them because they're always going to be there. We can sell well against them," says Tim. "The companies that are about my size are the ones we have to watch. There are about six of them within

about a five-mile radius of here," he says. When you add the large but unknown number of tiny unlicensed lawn applicators, the pressure to keep prices low is intense.

"I guess they figure that as long as they've got \$20 in their pocket they're making money," adds Doppel. "They don't
continued on page 34

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RD-47080 2/94

Circle No. 101 on Reader Inquiry Card

10 most common LCO violations of EPA's rules and regulations

■ Politics—not science—drive pesticide use regulations.

"Estimating risk is a proper scientific task, but scientists don't write laws," Jim Lorah believes. "The guy who writes the law listens to the public, and the public perceives pesticides as dangerous and poorly evaluated."

Lorah, compliance monitoring coordinator for the U.S. Environmental Protection Agency (EPA), Philadelphia region, spoke at last fall's PLCAA Conference in Baltimore.

"When emotion dominates, perception becomes flawed. Flawed or not, it can't be ignored," stressed Lorah. He assured the 50 LCOs in the room that each of them "has been scrutinized by somebody" in the past year or two, probably by a state inspector. Here are the 10 most common problems examiners find during an inspection, he indicated:

- 1) Invalid business or applicator license—expired, wrong category, not valid in that state.
- 2) Label violation. Didn't look at label recently. Following directions on specimen label, not container label.
- 3) Improper mixing.
- 4) Didn't survey site prior to pesticide application.
- 5) No preparation for "worst case" occurrence. Applicator has a spill and leaves the site.
- 6) Drift complaints, usually due to hurried applications.

DOPPEL from page 33

complying with the laws. They may only do a couple hundred accounts and the chances of the ag department finding them are almost zero," he adds.

Doppel, a Detroit-area native, doesn't foresee any major changes in the Detroit market soon, just ever-increasing competition. Atwood is responding by strengthening its winter and early spring telemarketing.

"People accept telemarketing. They expect it. But I'm not comfortable with calling up and saying, 'Hi, this is Atwood LawnCare. We want to do your lawn for 29 bucks.' That's not the way I want to be treated in my house," says Doppel. "I don't like those kinds of calls. Instead we offer to give estimates. If we can get out there and talk face-to-face with a homeowner, we've got a good chance of helping that homeowner and making that sale."

Although Doppel says he won't be able to be as deeply involved in industry or association affairs while his family is growing, he insists he will remain active in both national and local groups.

"I guess it's like a two-way street," says Doppel. "You give and you get back. I've learned a bunch from being on PLCAA or with MTF. I can point to half a dozen things that are different in my business because of experiences I've had on these boards."

"The days of easy lawn care are over."

—Ron Hall

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ND-47082 2/94

Circle No. 101 on Reader Inquiry Card

Study shows that pesticides provide more than weed, disease control

■ A recent study shows that some fungicides have the ability to "jump start" the development of turfgrass rooting systems during the first few weeks after planting.

The study, conducted at Iowa State University by research associate Roger Roe and Dr. Nick Christians, examined the rooting of Kentucky bluegrass and how selected products aided root systems.

Rooting measurements were recorded at two, four and six weeks following the application. A hydraulic lifting device was used, along with a pressure gauge, to calculate root strength and knitting.

Results of the test follow. Higher pulling pressures indicate an increased root strength:

PULLING PRESSURES NEEDED TO PULL SOD FRAMES FROM KENTUCKY BLUEGRASS PLOTS

TREATMENT	RATE lb. ai/a	2 WKS. Pulling pressure, lbs.	4WKS.	6 WKS.
Control	4	487	588	660
Ronstar 2G	4	502	712	625
Pendimethalin 2G	3	518	625	618
Dimension 0.1G	1	347	545	553
Barricade 65DG	0.65	577	563	620
Surflan 1G	2	167	227	292
Banner	2	537	763	812
LSD		118	186	115

- 7) Records incomplete or partially done.
- 8) Spray tank not cleaned properly. Applicator doesn't know tank's use history.
- 9) Applicator makes improper product safety claims.
- 10) Failure to use personal protective equipment as specified in product label.

Lorah said that inspectors want to help LCOs remain in compliance with regulations, but they have to respond to all callers and complaints.

Among the things that LCOs should realize about inspectors, said Lorah:

- ✓ They have lots of bosses.
- ✓ Everybody complains about them.
- ✓ Activists say they're on industry's side.
- ✓ Industry says they're on the activists' side.
- ✓ They dislike confrontations as much as anybody.

"Basically, their job is to examine if you are in compliance," said Lorah. But, before an inspector examines an LCO's operation, that inspector must issue a "notice of inspection."

His advice to anyone facing an inspection: be truthful, and don't be afraid to ask for the inspector's advice on pesticide use concerns. "Contact the inspector for help *before* he shows up to do an inspection."

—Ron Hall

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JOB TALK

Clay soils intensify disease pressure

■ Radnor Valley Country Club superintendent Tom Dale is battling back.

Architects Bill and David Dordon specified on-site soil for the Philadelphia-area course's greens in 1967, when they were built. That meant clay.

"When my greens get wet, they stay wet," Dale adds. "And if you get hot sun on wet greens, they cook. You cry a lot when that happens."

At least eight times each year, Dale uses a Toro Hydroject to get air movement into the root system. Once the water injected into the soil evaporates, air pockets remain in the rootzone to facilitate drainage. Dale begins hydro-aeration in April and repeats it once a month through November.

In addition, he aerates greens four times per year and verticuts each spring and fall. A mixture of bentgrass and *Poa annua*, his greens allow a percolation rate of only 0.2 inches per hour—far short of the USGA's recommendation of 3 inches per hour.

"Two summers ago, we had 50 days of 90+-degree heat," Dale notes. "I had to close six greens due to black layer and wet wilt. But overall, my worst disease problems on greens are pythium and brown patch."

Dale has also cleared out areas surrounding many of his greens to allow more air movement.

But with the heavy clay soils, brown patch could conceivably

hit overnight. During the hot, humid Philadelphia summers, a thunderstorm will bring it on within hours.

Dale uses Agri-Diagnostic test kits to determine where brown patch will strike. During conditions highly conducive to disease, he samples areas he knows to be susceptible, slicing tissue almost to the crown. He takes the samples to his office and squeezes the juice from them, then applies the simple test. He gets results in 10 minutes.

Dale takes no chances with brown patch. Even at moderate levels, it creates sizable areas of sparse turf on his greens. For years, any chemical he used for brown patch lasted only a week or less before he began seeing symptoms again. But in 1989, he began using new Prostar fungicide under an Experimental Use Permit.

The product, a benzamide fungicide registered in 1993, can be used in rotation with demethylase inhibitor (DMI) products. Though it works most effective as a preventive treatment, Dale says Prostar also offers dependable results when applied as a curative.

"Nothing I used ever actually controlled brown patch until Prostar," says Dale. "It really lasts 21 days. It's a good feeling knowing I don't have to worry about brown patch for long stretches of the summer."

Dale, however, doesn't spray pesticides "unless it's absolutely necessary."

"I've been here for 19 years, so I know my turf pretty well. I know every spot and can gauge when and where diseases might hit.

"Superintendents are all trying to be environmentally conscious now. Most of the pesticides we use don't move around in

the soil. They do what they are supposed to do and stay on the plant. In fact, we've eliminated spraying herbicides in our roughs every year, going to every other year instead."

Though Radnor Valley's fairways—a mixture of bentgrass, *Poa annua* and ryegrass—fare better in hot weather than the greens, Dale tries to get better drainage there, as well:

● He caught and rerouted

some of the underground streams emptying onto several of the fairways.

● He also added more drainage to supplement the existing corrugated pipe system.

Dale, however, doesn't have all the answers.

"Intense summer conditions are the worst for me," he adds. "If you keep the place wet, you get cooked grass. If you keep it dry, it wilts. It's difficult to keep that happy medium when the weather stays hot for extended periods.

"We compromise by syringing every day to keep it just moist. Even so, the heat stress sometimes gets ahead of you. But as long as the members stay happy, I'm happy."



Tom Dale uses water injection once a month on clay-based greens. Drainage modifications have helped him prevent turf disease.

HOT TOPICS

No peace in the green industry?

...Not until its image improves, says Dr. James Watson.

COLUMBUS, Ohio—A millenium is “any period of great happiness or peace,” says one of its definitions. It’s also defined as a 1,000-year period.

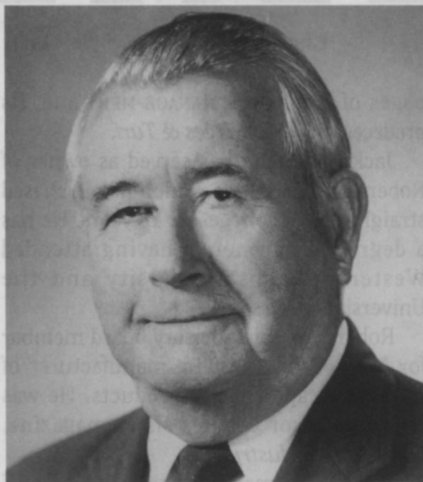
The year 2000 brings a new millenium but, Dr. James Watson says, the green industry can’t count on unbridled happiness or peace, not at least until it can bolster its image to the public.

“Many of the same concerns we have today will still be with us in the year 2000,” Watson said in a keynote speech at the Ohio Turfgrass Conference this past December. Watson is a former employee of Toro Inc. who has been, for four decades, one of the industry’s most respected spokesmen.

Among the concerns he cited:

1) The green industry will have to defend its use of scarce water resources. “Turfgrass is a valuable resource and it serves too many beneficial purposes to be ignored,” said Watson.

2) The green industry will have to prove that it doesn’t pollute either surface or underground water. “Turfgrass is second only to a forest in its ability to purify



Watson: Green industry must gain public’s respect.

and filter our waters,” claimed Watson.

3) Claims that turfed and landscaped areas drive away animals and birds. This often isn’t true, claimed Watson. “Many of our natural sites are enhanced aesthetically and are improved for recreational purposes when they are landscaped.”

Trends likely to continue into the next century include, according to Watson:

- Continued improvement of turfgrasses by plant breeders.
- Extension of the use of some warm-

season grasses northward, and some cool-season grasses south.

● Continued growth of the use of organic-based fertilizers.

● Bio-engineered grasses, not by the year 2000 but “more likely by 2010 or 2020,” said Watson.

● Reduced chemical pest controls. “Certainly we should anticipate that the use of chemicals—and in that group I would include soluble fertilizers and pesticides—will gradually decline on turfgrass sites,” he added. “They will not be discontinued, but the amount and frequency will be reduced.”

The biggest challenge facing the green industry as it approaches the 21st century, however, involves gaining the public’s respect, claimed Watson.

“Our publicity and public relations campaigns aren’t the best. They don’t do the job that they should,” he said. “Why, for example, are the experts in the green industry not recognized, not perceived as authorities and often get over-ridden on decisions involving turfgrass?”

“We must not let our future be decided by political entities, by environmental extremists, or anyone not familiar with the green industry. They must not dictate our future.”

—Ron Hall

LM names six to new edit panel

CLEVELAND—Two golf course superintendents, two landscapers, a lawn care businessman and an athletic field manager comprise the second LANDSCAPE MANAGEMENT Editorial Advisory Panel, named this month by editor-in-chief Jerry Roche.

They will serve an 18-month term, through December, 1995.

“These six professionals were chosen for their commitment to the green industry, their experience, and their occupational and geographic diversity,” says Roche.

“We are proud to have them affiliated with the magazine.”

Joe Alonzi is golf course superintendent at Westchester Country Club in Rye, N.Y., where the Buick Open was held last month.

Alonzi has been a superintendent for 20 years, the last three at Westchester. He is a 1972 graduate of Rutgers University who is current president of the Metropolitan (New York) Golf Course Superintendents Association. He is a Certified Golf Course Superintendent and a member of the Golf Course Superintendents Association of America (GCSAA).

Rod Bailey is president of Evergreen

Services Corp., Bellevue, Wash. He is a past president of the Associated Landscape Contractors of America (ALCA) and the Association of Landscape Professionals.

Bailey has been with Evergreen since 1971. In 1982, he won the Outstanding Service Award from the Pacific Coast Nurserymen’s Association and in 1991 was named *Landscape & Irrigation* magazine’s “Man of the Year.” He obtained the title of “Certified Landscape Professional” from ALCA earlier this year.

Alan Culver, like Alonzi, is a Certified Golf Course Superintendent and a member of the GCSAA. He has been superintendent at Mahoney Golf Course, Lincoln, Neb., since construction began in 1975.

Culver is past president of the Nebraska



Rod Bailey

Golf Course Superintendents Association, and serves as secretary/treasurer. He is a 1974 grad of the University of Nebraska.

Charlie Racusin is president and chief executive officer of Environmental Landscape Services, Houston, Tex., a post he has held for 23 years. He is a graduate of the University of Texas, where he obtained a bachelor's degree in business administration. In addition, Racusin is a member of the Professional Grounds Management Society.

Like most of the other Editorial Advisory Panels, Racusin has been featured on the



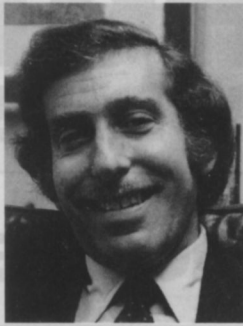
Alan Culver

pages of *LANDSCAPE MANAGEMENT* and, its predecessor, *Weeds Trees & Turf*.

Jack Robertson has served as owner of Robertson Lawn Care, which he purchased straight out of college, for 18 years. He has a degree in agronomy, having attended Western Illinois University and the University of Missouri.

Robertson is an advisory board member for Miles, Inc., a leading manufacturer of lawn/landscape control products. He was also an advisor to LM's sister magazine, *Lawn Care Industry*.

Steve Wightman has been stadium turf



Charlie Racusin



Jack Robertson



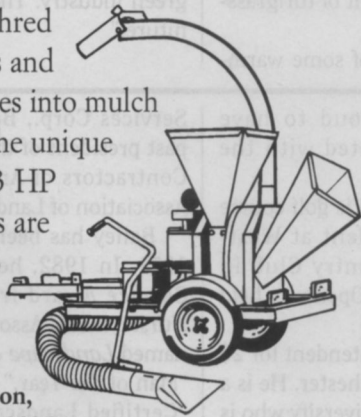
Steve Wightman

manager for Jack Murphy Stadium in San Diego for almost six years. Prior to that, he was field manager at Denver's Mile High Stadium.

The 1971 graduate of the University of Northern Colorado owns many distinctions, among them: 1984 winner of the Harry Gill Memorial Award from the Sports Turf Managers Association (STMA); 1988 Distinguished Service Award from the Rocky Mountain Regional Turfgrass Association; and Edwin J. Hunter Lifetime Achievement Award from Hunter Industries, a maker of turf irrigation equipment. The former STMA president is also a turf technician for World Cup Soccer.

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Louisville Expo to feature seminars and Miss Sweden

LOUISVILLE, Ky.—A special seminar section for commercial end-users will be held at this year's International Lawn, Garden & Power Equipment Expo, July 24-26.

Jim Huston of Smith Huston will speak on "It's More Than Mowing" and "Bidding to Build a Successful Business." There will also be a free international seminar titled "Global 2000: Doing Business Internationally Now and in the Future."

Some of the new product introductions and special events already planned:

American Lawn Mower celebrates its 100th anniversary by introducing a wide-cutting model.

AmeriQuip has a new utility trailer and trailer-mounted aerial lifts.

Ardisam has a new battery-powered riding lawn mower that attendees can test-drive.

Billy Goat Industries is celebrating its 25th anniversary.

Blue Sky Engineering has Mulch-X, plus new kits for Lawnboy and electric mowers.

Cherryott Trailers will display its new Wacker Stacker, Klipper Slipper, Thump-Thing and What-A-Gate.

Easy Lawn will introduce a new design for its 600-gallon hydroseeding unit.

Exmark will unveil the Metro, a high-performance, double-belt walk-behind mower in four deck sizes.

Generac will show new pressure washers, air compressors and welders.

Hamblen Blade will introduce a lawn mower blade that sharpens itself while it revolves.

Hamelin Industries has new Load Rated Wheels, non-pneumatic wheels that don't go flat.

HCC will display a new compact tractor/loader/backhoe and a towable backhoe.

Husqvarna has seven new professional

quality Swedish trimmers, and—in person—Miss Sweden.

Innovative Devices will introduce the world's first counter-rotating, hand-held tiller and cultivator.

F.D. Kees will display the Kees Hydro Mowers.

Kohler is introducing a new Command 25 hp vertical shaft engine.

MacKissic will unveil several new products.

Maxim Mfg. has a new 42-inch zero-turn radius commercial mower.

Meter-Man's Distance Measuring Wheel has an all-new counter and handle.

Millcreek Mfg. has new economy aerators.

NAPA's exhibit features a square trimmer line, spin-on oil filter and more.

Palmor Products will have a new leaf trailer in the outdoor demo area.

Parker Sweeper will highlight a new chipper/shredder/vacuum.

The Patriot Company has an electric chipper/shredder/vac.

Ravens Utility Trailers will display a new concept in trailer brakes: hydraulic disc brakes.

Swisher Mower & Machine will introduce an innovative new product that it's not letting out of the bag yet.

V.M. Industries (Turftek) will display a new Tow-eze Car Dolly.

Walker Mfg. has a new model tractor.

Many, many more events are scheduled during the three-day confab.

Pre-registration for Expo '94 is free; on-site registration is \$20. To register, write Expo '94, 6100 Dutchman's Lane, 6th Floor, Louisville, KY 40205; or phone (800) 558-8767. Within Kentucky or outside the U.S., call (502) 473-1992. For your convenience, Expo '94's fax number is (502) 473-1999.

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Guide to Ornamentals
Using Safety Equipment
Turfseed Availability Report

“U SAID IT!”

President's Clinton's health plan...won't work. The competition in his plan is a fallacy.

If a truly competitive system were adopted, quality of care would improve and prices would go down. This could be done without employer mandates and at the same time ensure low income individuals are covered, choice of doctors remains, and government involvement is minimized.

Bill Caras
Caras Nursery & Landscape
Missoula, Mont.

In our industry, many nurseries, irrigation supply houses and other companies have gone out of business because landscape contractors...were not spared from the economic downturn.

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There's no doubt that business will eventually turn around. The contractor who pays close attention to cash flow and wise business practices will endure the lean times and be around for the up-turn in business—hopefully, with far less competition than before.

Michael R. Selden
Reliable Landscape
Tarzana, Calif.

Experience has been defined as "something you don't get until just after you needed it."

The key is looking ahead and being prepared. And the true test of your preparedness is not what you know how to do, but what you do when you don't know what to do.

Gary Thornton
Thornton Landscape
Maineville, Ohio

Often, the superintendent's position is not recognized until something goes wrong. Good greens, fairways and tees are taken for granted in many cases.

We must do more to [tell] our employers what we do day-in and day-out, and the problems we encounter. We should be proud of what we accomplish and not be afraid to let our clubs know the importance of our position.

William Shirley
Idle Hour Club
Macon, Ga.

The next time one of your subordinates screws something up because of a decision they made on their own, just think about all the times you did the same thing yourself and learned by your own mistakes.

Your company will grow beyond your wildest dreams and imaginations. And the "hiccups" along the way will look like little errors when compared to the success of the overall picture.

Peter Berghuis
California Landscaping
Cupertino, Calif.

INFO CENTER

Selected books and videos for the industry

CLIMB TREES SAFELY...The National Arborist Association sells a video that covers the essentials to safe tree work. *Ropes, Knots & Tree Climbing* contains essential information on the ropes, snaps, carabiners and saddles used, and climbing techniques used for ascending into and working in trees. Cost is \$60 for members, \$90 for non-members. Contact the NAA at P.O. Box 1094, Amherst, NH 03031-1094; (603)673-3311.

ESTIMATING GUIDE...*Estimating for Landscape & Irrigation Contractors* by James Huston contains more than 100 diagrams and illustrations, and covers the process of pricing maintenance construction and service projects. Huston explains the five most common methods used in the market today to price jobs, and other budget and cost related calculations. Contact: Smith Huston, Inc., at P.O. Box 6837, Orange, CA 92613-6837; (714) 630-1289.

BUILD A GAZEBO...The *Gazebo Builders Handbook* covers structures of five, six or eight equal sides. The handbook includes a rafter table. Cost is \$15, from ORCO, P.O. Box 275, Old Bridge, NJ 08857.

GREEN INDUSTRY EVENTS

JULY

14-16: Mid-Atlantic Nurserymen's Trade Show, Baltimore Convention Center. Phone: Carville Akehurst at MANTS headquarters, (410) 256-6474.

19: Midwest Chapter STMA meeting, Kishwaukee College, Malta, Ill. Phone: (708) 439-4727.

19-21: Midwest Grounds Management Conference, Illinois State University. Phone: Chuck Scott, (309) 438-2032.

21: Southern Illinois Nurseryman's Association Field Day at Lee's Trees. Mount Vernon, Ill. Phone: Lee's Trees, (618) 244-4260.

21-23, 25-27: Penn State Landscape Design Short Courses, Sheraton Inn, Pittsburgh-North, Warrendale, Pa. Phone: Michael Masiuk, (412) 392-8540.

24-26: Outdoor Power Equipment Institute's Lawn, Garden & Power Equipment Expo, Kentucky Exposition Center, Louisville. Phone: Seller's Expositions, (502) 473-1992.

27: Iowa Turfgrass Field Day, Hort Research Station, north of Ames, Iowa. Phone: Lori, (515) 294-1439.

27-29: American Sod Producer's Association Summer Convention and Field Day, Newport (R.I.) Islander Doubletree Hotel. Phone: Tom Ford, ASPA, (708) 705-9898.

28-29: Landscape Contractors Association of Maryland, D.C. and Virginia Summer Conference, Holiday Inn Crowne Plaza, Rockville, Md. Phone: Sue Stott, (301) 948-0810.

31-Aug. 6: Perennial Plant Association, educational seminars and tours, Adams Mark Hotel, Philadelphia, Pa. Phone: (614) 771-8431.

27: University of Massachusetts Cooperative Extension System Landscape and Nursery IPM Workshop. Write: IPM Workshops, UMass Cooperative Extension System, French Hall, Amherst, MA 01003.

AUGUST

3-4: Minnesota Parks Supervisors Association Grounds & Facility Expo, Resurrection Cemetery, Mendota Heights, Minn. Phone: (612) 681-4300.

10: New England Athletic Turf Management Field Day, Holy Cross College, Worcester, Mass. Phone: Mary Owen: (508) 892-0382.

10: Texas A&M Turfgrass Field Day, Research and Extension Center, Dallas. Phone: (214) 231-5362.

10-11: Penn State Turfgrass Field Days. Phone: George Hamilton, (814) 865-3007 or Christine E. King, (814) 355-8010.

12: Southern California STMA Night, Dodger Stadium. Phone: (714) 578-0215.

14-17: International Society of Arboriculture Annual Conference and Trade Show, Halifax, Nova Scotia. Phone: ISA, (217) 355-9411.

PRODUCT REVIEW

Biological agent cleans scum, odors from ponds

Aqua Treat is a biological water treatment designed to control pond scum and accompanying odors.

By using Aqua Treat regularly from March to October, TerraBiotics L.P. of Princeton, N.J., says that with regular use, Aqua Treat will remove nitrogen from the water, depriving the algae of its primary nutrient.

The drastic reduction in nitrogen makes it impossible for the algae to bloom.

Aqua Treat works in the entire water column and sludge layer to digest any organic wastes that are generated by the animal and plant life in the aquaculture.

Aqua Treat also contains cultures beneficial for enhancing turf quality, and is

therefore safe for use in irrigation ponds. TerraBiotics says the benefits of Aqua Treat include:

- enhanced nitrification cycles and reduce scum and sludge;
- break down organic and fecal waste and odors;
- reduced build up of nitrogen nutrients;
- control over fluctuating oxygen levels.

By adding Aqua Treat to the water phase, a living system is introduced, a system of biologically active seed cultures, enzymes, activators and accelerators, developed specifically for use in aquaculture.

The Aqua Treat microbial cells populate the system as a seed, multiply and produce large quantities of digestive enzymes on a regular and continuous basis.

The bacteria in AquaTreat attack ammonia, which is the cause of pond odor. In accelerating the natural nitrogen cycle, Aqua Treat enhances the rate at which ammonia is converted into nitrite and then into nitrate, eliminating the release of ambient ammonia.

Pond water is made clear when bacteria digest floating organic matter that clouds the water column.

Aqua Treat's bacterial formulation was designed to supply the correct bacteria for the entire pond, including the sludge layer.

According to TerraBiotics, Aqua Treat repopulates the underwater sludge layer and accelerates the degrading process. This reduces not only the volume of sludge but also the amount of nutrients released.

Circle No. 191 on Reader Inquiry Card

Black tanks last longer, have easy-to-read gauge

Black tanks that last longer because they are less susceptible to UV breakdown are now being offered by Agrotec. The tanks also have an improved sight gauge that makes it easier to read how much fluid is left in the tank.

Agrotec Pro Care sprayers come in 100-, 200-, 300- and 500-gallon capacities. Each have: steel skids with zinc primers and enamel finishes; leak-proof lids with check valve vents; pressure regulation from 20 to 500 psi.

Circle No. 192 on Reader Inquiry Card

Rear-discharge available for 2 models

A new 72-inch rear-discharge 3-spindle rotary mower deck is available for Models CM272 and CM274 Ford commercial mowers from Ford New Holland.

The rear discharge lets operators cut close to obstacles on either end of the deck.

Clippings are distributed across the width of the cutting area to avoid build-up.

Circle No. 193 on Reader Inquiry Card



New landscape fabric is thicker, stronger

Easy Gardener, Inc. has expanded its line with the introduction of Pro WeedBlock, a non-woven geotextile for professional use.

Puncture- and tear-resistant, Pro WeedBlock is thicker, stronger, for professional landscapers who want to do the job once and not have to worry about weeds in

the garden or in the cracks between patios and walkways for years.

Pro WeedBlock comes in rolls of 3'x 150' and 6'x 150'.

"Micro funnels" taper at the bottom to block out more than 95% of the light weeds need to grow, while allowing air and water to pass through freely. According to the company, this high permeability of both air and water eliminates runoff as well as soil souring.

Pro WeedBlock will not unravel or rip, even when placed over roots and rocks. It is ideal for use around trees and shrubs, under walkways and patios, and in drainage systems and septic tanks, to filter out silt.

UV-inhibitors enable the product to last up to five years under direct sunlight and indefinitely when covered by a protective layer of mulch.

Circle No. 194 on Reader Inquiry Card



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Circle No.104 on Reader Inquiry Card

SHOWCASE

PRODUCT REVIEW

Transport equipment has added storage

The Spacemaker Kit from One-Up, Inc. adds more than 25 percent trailer space to trucks or trailers.

With the Spacemaker, equipment can be added above or behind existing storage areas.

The Spacemaker also doubles as a service or storage lift-off trailer.

Custom sizes are available.

**Circle No. 195 on
Reader Inquiry
Card**



New Impatiens, geraniums bloom in bright colors for seasonal beauty

S&G Seeds of Downers Grove, Ill., in cooperation with Speedling, Inc., presents new seed varieties for 1994-95.

The Pinto Deep Rose geranium is an F-1 hybrid colored deep pink with darkly zoned leaves. Its high germination levels and strong seedling vigor make Pinto Deep Rose ideal for plug production.

The Ringo 200 variety of geranium is bright pink with deeply zoned leaves.

Many large and fully-rounded flower heads give a traditional geranium look.

Dynamo Deep Rose and Dynamo Rose are F-1 hybrids with deep pink or bright pink.

Impulse Salmon has a pure salmon color, is uniform and compact, with basal-branching.

Circle No. 196 on Reader Inquiry Card

Irrigation tape is designed for greenhouse and nursery growers

T-Systems International, Inc. of San Diego manufacturers T-Tape 510-18-440, a 10-mil tape with an 18-inch emitter spacing. It has a flow rate of .440 gpm/100 ft. at 10 psi.

The tape has the same proven turbulent design as all other T-Tape products with a special flow rate and spacing to meet the specific needs of many growers.

T-Tape has 164 inlets with a .035" x .017" cross sectional area per inlet that minimizes the effects of plugging and inlet passages smaller than the emitter to filter out large particles.

T-Systems says T-Tape is available through a team of authorized servicing dealers worldwide.

Circle No. 197 on Reader Inquiry Card

SHOWCASE

PRODUCT REVIEW

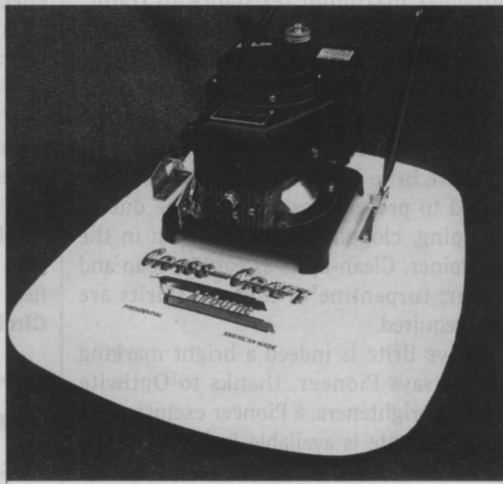
Airborne mower only one of its kind in N. America

The Grass Craft hover mower is now being marketed exclusively to golf courses throughout the U.S.

The hover mower has a virtually unbreakable polyethylene deck with a metal-to-metal mounting system and sun resistant white coloring. It can go where others can't, won't scalp, leaves no wheelmarks and easily handles steep slopes. It comes equipped with a 3.5 hp Tecumseh engine.

The company also offers an optional safety blade and a handle that is 12 inches longer than the standard handle for added safety and longer reach for steep banks.

Circle No. 198
on Reader Inquiry Card



Gas and electric golf cars feature improvements

The new gas and electric golf cars from Hyundai feature a variety of improvements.

The new electric model features an improved speed controller designed and manufactured exclusively by Hyundai's own electronics division. Updated gas models are modified for increased performance, durability and comfort. Both the electric and gas cars have been finished with new black, plastic dash compartments in the front area on both sides of the console.

Hyundai's gas models are equipped with a refined clutch for improved performance, smooth take-offs and increased climbing capabilities, and a number of noise reduction modifications.

In addition, the 1994 gas cars have a new air box designed to provide easy access to the air filter for trouble-free maintenance.

All electric cars feature Hyundai's exclusive, cost-saving speed controller incorporating half-speed reverse. This component has been fitted with a black, plastic cover to protect it from water and debris during cleaning.

Circle No. 199 on Reader Inquiry Card

Irrigation controller operates up to six stations

Hardie Irrigation's HR-6100 controller features a new contemporary look with a gray case and a two-sided velcro-taped quick-reference guide card/informative "watering times" chart attached to the inside door panel. Its new dial format is similar to that of Hardie's Rain Dial.

The six-station, indoor controller, originally introduced in the mid-1980s, was the first hybrid controller ever manufactured, according to Hardie.

A dial lets the operator control all functions, and operate up to six stations with two programs. Other features include:

- digital readout;
- 7-day weekly schedule with select-a-day option; and
- rain override switch/9-volt battery backup.

Circle No. 200 on Reader Inquiry Card

New irrigation system rotor shoots water up to 62 feet

Rain Bird Sales, Inc. announces the introduction of the innovative Falcon series rotor.

Designed for sports fields, parks, schools, cemeteries and other large turf areas, this water-lubricated gear-drive rotor irrigates a full 38-to-62-feet.

Advanced Rain Curtain nozzle technology has been incorporated into the rotor, allowing it to offer top performance in all wind conditions.

Even in windy areas, the Falcon Rotor delivers a "curtain" of large water droplets for uniform distribution. Because of this superior water distribution, the Falcon Rotor has the best scheduling coefficient in its class when used in a properly-designed system, says Rain Bird.

Circle No. 201 on Reader Inquiry Card

Device prevents breakage in sprinkler heads, riser pipes

Strand Art Company, Inc. of Anaheim, Calif., manufactures the Flo-Mizer for sprinkler irrigation systems. The Flo-Mizer is an inexpensive, easy to use and install, retro-fit device which will prevent the costly problems created when a sprinkler head or riser pipe is broken.

The Flo-Mizer is installed by removing the riser pipe and inserting the Flo-Mizer into the base of the riser pipe and re-installing the riser into the T-connector of the supply line.

Benefits of Flo-Mizer include:

- eliminates the geyser or high pressure fountain effect which often projects large volumes of water onto roadways and sidewalks near the broken sprinkler.
- prevents financial liability which can result from water being propelled by the geyser effect into oncoming motor vehicle traffic.

- stops local flooding that results from the excess flow at the location of the broken sprinkler head. This excess flow of water often causes erosion of the surrounding soil which turns to mud flow which flows onto roadways and sidewalks.

Circle No. 202 on Reader Inquiry Card

SHOWCASE

PRODUCT REVIEW

Interchangeable nozzle part of new pop-up sprinkler

The Hunter model I-40 pop-up sprinkler, used on sports fields, parks and other large turf areas, is not available with an additional interchangeable nozzle.

The new #40 nozzle applies water at 7-gpm within a 45-ft. radius.

The I-40 now has six interchangeable nozzles and a more versatile performance range. Depending on the nozzle specified, the I-40 discharge rate can be adjusted from 7 to 27.5 gpm and the radius set between 45 and 74 ft.

The I-40 is available with an adjustable arc which may be set between 40-to-360 degrees while the sprinkler is on or off. A fixed, full circle model is also available.

The I-40 is durable, vandal-resistant and offers a range of advantages for institutional users, including stainless steel riser with heavy-duty retraction spring, safety-cushioned rubber cover and locking body cap.

A drain check valve is standard on the I-40 to help conserve water, reduce liability and puddling around sprinklers caused by low-head drainage. It checks up to 15-ft. of elevation change.

Circle No. 203 on Reader Inquiry Card

Micro-irrigation product first with a pop-up body feature

Pepco Water Conservation Products, Inc., today announced the market introduction of its newest design for micro irrigation, the MicroPop.

Pepco says the MicroPop is the first micro pop-up body for landscape irrigation systems.

MicroPop is installed just below the canopy level of planting material, and pops up above the plants for watering.

After watering, it retracts to be unobtrusive in landscape applications. This also keeps it hidden from vandals.

The MicroPop operates between 15-30 psi. Its pop-up height is adjustable to 10-inches, and it is compatible with other Pepco irrigation products.

Pepco believes a big advantage to MicroPop is the way it eliminates the clutter of stakes and risers.

Circle No. 204 on Reader Inquiry Card

Asphalt paint lasts a long time, will not erode surfaces

Pave Brite latex asphalt marking paint provides maximum resistance to traffic, water, oil, de-icing chemicals, severe weather, and gasoline.

Because it contains no solvents, Pave Brite will not attack and deteriorate asphalt surfaces.

Pave Brite is easy to use. It is homogenized to prevent costly downtime due to lumping, clogging and separation in the container. Clean-up is as easy as soap and water; turpentine or mineral spirits are not required.

Pave Brite is indeed a bright marking paint, says Pioneer, thanks to Optiwite optical brighteners, a Pioneer exclusive.

Pave Brite is available in bright white, yellow and the blue tint used to mark handicapped person parking spaces.

Circle No. 205 on Reader Inquiry Card

Erosion control for slopes, banks, ditches and more

Enkamat erosion control matting from Akzo Nobel Industrial Systems Company offers a lightweight, flexible alternative to rigid concrete, asphalt and rip-rap systems for controlling erosion.

It is designed for use on slopes, banks, ditches, channels, spillways, landfills, shorelines and other vulnerable erosion-prone areas.

Structurally, Enkamat is a three-dimensional geomatrix of heavy nylon monofilaments fused at their intersections.

Ninety percent of this geomatrix is open space, which becomes filled with native soils when installed, eliminating erosion.

Circle No. 206 on Reader Inquiry Card

Mulch and erosion control blankets blend with turf

High profile revegetation projects with steep slopes next to flat ground can be seeded and protected with color-matched hydraulic mulches and Futerra erosion control blankets.

These products, made by Conwed Environmental Products, retain an a turf-

green appearance until grass is well-established.

Landscape architects and contractors can now mix and match the most cost-effective topical revegetation options for erosion control. Conwed 30-day green hydraulic mulch and blanket products provide for a uniform visual presentation.

Futerra erosion blankets are sized in 40-inch widths for silt barriers adjacent to paved areas, and 80-inch widths for erosion control on slopes of 2:1 or less.

Hydro Mulch products are available with or without pre-blended organic tackifier.

Circle No. 207 on Reader Inquiry Card

10-second tire repair kit eliminates 'flat tire time'

Safety Seal is a repair kit for tubeless tires. Repairs are permanent, and can be made in virtually any size and kind of tubeless tire, from the outside, without the need for cements, chemicals or vulcanizing fluids.

Safety Seal is not a liquid or aerosol product, says Safety Tire Seal Corporation, Hauppauge, N.Y.

Safety Seal works on radial, non-radial, steel-belted, non-steel-belted tires, whether used on golf carts or earthmovers and everything in between.

Circle No. 208 on Reader Inquiry Card

Tall fescue a leader, say latest national test results

Results for the National Tall Fescue Tests show Jacklin Seed Company's Pixie turf-type tall fescue as one of the leading new turf type tall fescue selections on the market today.

Pixie was ranked third (although statistically it was tied for first) in overall turf quality among the 92 varieties tested.

Tests showed it had excellent disease resistance, including resistance to brown patch, and found it retains its genetic dark green color even under low fertilization conditions.

Jacklin describes Pixie as a moderately low-growing variety, with high density and good turf performance and "mixability."

Circle No. 209 on Reader Inquiry Card

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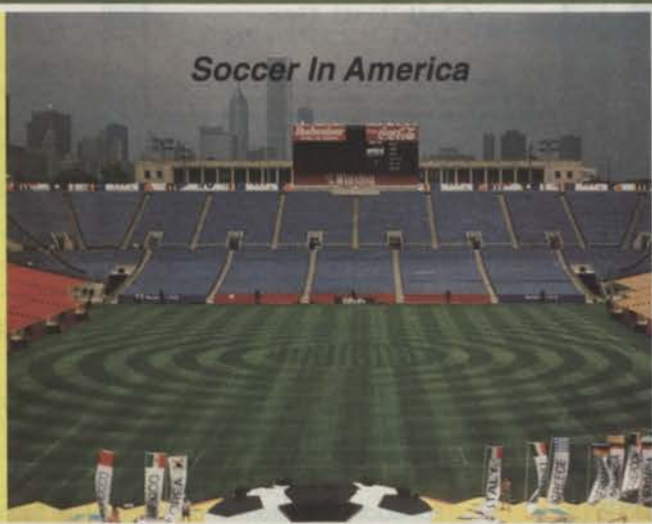
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FeRRROME⁺⁺C[®] Liquid Iron contributed to the memorable look of Chicago Soldiers' Field this summer under the direction of John Nolan, head groundskeeper, with George Toma consulting.



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Circle No. 300 on Reader Inquiry Card

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HELP WANTED

LANDSCAPE MANAGER: Green Thumb Enterprises, Inc., a nationally ranked award winning landscape contractor, is seeking a qualified area manager for our northern Virginia branch office. Applicant must have minimum 3 years similar experience in the quality management of full service commercial landscape maintenance projects. Duties will include budget preparation and oversight, quality control, staffing and supervision, client interaction, and enhancement sales. This is an excellent opportunity for a dynamic, motivated individual to advance personally and professionally with a growth oriented firm. Qualified interested candidates should send resume, complete with references to: Green Thumb Enterprises, Inc., 42461 John Mosby Highway, Chantilly, VA 22021, Attention: M. Gerard Chauvin. 7/94

LANDSCAPE SALES- Moon Landscaping, Inc., one of the fastest growing site management companies on the east coast, is looking for a full-time qualified, career oriented sales professional for the northern New Jersey area. Previous experience with landscape firm required. Ability to estimate both landscape and site maintenance. Must be aggressive and self motivated. Excellent opportunity with compensation and benefits. Please direct resume to Moon Landscaping, Inc., Box 482, Yardley, PA 19067, attn. H. Shannon Wilson or call 215-968-5071 and ask for Garth. 7/94

CAREER OPPORTUNITIES: Hermes Landscaping and Nursery has career opportunities available for both entry-level and experienced candidates. Hermes, headquartered in Kansas City for nearly 30 years, provides services in Landscaping, Sprinkler, Landscape Management and Wholesale Nursery. B.S. degree preferred. Send resume and salary requirements to: Hermes Landscaping, P.O. Box 14336, Lenexa, KS 66215 or call Tracy Strohm at (913)888-2400. EOE 7/94

KEY LEADERSHIP POSITION: Atlanta based Lifescapes, Inc. is searching for a team oriented grounds maintenance production manager. Creative and aggressive decision making and an understanding of *Total Quality Principles* a must. We seek someone with a college degree, goal orientation, and experience with leading people. Our award winning design/build firm offers challenging career opportunities with excellent pay, incentive program, retirement plan, and many other benefits in a positive, growth oriented corporate culture. Send resume in confidence to: Bret Bowlin, Lifescapes, Inc., 6202 Hickory Flat Highway, Canton, Georgia 30115. 7/94

LANDSCAPE SALES- Quality, growth oriented landscape management company seeks an ambitious sales professional to work in the Baltimore/Washington, DC area. Must have a minimum of five years experience estimating all phases of landscape/site management. Excellent compensation and benefits with room for advancement. EOE. Please send resume to: LM Box 509. 7/94

OPERATIONS MANAGER: St. Louis based Lawn/Landscape Maintenance Company has opening for individual with 3 years experience managing department w/over \$1.5M sales. Must possess strong agronomic knowledge, excellent supervisory skills and customer service abilities. Send resume to: PO Box 3208, St. Louis, MO 63130. EOE. Drug Free Workplace. 7/94

LANDSCAPE /MAINTENANCE SALES: Southern California company needs self motivated, career oriented professional. Sales experience a must. If you're creative, team oriented send resume/history to Personnel Dept., 19652 Descartes, Foothill Ranch, CA 92610. Immediate opening. 7/94

WANTED

BUSINESS WANTED: Large landscape maintenance company located in the mid-Atlantic region is looking to acquire a landscape maintenance company in the Baltimore/Washington, DC area. Must have annual sales in excess of \$250,000 in maintaining commercial accounts. Please respond to: LM Box 510. 7/94

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103	120	137	154	171	188	205	222	239	256	273	290	307	324
104	121	138	155	172	189	206	223	240	257	274	291	308	325
105	122	139	156	173	190	207	224	241	258	275	292	309	326
106	123	140	157	174	191	208	225	242	259	276	293	310	327
107	124	141	158	175	192	209	226	243	260	277	294	311	328
108	125	142	159	176	193	210	227	244	261	278	295	312	329
109	126	143	160	177	194	211	228	245	262	279	296	313	330
110	127	144	161	178	195	212	229	246	263	280	297	314	331
111	128	145	162	179	196	213	230	247	264	281	298	315	332
112	129	146	163	180	197	214	231	248	265	282	299	316	333
113	130	147	164	181	198	215	232	249	266	283	300	317	334
114	131	148	165	182	199	216	233	250	267	284	301	318	335
115	132	149	166	183	200	217	234	251	268	285	302	319	336
116	133	150	167	184	201	218	235	252	269	286	303	320	337
117	134	151	168	185	202	219	236	253	270	287	304	321	338

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MY PRIMARY BUSINESS AT THIS LOCATION IS:
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A. Landscaping/Ground Care at one of the following types of facilities:

- 01 0005 Golf courses
02 0010 Sports Complexes
03 0015 Parks
04 0025 Schools, colleges, & universities
05 Other type of facility (please specify) _____

B. Contractors/Service Companies/Consultants:

- 06 0105 Landscape contractors (installation & maintenance)
07 0110 Lawn care service companies
08 0112 Custom chemical applicators
09 0135 Extension agents/consultants for horticulture
10 Other contractor or service (please specify) _____

C. Suppliers:

- 11 0205 Sod growers
12 Other supplier (specify) _____

Which of the following best describes your title:
(mark only one)

- 13 10 EXECUTIVE/ADMINISTRATOR
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15 30 GOVERNMENT OFFICIAL
16 40 SPECIALIST
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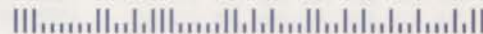


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Mean Turfgrass Quality Ratings of Kentucky Bluegrass Cultivars for Each Month Grown Under **High Maintenance** at Seventeen Locations in the U.S. & Canada
1991 Data

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

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

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

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

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

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

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

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