

# Lawn & Landscape MAINTENANCE

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## SCULPTING A CONSISTENT IMAGE

*Synergism is needed to foster an industry image worth emulating. Attaining this stature is discussed by our roundtable participants.*

In this issue:  
**Exploring New  
Seed Research**

**Choosing a  
Walk-Behind  
Mower**

*Bob Crivello*  
**Resisting  
Diseases  
in Turf**

**Irrigation  
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# Lawn & Landscape MAINTENANCE

VOLUME 14, NUMBER 6

JUNE 1993

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# Editor's Focus

SENSITIVITY, DEFENSE shields, us against them attitudes...it's all received a lot of play during the relatively short existence of the lawn and landscape service industry. And somehow, through it all, green industry professionals have let the negativism get the best of them.

Industry spokesmen and associations have fought for a voice at all levels of government — more often than not rejected in favor of grim stories of illness and death — but have only recently gained some clout to begin offering a platform based on everyday experience rather than supposition. It's certainly a step in the right direction, but more of the lawn and landscape industry needs to get involved; not just association executives, presidents and boards of directors.

Additionally, the industry needs to find a way to sustain momentum. Just when we send representatives to participate in the Environmental Protection Agency's Lawn Care Pesticide Advisory Committee, it folds. Not only that, but the EPA decides to forego all recommendations from industry liaisons and forge ahead with its own posting and notification guidelines.

The green industry avoided one obstacle — so far — when Sen. Joseph Lieberman was not able to prepare his notification bill or schedule lawn care hearings to coincide with the introduction of the beginning of the season. Regardless, we saw our share of sensation articles appear in the consumer press.

One of the more distressing articles appeared in the *Detroit News* last month. The story's headline read, "Parents say tree spray killed son; city settles," and went on to describe how an 8-year-old boy died from a blood disorder after allegedly being covered with an insecticide as he slept under an open window.

Apparently, the incident took place in 1984. The report said the boy woke up and found himself covered with a sticky substance, later identified as an insecticide. After weeks of uncontrollable diarrhea, his body became covered with huge bruises and his bone marrow stopped making blood cells. He died in less than three months of complications associated with aplastic anemia.

The City Council agreed to pay the family \$100,000. As far as the product manufacturer is concerned, the matter is still tied up in the court system.

Incidents like this are reported all across the country. And whether it's happened to you or not isn't the issue. With the publication of each report, new reports seem to surface. Consequently, no lawn and landscape professional is exempt from participating in the shaping and spreading of a positive industry image.



With this in mind, and an aggressive and deliberate attitude toward getting to the bottom of this image issue, *Lawn & Landscape Maintenance* magazine recently invited industry leaders — from both the supplier sector as well as the field sector — to discuss prevalent issues pertaining to the manufacturing and use of specialty pesticides, and to weigh the best means by which to convey the industry's many benefits.

And while the answers don't come easily, the roundtable attendees brought up a number of incidents in which every professional can participate — from helping shape environmental education programs to speaking to state legislators.

A report from the roundtable meeting is found in this issue.

This month's issue introduces a bi-monthly column by *Lawn & Landscape Maintenance* magazine's new Washington correspondent, Stephen Barlas. Barlas has been covering Capitol Hill and environmental and related pesticide issues since 1981. He has written for a number of chemical industry publications and at one time served as a consultant to the National Agricultural Chemical Association.

Barlas' column will keep you up-to-date on such issues as the reauthorization of the Federal Insecticide, Fungicide and Rodenticide Act, transportation regulations, the effects of the disabilities act, family leave bill and related legislation, as well as an inside look at the new players in the Clinton administration.

We welcome questions concerning these issues as well as your personal viewpoints on any of these subjects. — *Cindy Code* ■

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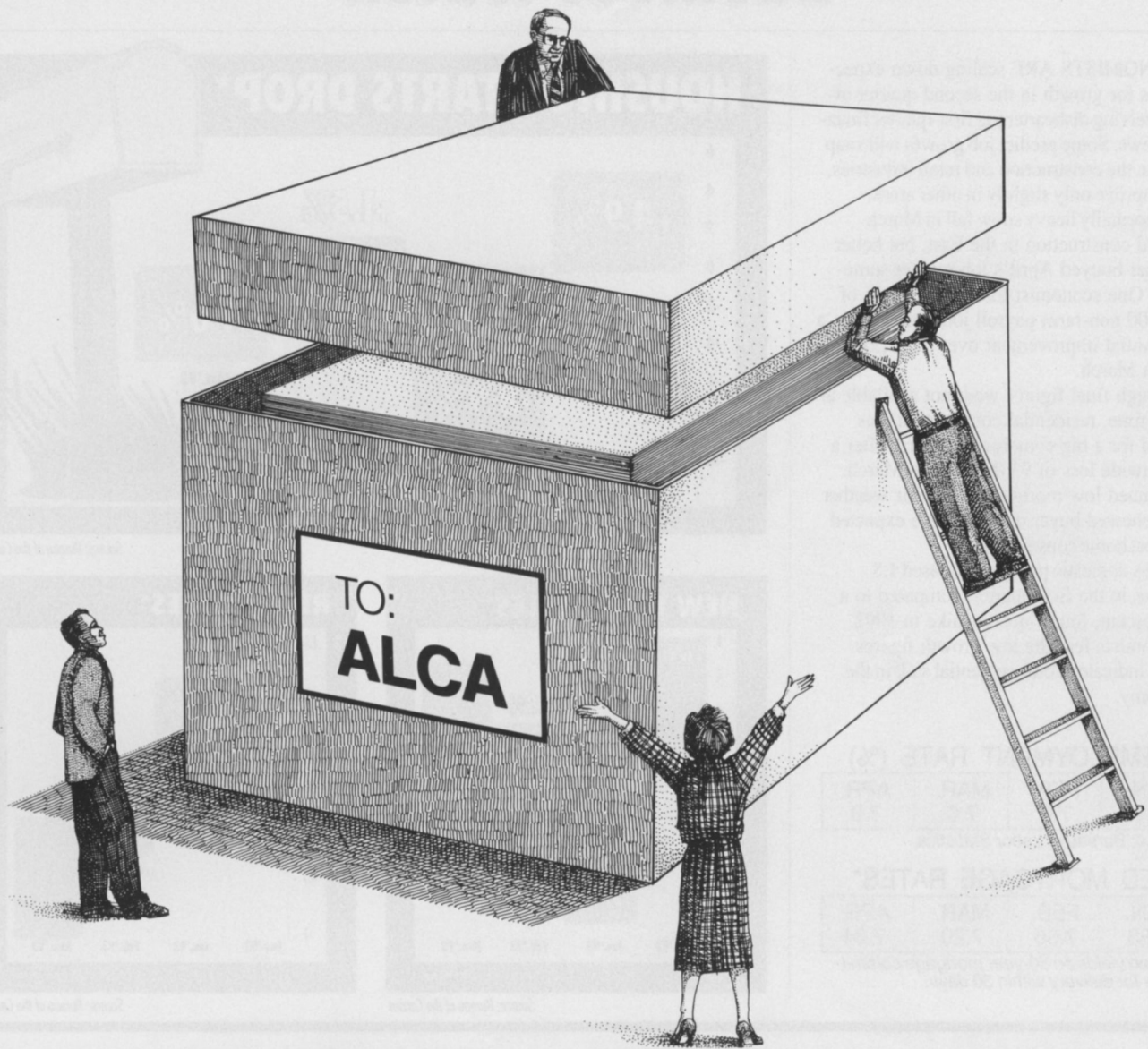
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# Business Watch

ECONOMISTS ARE scaling down expectations for growth in the second quarter after receiving disheartening first-quarter financial news. Some predict job growth will snap back in the construction and retail industries, but improve only slightly in other areas.

Abnormally heavy snow fall in March slowed construction in the East, but better weather buoyed April's job market somewhat. One economist forecasted a gain of 175,000 non-farm payroll jobs last month, a substantial improvement over the 22,000 lost in March.

Though final figures were not available at press time, residential construction was poised for a big comeback in April, after a nationwide loss of 93,000 jobs in March. Continued low mortgage rates, fair weather and renewed buyer demand were expected to boost home construction.

Gross domestic product increased 1.8 percent in the first quarter, compared to a 4.7 percent, fourth-quarter hike in 1992. Economists fear the low growth figures could indicate another potential stall in the economy.

## UNEMPLOYMENT RATE (%)

JAN.	FEB.	MAR.	APR.
7.1	7.0	7.0	7.0

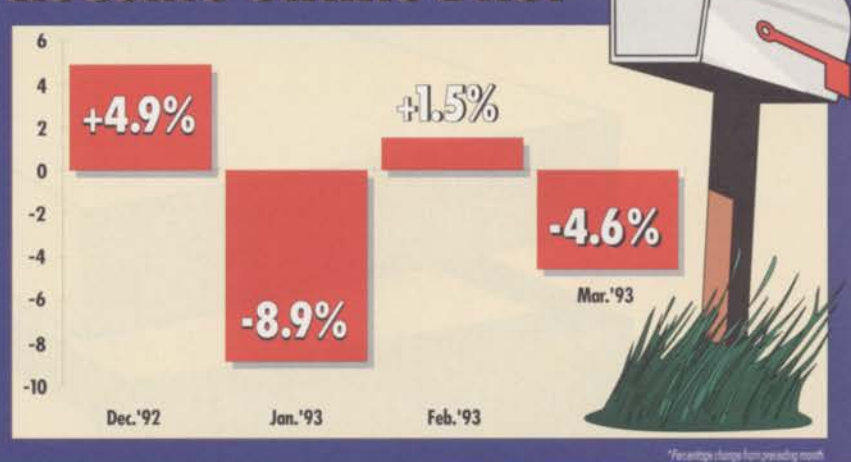
Source: Bureau of Labor Statistics

## FIXED MORTGAGE RATES\*

JAN.	FEB.	MAR.	APR.
7.83	7.56	7.20	7.04

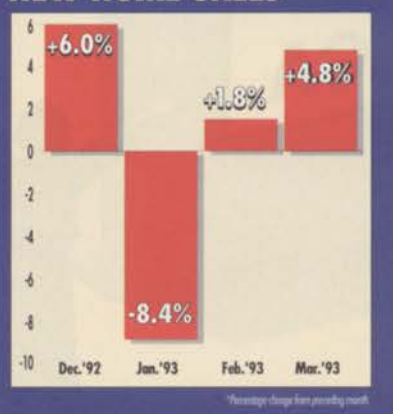
\*Posted yields on 30-year mortgage commitments for delivery within 30 days.

## HOUSING STARTS DROP\*



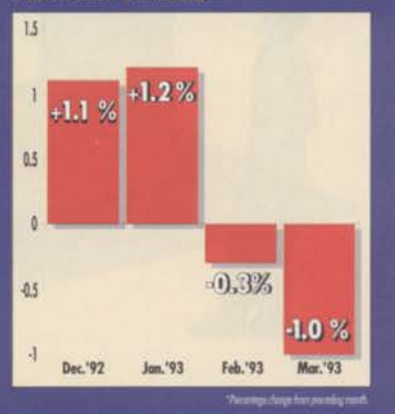
Source: Bureau of the Census

## NEW HOME SALES\*



Source: Bureau of the Census

## RETAIL SALES\*



Source: Bureau of the Census

## ECONOMIC REPORT: SERVICE GROWTH

THE BUZZ word among landscape contractors across the nation continues to be diversification. The types of services offered depend on customer needs and demands, which can be molded by anything from regional conditions to individual whim.

In the East, numerous contracting companies are beginning to implement or expand design/build services, according to Landon Reeve, president of Chapel Valley Landscape Co., Woodbine, Md. "The economy is tight. People don't want outside consultants. They are looking for a full-service company. In the Maryland/Virginia marketplace, general contractors are providing design/build, looking to offer quality service at a lower price."

In regions engulfed in heated debate over diminishing wetlands, companies like Chapel Valley and Bland Brothers of West Jordan, Utah, are jumping on the bandwagon to offer wetland mitigation. "Maryland has a new reforestation law. It's kind of a far-reaching area of interest for us, but it's one people are getting into," Reeve said. "It's becoming a major focus for our company."

Both Chapel Valley and Bland Brothers have some mitigation projects underway and plan to take on others.

In the area of individualized services, Bland Brothers, which specializes in landscape and irrigation for commercial sites, plans to

begin supplying its own top soil, sand and gravel for jobs at golf courses, parks and schools "because of the cost of getting it from anyone else. Do it ourselves, it's so much cheaper," said Linda Gittins, a company spokeswoman.

Carson Landscape in Sacramento, Calif., plans to expand its fertilization and weed control programs into the residential market, but remains adamant about not delving into residential maintenance. "It's not cost-effective for us," said Kathy Pipis, vice president of administration.

Tom Deml, manager of landscape operations for Somers Companies of Wisconsin, Stevens Point, Wis., said the company, which offers design/build, lawn maintenance and retail, has heavily increased its supply of perennials this year, hoping to use them in clients' landscapes. "Each year we see more interest in perennials from clients, so we decided to expand our supply. It's lucrative enough to make the investment worthwhile."

Other companies such as TechScope in Richardson, Texas, have peaked in terms of growth and are now focusing on increasing sales with current staff, equipment and services. "We've just gone through a large expansion. Right now we're trying to even out again before we do anything else," said Chris Sipes, vice president of TechScope. ■

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USE READER SERVICE #50

# Inside Washington

## ADVISORY COMMITTEE FOLDS, EPA PRESSES FOR STATE REGULATIONS

ARE LAWN SERVICE companies rogue operators?

Mary Ellen Setting, the chief of pesticides regulation in Maryland, thinks not. Maryland's law requires lawn maintenance companies to post a 4-inch by 5-inch sign at the time of application.

"The biggest problem we've had is that maybe six times a season lawn service companies make a mistake and spray the wrong address," said Setting, who was one of the 16 members on the Environmental Protection Agency's Lawn Care Pesticide Advisory Committee. "Some people don't even mind that."

Nonetheless, there is a perception, promoted by environmental activist groups, that lawn care companies need to be reigned in, and it is the states that have to do the "whoaing." That is why the EPA is writing a "guidance document" for states. It will contain recommendations on what state laws should include on the subjects of posting, notification and registries.

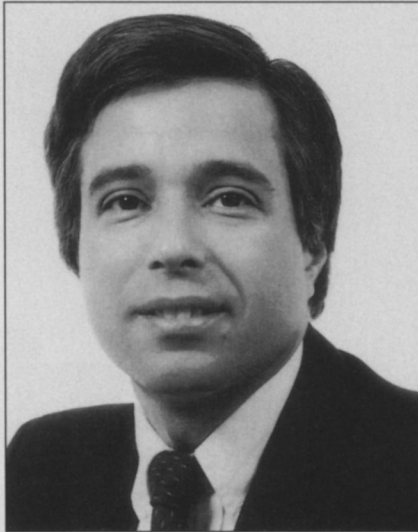
This guidance document flows out of meetings held during 1992 and 1993 by the LCPAC, which was composed of environmental activist, state, industry and EPA representatives. Green industry members included Tom Delaney of the Professional Lawn Care Association of America and Russ Frith, president of Lawn Doctor.

Steve Johnson, director of field operations at the EPA office of pesticide programs, was the deputy chairperson of the LCPAC, which has gone out of existence as a result of President Clinton's desire to terminate what he considers to be an excessive number of federal advisory committees. But Johnson is leading internal EPA efforts to come up with a posting/notification guide.

Johnson said the EPA hopes to have a draft this fall, which it will share with industry and activists in an effort to get comments. The document will be altered based on those comments.

Delaney thinks a guidance document is a bad idea. It stops short of a federal law, which PLCAA favors. PLCAA wants all states to have the same posting, notification and registry requirements.

Right now, 26 states, like Maryland, already have notification laws. Their provisions vary all over the place. Almost all the laws require a lawn service company to notify a customer, either in advance or at the time of application. About 10 states require the applicator to notify the neighbors of a customer. Sixteen states require a sign to be posted at the time of application. Seven states have registries specifically for



"chemically sensitive" individuals.

Delaney said he has talked with EPA officials and is comfortable that the contents of the guidance document — even though PLCAA would prefer a federal regulation — will be something the association can live with.

But the fact that PLCAA wants a national standard does not mean it supports the legislation. Sen. Joseph Lieberman, D-Conn., is developing. Lieberman has sponsored an ambitious posting, notification and registry bill in previous Congresses. At the final meeting of the LCPAC in February, Sarah Walzer, Lieberman's aide, distributed a draft of the latest version of the Lieberman bill. It was not well received by industry groups.

When asked why it has taken so long for Lieberman to formally introduce his bill, Walzer said cryptically, "We are doing things in the order that they need to be done."

Because it has not been introduced, the viability of the Lieberman bill in the Senate has not been tested. It is interesting, though, that Sen. Harry Reid, D-Nev., who has co-sponsored the bill in the past, and who chairs a key Senate Environment and Public Works subcommittee, has not been involved in the drafting of the Lieberman bill. Jerry Reynoldson, the staff director of Reid's subcommittee, said he has not seen the Lieberman draft, nor has Walzer approached him.

Reynoldson has asked for information three or four times, he said, but has never received anything. Some observers speculate that Reid was annoyed during the 1992 hearings on lawn care by some of the seemingly more radical aspects of Lieberman's bill. So maybe the two

former allies are keeping their distance this time around.

Actually, when and if Lieberman's bill is introduced, it will probably be referred to another Environment and Public Works subcommittee chaired by Sen. Frank Lautenberg, D-N.J. Rick Erdheim, an aide to Lautenberg, said he has not talked with Walzer about the lawn care bill in a year and a half.

**2,4-D LABELS RAISE QUESTIONS.** Nothing better illustrates the potential confusion surrounding posting and notification than the voluntary agreement signed in October 1992 by the seven technical registrants of 2,4-D and the EPA.

The EPA "encouraged" the registrants to make some changes on their labels in exchange for not pulling the registrations of 2,4-D, which has been a suspect human carcinogen. A major EPA-sponsored meeting on May 1-2 in Washington, D.C. undercut cancer concerns, however.

Anyway, the new labels say that children and pets must be kept off lawns treated with 2,4-D "until the spray dries and the dust settles." That raises the question of how applicators should prevent access. Posting and notification is not specifically required when using 2,4-D, but many applicators are putting up signs just to be on the safe side. The EPA has not issued any kind of compliance guidance on this question.

**AA FOR PESTICIDES.** Speculation on a nominee for assistant administrator for pesticides and toxic substances at the EPA centers on Lynn Goldman, a pediatrician who works for the California Department of Health Services. Besides being an M.D., Goldman is an epidemiologist. Although the health department does not regulate pesticides in California, Goldman is a member of the environment committee of the Association of State and Territorial Health Officials.

David Fischer, the executive director of the ASTHO, said Goldman has worked closely with the California EPA. Carol Browner, the EPA administrator, has moved slowly to fill that job, which was held in the Bush administration by Linda Fisher. It may not be Browner's fault. The personnel people in the White House have been moving slowly on nominations throughout the federal bureaucracy. ■

*Stephen Barlas is Lawn & Landscape Maintenance magazine's Washington-based correspondent.*



## NEWS DIGEST

### **Biosys Buys AgriSense; Supplies Bt to Ciba**

Biosys acquired AgriSense, a Delaware general partnership formed in 1988. The acquisition includes the wholly owned AgriSense European subsidiary, Biological Control Systems and the U.S. operations headquartered in Fresno, Calif.

The transaction is expected to cost biosys \$3.5 million in cash and 400,000 shares of biosys common stock.

In a separate deal, Biosys and Ciba signed a multi-year contract granting biosys exclusive rights to produce a variety of strains of *Bacillus thuringiensis*, the active ingredient in Ciba's biopesticide product line.

### **Briggs & Stratton Offers Maintenance Tips**

Briggs & Stratton offers the following tips on maintaining four-cycle engines in walk-behind mowers, tillers, riding mowers and chipper/shredders:

Change the oil after 25 hours of operation, using a high-grade detergent automotive oil. Thirty weight is recommended when operating above 40 degrees F; use clean, fresh, unleaded gasoline; insert large-capacity pleated paper air cleaners or oil foam air cleaner to help keep the engine clean; and clean under the blower housing to prevent grass and debris buildup.

### **N.C. Forms Composting Council**

The North Carolina Composting and Organics Recycling Council recently formed to support beneficial uses of compost and recycled end products.

The council plan to, among other things, develop a product locator guide for compost and recycled organic products in North Carolina; sponsor educational events promoting composting; and evaluate and provide input into existing and proposed federal, state and local legislation.

### **Crop Plus Invites Field Participation**

Crop Plus is seeking seed breeders to participate in field demonstrations of Natur-all, its bio-organic growth propagator. Natur-all, mixed with inoculants or surfactants and water when seed treating, is designed to increase germination of any seed to produce disease-resistant plants and increase fertilizer efficiency.

For more information contact: Crops Plus Inc., 3204 Arlene Way #C, Las Vegas, NV 89108; 702/645-6710.

## **Gene Discovery Brings New Meaning To Drought-Resistant Turfgrass**

IN A FEW YEARS, the word drought might not cause the same fear in lawn and landscape professionals as it does now. That is if researchers at The Ohio State University, Columbus, are able to take a gene they have isolated and incorporate it into turfgrass.

The drought-tolerant effort was initiated through the university's Biotechnology Center. There, researchers have isolated a gene that controls the production of proline, a common amino acid associated with drought tolerance in many plants.

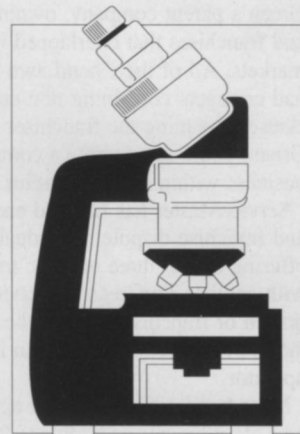
The discovery by Desh Pal Verma, a professor of molecular genetics, will help jump-start the production of proline, which helps hold water and prevents damage in the cell so it remains alive during a drought. While all plants have proline genes, not all proline genes are exactly the same. The lentil gene (Verma first discovered the proline gene in 1991 in lentils) is 10 times more effective against drought than the gene found in a bacteria strain.

Ohio State has applied for a patent for the gene. In the meantime, Verma is studying its use in helping rice grow in salinated water with the help of a \$125,000 Rockefeller Foundation grant.

Taking the discovery one step further, Alan Paa, associate director of the Biotechnology Center and Karl Danneberger, a turf specialist in the university's agronomy department, want to see what the gene will do in turf. The pair's research is financed with a \$100,000 grant over two years from the Ohio Turfgrass Foundation.

"Everybody's looking for a high-quality turfgrass that requires less maintenance," Danneberger said. "Especially water — there are some areas of the nation that can only use non-potable water on grass. This project is really opening doors to allow us to reduce inputs on turf."

If successful, other possibilities include the development of pest-resistant turf varieties or aiding plants in making better use of nitrogen.



### **Ciba-Geigy Takes On New Identity**

Ciba-Geigy Corp. changed its logo and corporate identity to Ciba, and its turf and ornamental division to Ciba Turf and Ornamental Products.

The name change is part of a worldwide



program designed to reflect the changing face of the company. It also unites the company's 14 divisions and helps position the company for future growth, according to Bill Liles, director of Ciba Turf and Ornamental Products.

"Ciba represents the new face of our company, a more open and ambitious character," Liles said.

The firm's new identity reinforces Ciba's commitment to economic growth, social responsibility and environmental protec-

tion — all part of the company's "Vision 2000" plan.

The legal name for the U.S. company remains Ciba-Geigy Corp. The logo change will be phased in over the next several months.

### **Byers Leaves Bunton, Starts Own Business**

Stan Byers, former president of Bunton Co., left the position to form Byers Gold Inc., an outdoor power equipment manufacturing company in Louisville, Ky. Bunton had not filled the vacancy at press time.

The Bunton family sold the company to two local investors in 1990, Byers said. "I stayed on under a manager's contract...but it was time for me to move on. I enjoy running my own operation and I think I know how the commercial mowing industry works by now."

Byers Gold Inc. has five full-time employees "with 125 years of experience between us," and plans to manufacture mowers, leaf blowers, "and other equipment strictly for commercial lawn service people," Byers said.

The company hopes to have its first mower on display at the July International Lawn, Garden & Power Equipment Expo in Louisville

## Franchises Charge Breach of Contract

One year after TruGreen purchased ChemLawn Services Corp., wrinkles are still being ironed out between the parent company and its franchises.

Problems arose after the buyout due to ServiceMaster Consumer Services, TruGreen's parent company, owning branches and franchises that overlapped in about 35 markets. All of the ChemLawn franchises had contracts containing non-compete clauses, meaning the franchiser (now TruGreen) could not operate a competing business within a certain radius.

ServiceMaster has handled each branch and franchise dispute individually, usually offering one of three options: trade markets with another TruGreen or ServiceMaster branch or franchise, operate the franchise in the same market or become an independent operator.

Most franchise owners have agreed to some type of settlement, according to Bob Von

Grubben, vice president of counsel for TruGreen/ChemLawn. Dick Thoma, who formerly owned the largest ChemLawn franchise covering operations in Wisconsin, Michigan and Pennsylvania, said he reached an adequate agreement with the company. "We solved the overlap problem. We traded some markets. It worked out to my benefit," he said.

Thoma now operates a franchise in Pittsburgh under the ChemLawn name. ServiceMaster runs another operation in the same vicinity under the ServiceMaster/ChemLawn name, however. Thoma anticipates having to change his operation to TruGreen/ChemLawn.

One Midwestern ChemLawn franchise owner claims TruGreen breached its contract with the franchisee, but would not offer specifics for fear of hindering efforts to settle the dispute.

Only one TruGreen franchise purchase agreement contained a non-compete clause, which allegedly was not supposed to be included. Donn Smith bought his TruGreen franchise in Oklahoma City, Okla., in 1991. His contract states TruGreen "shall not operate any lawn care operation within a 100-mile radius of Oklahoma City," according to Smith.

"Their lawyer admitted a year ago they had made a mistake by including the non-compete clause," Smith said.

TruGreen acquired a ChemLawn branch in Smith's market last year, and has continued its operation. Smith's lawyer asked TruGreen to settle or face a lawsuit. TruGreen in turn sued Smith, charging him of breaking his franchise agreement, Smith said.

The lawsuit maintains that TruGreen is not a wholly owned subsidiary of ServiceMaster and that the franchise agreement Smith signed is "for a non-exclusive franchise."

Smith countersued, claiming ServiceMaster's ChemLawn in Oklahoma City competes against his franchise, in violation of the non-compete clause. No settlement had been reached at press time.

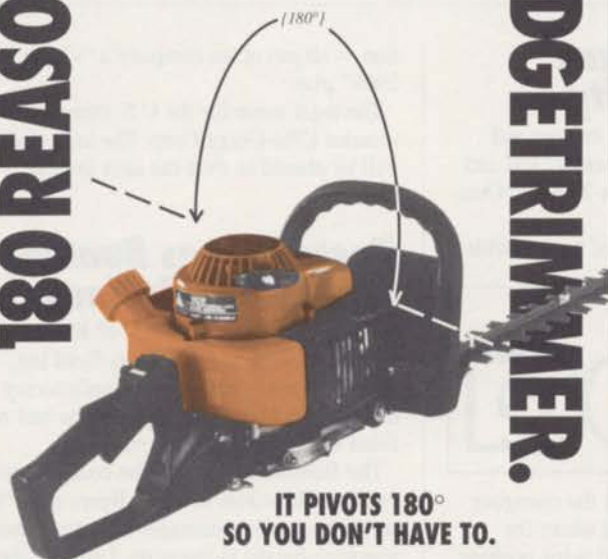
"This is going to get more heated," Smith said. "I hope to get it settled. I just want it to be reasonable."

## OPEI Forecasts Sales Through '94

Front-engine lawn tractors are projected to show the highest increase in outdoor power equipment sales, according to a recent report from the Outdoor Power Equipment Institute.

Front-engine lawn tractor sales peaked at

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885,000 in 1990, and are expected to jump to 929,310 this year and 1,003,589 in 1994.

The OPEI report shows a projected sales increase of 4.7 percent in walk-behind mowers for 1993, jumping from 5,150,000 in 1992 to 5,391,711 this year. That number is expected to increase to 5,730,239 in 1994.

Rear-engine riding mower sales will drop 8.5 percent this year, from 205,000 to 187,619, and then dip to 180,943 in 1994, according to the report.

Tiller sales increased 15.9 percent in 1992 from the previous year, while riding garden tractors gained 3.9 percent.

Tiller sales are expected to reach 343,195 in 1993 and 364,828 in 1994. Garden tractors will jump 15 percent in sales to 152,893 this year, and up to 163,266 in 1994.

Since 1985, rear-engine riding mowers sales have dropped sharply, from 355,000 to 205,000 last year. In contrast, the projected 1994 sales of front-engine lawn tractors sales almost doubles 1985's 548,000 sold.

The report, prepared by Association Research Inc., has been revised to reflect current national economic conditions.

## RISE Takes Pesticide Issues to the Hill

Well-maintained landscapes improve quality of life, abate noise, control erosion, modify temperatures and retard fires, industry experts told government representatives attending the Specialty Pesticide Federal Symposium in Washington D.C.

Sponsored by the Responsible Industry for a Sound Environment, the Professional Lawn Care Association of America and the Chemical Producers and Distributors

Association, the symposium aimed to educate government officials about the value and benefits of pesticides used for specialty purposes, including lawn and garden care.

Dr. Joseph Neal, a researcher at Cornell University, led off the presentation, citing numerous statistics on the value Americans place on well-maintained landscapes. Among those facts, he said gardening is America's number one leisure activity, home lawns and landscapes constitute 20 million acres, 56 million Americans maintain their own lawns and more than 500,000 people work in turf care.

Neal advocated an integrated approach to landscape management, but added that when a major pest outbreak occurs, there are no effective alternatives to pesticides.

Speakers at the half-day forum included several university experts, industry members specializing in turf management and Rep. Robert Smith, R-Ore., the ranking Republican on the House Agriculture Subcommittee on Department Operations & Nutrition.



Symposium participants discuss lawn care issues.

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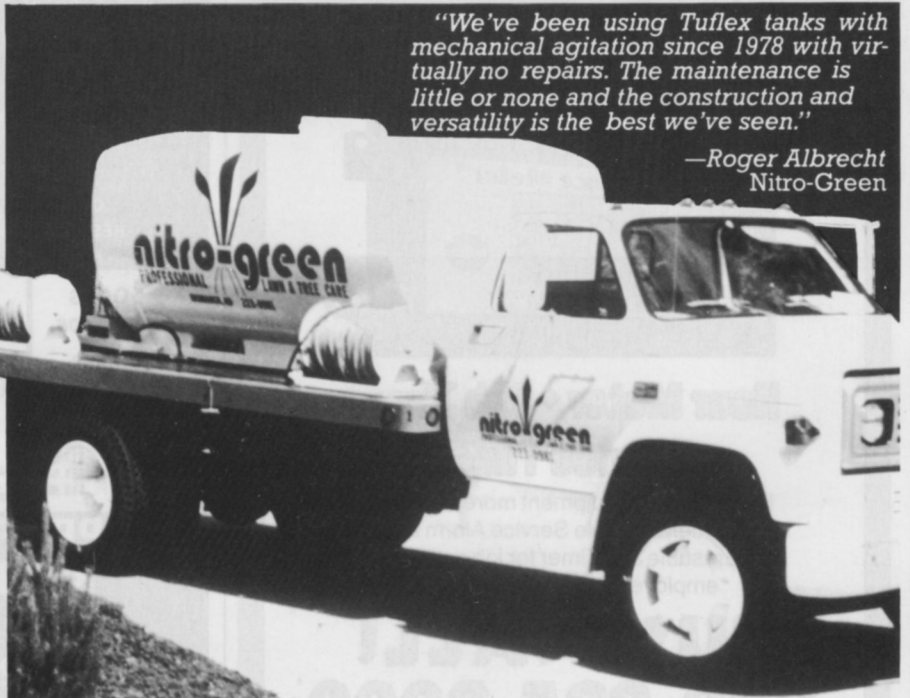
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# Association News

THE **NORTH CAROLINA Turfgrass Foundation for Research & Education** and the **South Carolina Turfgrass Foundation** are receiving up to \$5 donations for every case of Blazon® spray pattern indicator sold in the Carolinas.

Milliken Chemical, the manufacturer of Blazon, and Smith Turf and Irrigation, Blazon's authorized distributor, agreed to donate a combined \$5 for each case of original Blazon or new Blazon E-Z Paks sold before Nov. 1.

The SCTF will announce final donation numbers at the Carolinas Golf Course Superintendents Association's mid-November Clemson Turfgrass Conference in Myrtle Beach. Contributions to the NCTFRE will be announced at the 32nd Annual North Carolina Turfgrass Conference Jan. 5-7, 1994, in Winston-Salem.

More than 300 students attended the **Associated Landscape Contractors of America** Student Field Days, the largest turnout ever. The three-day event, held at the State University of New York, Cobleskill, allowed horticulture and landscape architect students at colleges and universities nationwide to

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compete in their respective trades.

Thirty events tested students' skills in implementing landscape contracting practices and principles. California Polytechnic State University, San Luis Obispo, took first place overall. California Polytech State University, Pomona, placed second; and State University of New York, Cobleskill, finished third.

This year's Superstars — students who accumulated highest overall individual scores — were Deborah Zimmern, Richland College; Andy Perrino, Cincinnati Technical College; and Gary Nagaoka, California Poly-

technic State University, San Luis Obispo.

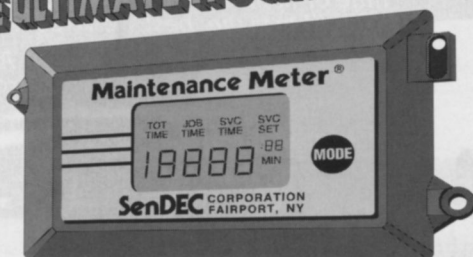
ALCA president Gary Thornton keynoted the opening event's mixer, focusing his presentation on changes in the industry.

The **Pennsylvania Nurserymen's Association's** wage and hours issue conference reached 11 sites concurrently through a teleconference broadcast from Hershey Nursery in Hershey, Pa.

Using new technology, PNA broadcast presentations by Fred Atterbury, the American Association of Nurserymen's wage and hour consultant, and John Johnson, Esq. of

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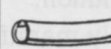
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Buchanan Ingersoll Professional Corp. The conference focused on the U.S. Department of Labor's decision to redefine 1989 amendments to the Fair Labor Standards Act (Wage & Hour Law). Violators of minimum wage and/or overtime requirements can now be fined up to \$1,000 for each repeated violation.

Tests conducted before and after the presentation showed participants on average gained a 26 percent increase in knowledge. Of those who took the test, 97 percent said they would attend future teleconferences.

PNA education director Corrine Shearer said the conference was implemented to promote statewide training by national experts at a much lower cost than several individual workshops statewide.

"Employers using this technology like the fact that employees are spending less time away from the job as the sessions are brought close to the place of employment," she said. "We believed this type of educational delivery would be very effective for the horticultural industry."

Landscape contractors who pass certification tests in California, Washington, Oregon or Colorado can use their credentials anywhere in those states.

**The Washington Association of Landscape Professionals and Oregon Landscape Contractors Association**

purchased licenses from the **California Landscape Contractor's Association**, enabling landscapers in those states to become certified in any West Coast state and Colorado.

Oregon and Washington have already held certification tests under their California licenses. Washington held its first test in April. Oregon's next test is scheduled for August.

The **Associated Landscape Contractors of Colorado** purchased rights to the CLCA's maintenance and construction certification tests five years ago, and only recently became licensed for the irrigation test. The association plans to hold its next test at the Front Range Community College, Larimer County Campus, in Fort Collins, Aug. 7-8. CLCA will hold its next certification test Oct. 16-17 at the American River College in Sacramento.

The **American Sod Producers Association** expects 700 visitors to attend its Summer Convention and Field Days at the Opryland Hotel in Nashville, Tenn., July 14-16. Events on July 14 include an educational session on

credit and collections, and the ASPA annual business meeting.

The field days July 15-16 will provide close-up looks at the latest large-scale turf management equipment, including "fairly recently developed sod-laying machines that take the manual labor out of the process and save time," said Tom Ford, ASPA's meetings administrator.

The field days will be held at the Thomas Brother Co.'s 105-acre farm 30 minutes southwest of the Opryland Hotel. The farm includes test plots for tall fescues, blue-grasses and ryegrasses, bentgrass plots and a sod production operation.

**IN BRIEF...**The **Professional Grounds Management Society** offers its 1993 membership directory free to members; \$38 for non-members. For a copy, contact PGMS, 120 Cockeysville Road, Suite 104, Hunt Valley, MD 21031; 410/584-9754...The **Michigan Nursery and Landscape Association** offers its 1993 Membership Directory and Advertiser's Buyers Guide. Cost is free for members' first copy; \$20 for additional copies and \$40 for non-members. For more information, contact the MNLA, 819 N. Washington Ave., Suite 2, Lansing, MI 48906; 517/487-1282. ■

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## IA Sets Its Sights On San Diego

THE IRRIGATION Association will hold this year's International Irrigation Exposition and Technical Conference Oct. 31 through Nov. 3 at the San Diego Convention Center. More than 75 percent of the booth space is already sold.

The show features more than 400 booths and draws more than 3,500 attendees worldwide. The technical conference features three days of presentations by industry experts on a multitude of issues.

To increase show attendance, the IA is lowering registration rates by 30 percent and is initiating an expanded advertising campaign. For more information about exhibiting or attending, call the Irrigation Association at 703/524-1200.

## Hunter Establishes Student Program

Five college students have been selected by Hunter Industries to participate in a new, one-year Fellowship Program.

The students, all preparing for careers in the landscape industry, will participate in a wide range of activities and events including a 160-hour internship sponsored by Hunter and attendance at major industry functions and trade shows, including the Irrigation Association conference and the annual Hunter distributor's meeting.

They will also attend irrigation design training seminars and tour various educational institutions.

"The new Hunter Fellowship program is designed to create a partnership between talented students and the green industry," said Lynda Wightman, Hunter sales education manager. "Hunter believes the future of landscape irrigation depends upon the involvement of educated, professional members. As conservation of water and energy resources becomes more important, the development of industry leaders with sophisticated technical skills becomes critical."

The students were selected based on scholarship and work experience, and represent colleges and universities throughout the United States and Canada.

## Water Issues Highlight 3-Day Tech Conference

The 1993 National Conference on Irrigation and Drainage Engineering, sponsored by the American Society of Civil Engineers, will be held July 21-23 in Park City, Utah.

Two-hour sessions over the three-day conference will deal with water transfers, water rights, consumptive use computations and urban-agricultural water management, among others. Additionally, a one-day workshop is planned for July 23 by the Water Resources Planning and Management Committee on Model State Water Codes.

All papers presented at the Irrigation and Drainage Conference will be published in conference proceedings by the ASCE.

For more information on the conference, contact Launa Godfrey, Dept. Biological and Irrigation Engineering, Utah State University, 801/750-2785. For more information on the Model State Water Code Workshop contact: Dr. Ray Davis, Brigham Young University Law School, Provo, Utah, 801/378-4274.



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# Sculpting A Consistent Image

*Synergism is needed to foster an industry image worth emulating. Attaining this stature is discussed by our roundtable participants.*

*By Cindy Code*

THE SPECIALTY PESTICIDE industry provides a vital link to the health of turf, trees and ornamentals, yet is a source of frustration to professional service operators struggling to run their businesses amid protest from activists and government intervention.

It's not enough that service contractors have to deal with unlicensed operators, fly-by-night companies, tax burdens and legitimate environmental issues, not to mention the challenges of conducting business through an economic recession. Most of that comes with the territory of running a business.

But no other industry is as visible to the public undergoing daily scrutiny not only from its customers, but the next door neighbor, school officials down the street, the local council, state officials, the federal government, the media and so on.

There's no question the lawn and landscape industry needs to improve its public perception. With an onslaught of legislation coming from local, state and federal governments and continued pressure from various activist groups, representatives of the specialty pesticide industry need to pull in their reins, polish their image and present the proper message about specialty pesticides.

The right approach, however, is anybody's guess. Many firms have hired lobbyists to sway the federal government to their mindset. National associations have written sample bills to usurp unconscionable legislation proposed by Congress. And others have chosen to put blinders on hoping the pesticide frenzy won't affect them.

In an ideal world, all green industry factions would synergize, generate one message and spread the good news about specialty pesticides. While good efforts have taken place to date, a consistent industry image will take this profession a step beyond.

With this in mind, we decided to go straight to the source. We invited 14 leading industry representatives to attend our third business roundtable — the first to debate the issues of specialty pesticides — in an effort to gain some insight, muster a few plans of attack and generate some enthusiasm.





Building a consistent image is relatively easy compared to the task of delivering the message to the public. Nevertheless, it's a task which must be taken seriously by the green industry. Illustration: Bob Novak.

## WHO CAN AFFORD SPECIALTY PESTICIDES?

MARKET SATURATION, higher research costs and quagmired registration laws are driving up specialty pesticide prices, leaving manufacturers and lawn maintenance operators wondering if they can afford to continue producing or using minor-use products.

Manufacturer representatives at the pesticide roundtable agreed specialty products with limited markets, which includes a large segment of lawn care pesticides, are the first products dropped. The decision essentially comes down to cost/benefits analysis, explained Andy Seckinger, product manager for Rhone-Poulenc Ag Co., Research Triangle, N.C.

"You look at the dollar value generated vs. expenses. The specialty market doesn't compare to a \$60 million soybean market. To make revenue in smaller usage patterns, you have to increase prices." New products face even higher financial hurdles than existing products, he added.

"From our standpoint, you're going to see a lot of products in the next several years fall out because we can't afford to invest the dollars to keep them there," said Steve Chaney, turf and ornamental product manager for Miles' specialty products group, Kansas City, Mo. "You look at what it costs to register, what you are going to have to pay years from now for products you put in the marketplace today, and it's an extremely high risk."

Congress is considering a Minor Crop Protection Assistance Act that would remove certain hurdles for re-registering minor-use pesticides and provide incentives to keep them on the market, according to Ben Bolusky, director of government affairs for the American

Association of Nurserymen.

Scott Moffit, product manager, turf and ornamental department, Ciba, Greensboro, N.C., said increased communication from contractors on product acceptance would enable manufacturers to make better marketing decisions. "We look at new product screenings and when we're not going to have the budgets, we need market information from (contractors) to get things done for the end user."

Manufacturers find keeping organic products on the market especially difficult. "The biological business is probably one of the least profitable for Sandoz, to the point where we're not sure long-term that we can survive in that business," said Ron Fister, director, turf and ornamental, Sandoz Agro North America, Des Plaines, Ill. "We launched the *Bts* (*Bacillus thuringiensis*) in the turf markets. I can tell you it wasn't worth our effort to print the material."

Fister maintained manufacturers will continue offering new chemistry for turf, however. "I think all of us probably have product chemistry that would eventually make it into turf because, in most cases, there are no food residue studies required, and we can enter the turf market first in some cases," he said.

Contractors voiced concern over being able to afford higher prices for specialty products, such as those used in controlling weeds in ornamental beds. They, like manufacturers, predict having to pass added costs on to customers. "You offer those services, you get priced out of the market," said Ewald Altstadt, director of operations for Lawn Doctor, Matawan, N.J. — *Cathy Hoehn*

Attendees included: Steve Chaney, turf and ornamental product manager, specialty products group, Miles Inc., Kansas City, Mo.; Scott Moffitt, product manager, turf and ornamental department, Ciba, Greensboro, N.C.; Ron Fister, director, turf and ornamentals, Sandoz Agro North America, Des Plaines, Ill.; Sam Barrick, product marketing manager, specialty products, DowElanco, Indianapolis, Ind.; Andy Seckinger, product manager, CHIPCO, Rhone-Poulenc, Research Triangle Park, N.C.; Ewald Altstadt, director of operations, Lawn Doctor, Matawan, N.J.; Steve Derrick, technical manager, Orkin Lawn Care, Atlanta, Ga.; Erica Santella, regional technical manager, TruGreen/ChemLawn, Leesburg, Fla.; Doug Halterman, executive vice president, Leisure Lawn, Dayton, Ohio; Chuck McIntire, technical director, AllGreen Corp., Dallas, Texas; Roger Albrecht, president, Nitro-Green, Fairfield, Calif.; Michael Counselman, president, Stiles Landscape Service Co., Pompano Beach, Fla.; and Ken Wentland, production superintendent, Lied's Nursery Co., Sussex, Wis.

Bob Yount, executive director of the Florida Turfgrass Association, Orlando, was moderator.

While our basic mission was a success, strategy implementation was a more difficult nut to crack, particularly in the face of Sen. Joseph Lieberman's proposed national posting bill, plans by the U.S. Environmental Protection Agency to issue state guidelines on posting, notification and state registries and the elimination of certain specialty pesticides because of current re-registration proceedings.

"I do believe that a lot of this new legislation, rather old legislation reborn, has caused a lot of LCOs to band together more," Altstadt said. "But I think some other ideas have also come out — the fact that there's a large, significant customer base that we really haven't tapped to help us support the fight against legislation."

The industry is — and has been for several years — in a mode of defending the products it uses rather than mustering support from the consumer, the lawn maintenance operator and the suppliers of specialty pesticides.

"I think each group has to take at least its own individual responsibility and say 'This is how I'm going to support or defend my products,'" he added.

Additionally, a second look should be taken to organize the

efforts of major groups, who by their vested interest, can act in a synergistic, proactive manner.

"Until we think about changing the general public perception, everything we talk about here today has little or no meaning," Chaney said. "Until they (consumer) perceive (our business) as a value, they see no need for us."

"And what benefits they do see are outweighed by the risk they see inherent to that," McIntire added.

**POSTING.** "Legislation is not a threat to us if it's fair, common-sense legislation," McIntire said. "What the industry needs to look at right now is that we get fair legislation for everybody. Not just for the lawn care operator, but also for the homeowner so that everybody is treated the same. I think that's where the industry has to unite, be strong and make sure that all legislation is clear and common sense."

Statistically, homeowners may be responsible for a larger share of pesticide applications, but the issue of homeowner posting has been an ongoing source of controversy among manufacturers, associations and even end-users.

Among national associations, the Responsible Industry for a Sound Environment is opposed to

legislation requiring homeowners to post, while the Professional Lawn Care Association of America favors it.

"We at Sandoz have always been in favor of homeowner posting," Fister said. "We think it's a chemical issue, not an applicator's issue, and we believe if you're certifying your pesticide, why not put the label on the bag making it a homeowner requirement to post as well."

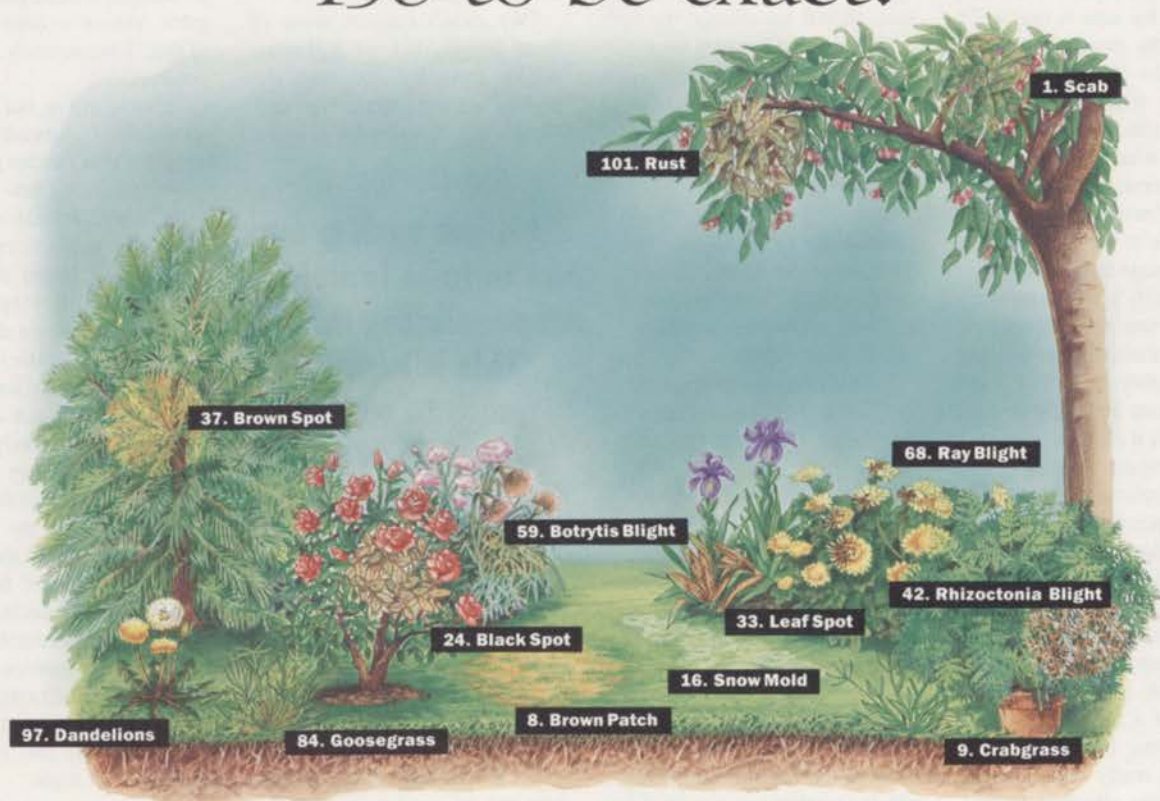
"I don't know why everybody is dragging their feet on that issue. We've surveyed some large retailers and the general feeling is that it's not a negative to put a sign in their store causing homeowner posting to occur."

Wentland and a group of professionals in Wisconsin tried, unsuccessfully, to get homeowners included in a state bill. But because they worked diligently and cooperatively, their efforts were rewarded with legislation virtually written by lawn care industry professionals.

"We tried very hard to get homeowners included, but they would not write it in because they said they couldn't enforce it," Wentland said. "They did, however, direct garden centers and others selling pesticides to pro-

(continued on page 22)

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## Cover Story

(continued from page 20)

vide free posting signs to anybody buying the products, with a strong recommendation that they post."

While some don't see the advantages of requiring homeowners to post, particularly since it's nearly impossible to enforce, Fister said he believes it could take away some of the negativism directed toward professional operators.

"It will create somewhat of an even playing field, neutralize the impact of 'You're the bad guy and I'm the good guy,'" he said. "One thing for sure is that we'll never take the pesticides out the hands of the homeowner, but comparable legislation gets us off the hot seat, so to speak.

"I think what happens is we preach to ourselves so long that we think we're the bad guys," Fister said. "We're not the bad guys, just the message has not been displayed properly to the consumer."

Orkin is among a number of firms that maintains a posting policy whether or not it's required by state law. Derrick said the firm sees it more as a benefit to its customers, letting them know an application was made to their property. And like other firms operating in multiple locations or on large commercial projects, Orkin wants to see some standardization of sign sizes and quantities required to be posted.

"(The lack of uniformity) is indicative of a lot of legislation that's written. It's written by people who really don't understand what the situation is, but they want to get some legislation in there," Derrick said.

The bottom line is that lawmakers have to be educated as much or more than lawn care customers. They need to be told about the difficulties haphazard legislation creates. If posting requirements cannot be eliminated or modified, with the proper urging, a national standard could be implemented.

"One of my concerns is that federal legislation sets a minimum standard for the state to follow and the states can pass legislation more restrictive than what the federal government establishes," Halterman said. "We have to make sure what we get passed is what we can actually live with, knowing that a lot of states are going to come up with something

more restrictive than what the federal government is going to put through."

**PERCEPTION.** Another widespread concern centers around the exclusion of pest control operators from proposed national legislation. Essentially, if pest control operators are using a number of the same products as the lawn maintenance industry, they shouldn't receive any different treatment. "The perception is that lawn care has no value to the general public, whereas pest control does from a hygiene point of view," Chaney said. "Until we change the perception in this country — at the general population level — that there are definitely economic advantages in maintaining turf and ornamentals, we probably will not see a lot of support."

Much of the perception problem can be traced back to the start of the lawn care industry when 1,200-gallon tankers were a common sight on neighborhood streets.

"We wanted to be seen and we did a darn good job of that," Derrick said, "but we not only alerted them, we scared the heck out of them. The perception was that there's hundreds of gallons of raw chemical in there."

The reality that the tank is not 100 percent pesticide is often taken for granted by lawn and landscape personnel, when in fact explaining to customers that it's not could tremendously benefit the industry. Barrick said his wife, who is a teacher, was a critic of the pesticide industry, particularly because she didn't understand what lawn maintenance personnel were carrying in their trucks.

While the huge tanks are no longer commonplace, technicians and/or field level personnel are not as attuned to the concerns of the customer as necessary.

"One of my personal observations is that most technicians are very uncomfortable (when addressed by a customer) because they have been approached by activists in the past, and their immediate reaction is extremely defensive," Seckinger said. "If that guy's a professional he should have a set of facts to sit down and discuss with the customer. And that's not just to pick on the applicators because I believe we as

chemical manufacturers are guilty of the same thing.

"We have all been so sensitized to it when somebody outside of our group starts asking us questions. Immediately the shields come up and we try to find out 'Who are you with? Who do you belong to?'"

Public relations or community efforts can help put a positive spin on lawn care. For instance, Santella said a TruGreen/ChemLawn branch in Florida participated in an Earth Day event in which they set up a booth, gave away annuals and answered questions.

"We didn't convert some of those people, but we had other people come by that were impressed we were there," she said. "It doesn't have to be a major

**"I think each group has to take individual responsibility and say 'This is how I'm going to support or defend my products.'"**

project, but you need to make sure everyone in your organization understands the benefits (of lawn care) and feels comfortable talking with the public about our products and services."

It's a challenge hiring people who can be conversant with the customer and maintain a "customer comes first" attitude.

"You have to hire people with the mentality that they can remember that the customer is particular about his roses by the back fence and so on," Albrecht said, as well as remembering who doesn't want to see a different technician each time.

**TRAINING.** Perhaps at the core of creating a positive impression is the proper training of not only field, but all personnel. Employees are not only integral to the success of all business efforts, they represent the largest chunk of a firm's overhead. Subsequently, many firms hire people who will work for minimum wage when in reality, business owners should

consider paying a good wage, training them properly and improving the quality of people who are working in the industry.

Halterman said one of the problems inherent to the industry is the "summer job" mentality. If a specific career path or predetermined program can be shared with new employees, lackluster performance and ultimate turnover can be reduced.

"We run mostly two men per truck and I'd say our turnover is about 30 percent," he said. "Our main goal is to permanently keep at least one of those people on that truck, and we've done a good job of that. Unfortunately, it gets expensive."

"It's expensive, but it's our responsibility," Altstadt said. "It's got to be a constant job. It's not just training a new employee. It's a constant educational process for applicators."

Altstadt added that a large part of this responsibility should fall on the shoulders of the field technicians themselves. "It's not some kind of responsibility that can be delegated to somebody else. As a group, maybe we can refine some of our tools that they can use, but it is the individual responsibility of the LCO."

Orkin reduced turnover by 24 percent at the technician level in 1992 by implementing a one-week training session. Employees were required to stay at a hotel throughout the training, attending classes by day and completing homework at night.

In some cases, manufacturers and end-users work together on the training issue by bringing technical representatives into a firm for seminars, or sending representatives on the road with lawn and landscape crews.

Synergism was evident among those attending LLM's business roundtable, as was a sincere interest to relay the appropriate message to the industry at large. We'll continue to bring you more of their comments in future issues of LLM. Watch for articles on the subjects of integrated pest management, organics and biologicals, 2,4-D, licensing and more to appear.

*The author is Editor/Co-Publisher of Lawn & Landscape Maintenance magazine.*

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# Competitive Research Breaks New Ground



CONSIDERING it takes the same amount of time to research, develop and market a new turf seed variety as it does to pay off a "small" mortgage on a condo or house, earthshattering discoveries remain a rarity in the seed breeding domain.

Like any industry in which similar products vie for dwindling consumer dollars, breeders attempt to insulate trade secrets from preying competitors. But once turf varieties hit the market, the technology and research behind them essentially become a free-for-all, according to breeders.

"You release a new variety that's unique and special, any one of your competitors can go

*Seed breeders continue to pump out new turfgrass varieties, but experts say conceptual piracy, saturated markets and forced price cuts threaten to incite an industry shakeout.*

*By Cathy Hoehn*

and copy it," said Mike Robinson, president of Seed Research of Oregon, Corvallis. "It's discouraging in a way. It discourages companies from putting money into special breeding programs."

Federal laws implemented to prevent plagiarism have failed in their mission, according to breeders.

The Plant Variety Protection Act gives seed companies full control over production of a new variety for 17 years, and prohibits competitors from selling the same variety or using the variety's name on its own product. A company must apply for protection within one year of commercial release of a seed product, said Virgil Meier, seed re-

search manager for O.M. Scott & Sons, Marysville, Ohio.

A common practice, however, is for other companies to usurp the original developer's research and technology to breed and market a slightly altered variety. The second brand usually hits the market one to two years after the original, and the developer can afford to peddle it at a much lower price, since little was spent on research.

This "midnight breeding" is an area of concern for all the major seed companies, said Doug Brede, director of research for Jacklin Seed Co., Post Falls, Idaho. "Small, one-man operations are coming in and taking a good variety and copying it. It's taking place in almost all species, except bluegrass which takes too long to grow," Brede said.

The conceptual piracy also contributes to another industry dilemma: market saturation. Steve Tubbs, general manager of Turf Merchants, Tangent Loop, Ore., believes too many companies fighting for commercial recogni-

tion results in a "confused, saturated market." The fierce competition will force small companies to consolidate or go out of business, he said.

"It's been a battle trying to put an end to varietal proliferation. You have 30 identical products on the market, and the only difference between them is price. The only way to get an edge is to lower your price," he said.

Tubbs also contends the influx of European products on the United States market only creates more confusion, but Craig Edminster, research director for International Seeds Inc., Tangent, Ore., said foreign companies bring research to the table, which "I see as very good. You just have to be selective in what you bring on-line from foreign markets."

Amid the gloomy market reports, some breeders see a legislative light of hope. Industry groups are pushing for regulations to force companies blatantly copying others' products to pay royalties to the original developer. An inter-



Hybridization of turfgrass varieties is taking place within pollen bags in the greenhouse. Just one of a multitude of research projects taking place today in the seed industry. Photo: Jacklin Seed Co.

national group called UPOV is working on developing international standards to ease unfair competition in seed development.

"Regulations in place in Europe will make their way here. I see our system evolving into one similar to Europe's — more stringent, improved performance," Tubbs said. "It won't happen in the next year, but it will happen."

**NEW RESEARCH:** Despite complaints about market saturation and time-consuming research, seed companies continue to improve varieties each year. With the onslaught of upgrades, products well-known 12 years ago are yesterday's bargain.

"I divide turf into three generations," said Mike Cline, vice president of Green Seed, Nashville, Tenn. "Those varieties from 1980 are generation 1, from 1985 generation 2 and, from 1990 and after, generation 3. Generation 1 is nearly completely historic. Generation 2s are going by the way side. Generation 3s are the new thing. Popular seed names

people were familiar with 10 years ago are out of the picture."

Disease resistance appears at the forefront of seed research for new varieties. Environmental and cost concerns govern what other factors receive wide attention.

"From the practical standpoint, diseases tend to do more damage on turf than a lot of other things, so we look at disease resistance," Meier said. "If you're in Kentucky bluegrass, leaf spot is critical. With perennial ryegrass, there's not a lot of resistance to red thread. Getting into tall fescue and maybe southern St. Augustine, brown patch is an important disease. If you can obtain disease resistance, you probably have half the battle won as far as coming up with the next variety.

"And then the consumer — a professional or a home owner — looks at the economics. Most people will pay for a less expensive variety, so seed yield is very critical."

Other varietal characteristics influenced by environmental considerations, such as low mainte-

nance and low growing, are also stealing the spotlight. Matt Herb, sales manager for Barenbrug USA, Tangent, Ore., named tall fescue, fine fescue, ryegrass and Kentucky bluegrass as species with the most improved varieties in those two critical areas.

"With all the concerns over water shortages we're looking at things requiring minimal amounts of irrigation," said Mike McCarthy, director of research for E.F. Burlingham & Sons, and co-owner of McCarthy-Burlingham Research, Forest Grove, Ore. "I think you can grow some of the tall fescues under climactic conditions with no water. They will just go dormant ... Minimal maintenance, fertility and irrigation give you the kind of turf that hopefully fits the needs of environmentally conscious buyers."

Green Seed plans to launch Azogreen, a new bacterium *Azo Spirillum*, in test markets this fall. The bacterium allows plants to colonize their own root systems to use atmospheric nitrogen, according to Cline. "It's like a natural fertilizer. It has great potential. It's environmentally sound and provides significant improvement in growth in the seeding stage."

Several researchers contend strong interest remains in low growth, but that dwarf research has seen its heyday. "We've passed the dwarf concept — that was the

concept of the '80s," Brede said. "High density is the grass of the '90s. It's the difference between shag and plush carpeting. The higher-density plants are more attractive. They cover every square millimeter and are more uniform."

Cline agreed dwarf varieties fall short of expectations. "The real fear is that the root systems become too dwarfed and are not able to withstand drought conditions, particularly in the Southeast on non-irrigated turf," he said.

Barenbrug plans to market a dwarf variety tall fescue called Lexus in 1994. "It's a new generation of dwarfs. Dwarfs in the past had problems with disease resistance and drought," Herb said.

In cool-season grasses, Turf-Seed Inc., Hubbard, Ore., plans to focus on salt tolerance — for areas that either use reclaimed water or have heavy levels of salt in the soil — and pesticide resistance. "We look to have plants where you can spray a cross section with herbicides and they will still live. That's an exciting area," said seed breeder Crystal Fricker.

O.M. Scott's Meier agrees herbicide resistance may have application in turf, but cautions that it can be risky on mixed turf. "If you only have one variety that is herbicide tolerant, you have to be sure it makes up the majority of turf. Because if you spray with a herbicide and kill all herbicide-suscep-



A breeder block for selected plants to be balled and transplanted to cross-pollinate for fine and tall fescues and ryegrasses. The wheat border protects the plot's purity. Photo: E.F. Burlingham & Sons.

tible plants, you may not have any turf left."

According to Herb, seed R&D efforts in the next 10 years will focus on development of regional varieties: low/no maintenance turf and ground covers; niche grasses to fill specific needs and/or conditions as the consumer becomes more environmentally aware; and native and specialty grasses which will play a larger role in turf and landscape schemes.

**INDIVIDUAL PLANT TYPES.** In the area of tall fescues, Gerry Pepin, executive vice president and general manager of Pickseed West, Tangent, Ore., believes the last five years have brought new tall fescue varieties that are "much darker, shorter, denser, more attractive. And they continue to improve," he said.

In the bluegrass arena, there's little room left for improvement "until gene splicing and available biotechnology improves," Pepin said. "Varieties we have now will be around a long time unless new technology comes along."

The main area of focus for Jacklin Seed is perennial ryegrass. "We've seen a very big leap in dark green color compared to the past," Brede said. "Not just a subtle shade. Darker than the darkest of Kentucky bluegrass varieties, which translates into less need for nitrogen fertilization."

A few companies are vying to be first in marketing a seeded bermudagrass, an improvement over types that are propagated from root stolons, according to Brooks Pennington of Pennington Seed, Lebanon, Ore. "You'll see more and more of this as time goes on. It's so expensive to sod an area when you can plant the seed," he said.

Jacklin Seed already has samples of Jackpot, its new seeded bermudagrass, available. The turfgrass is mainly for use on golf courses, however.

Companies are also racing to improve common type zoysiagrass. "Probably six companies will hit the market with zoysiagrass at the same time. It's not a question of mechanical handling as much as a challenge of breeding," Brede said.

Turf-Seed is collecting new types of fine fescue "from old parks and cemeteries where we can find surviving plants virtu-

## DOES CERTIFIED SEED GUARANTEE QUALITY?

A RECENT SURGE in litigation against companies accused of selling falsely labeled seed products has caused landscape contractors to question whether or not certified seed guarantees quality. The answer is no, according to experts.

"Certification doesn't guarantee high quality seed. I call it a birth certificate. It's a guarantee of parentage," said Art Wick, vice president of research and development for LESCO, Rocky River, Ohio.

A state, university or other third-party certifying agency verifies the genetic origin of a plant variety, and tests for a minimum standard of purity and germination. Those standards vary state to state. Seeds containing a trace of noxious weeds considered certifiable in one state, for example, may be unacceptable in another.

Industry observers voice doubts about the adequacy of current certification standards, or whether certification programs are properly enforced. "I'm not sure the whole thing is policed appropriately," Wick said. "Although if somebody wants to be a crook, they'll always figure out a way to be a crook."

Malcolm Sarna, chief of turf and seed division, Maryland Department of Agriculture, agreed some state certification programs are not adequately enforced.

"I personally feel when you get to the supervised mixing of different lots, the only way to do it is to have an inspector physically there. You can't do it on a paper trail," he said. "I'm not suggesting everyone is a seed crook. The majority of companies out there are reputable. But there are companies that will do what they need to do to make a sale."

Seed breeders claim most certified seed is high quality, with only a few instances of abuse. They advise landscape contractors to go through a reputable supplier and seed company to ensure they're getting what they ask for.

Trust only goes so far, however. "Seeds are being misrepresented sometimes. You want brand X and what you're really getting is brand Y. That's come up in the last few years," said Mike Cline, vice president of Green Seed, Nashville, Tenn.

A few companies, such as O.M. Scott & Sons, Marysville, Ohio, offer mostly uncertified seed. "We buy straight from the farmers and market our own seeds, eliminating going through a wholesaler, so we reduce the need for certification," said Virgil Meier, Scott's seed research manager.

Some researchers contend that species and variety of turfgrass often dictate whether certification is pertinent. A pure strain of creeping bentgrass, for example, will most likely be certified because of market demands. Perennial ryegrass, an easy seller, often remains uncertified.

Sarna said contractors can protect themselves from buying bad seed by purchasing only certified seeds (although he concedes uncertified can be just as high quality) and, if dealing with a commercial supplier, by asking for the test report on the seed lot in question.

ally untouched by fertilizers and pesticides," Fricker said. "I think we'll have some interesting things in the future."

International Seeds, Tangent, Ore., is studying low maintenance characteristics of fine fes-

### Federal laws implemented to prevent plagiarism have failed in their mission, according to breeders.

cues. "There's a litany of different problems. We need to educate the end user on the attributes of each species," said Craig Edminster, director of research,

**INDUSTRY TRENDS.** The future of turf seed will largely be molded by the development of biotechnology, according to Meier. New

innovations in that technology could open doors to major variety improvements. "At this point, I don't know anyone that has actually improved a turfgrass variety by the new biotechnology techniques. Those techniques are so new, only those companies in markets with huge potential for gain — corn, soybeans, wheat — can afford the risk of switching genes from one species to another," Meier said.

"In most cases, you're right on the borderline of feasibility for turfgrass species that have a relatively small market. If you knew you had a gene that worked, putting it in would be OK. Finding the gene is so expensive, we can't do it at this point."

Such technology won't develop overnight. "Somebody will do something with the new biotechnology in turfgrasses probably in the next five or six years. If everything is successful, it takes another two or three years to produce commercial seed from it. We will see a new variety out in an-

other 10 years," Meier said.

Meier pointed to intercrossing perennial ryegrass and tall fescue as an example of where biotechnology may come into play. "Fairly closely related turf species can intercross to some extent. But if you could have deeper-rooting perennial ryegrass, that would make ryegrass more drought tolerant. Or if you conferred the finer texture of perennial ryegrass to tall fescue, you would have a much better grass," he said.

Though equipment will remain costly, biotechnology could cut research time significantly. But, Meier cautions, "let's say you put insect tolerance in plants. You have to make sure all other characteristics are there as well. Just because you put in one great characteristic doesn't mean you can forget all the others you've been working on for the last 20 years." ■

*The author is Associate Editor of Lawn & Landscape Maintenance magazine.*



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# Dealing With Stressed Turf

*The causes and appearances of stress vary widely, but the most common turf stress often results from improper plant growth.*

*By Bob Gitlin*

TURF STRESS takes on different forms depending on the environmental and cultural influences of varying geographical locations. Universally, core aeration, revised watering practices and targeted fertilization strategies lead the list of methods to fight back.

When turf stress has choked off life, overseeding becomes necessary. But the astute professional, by careful planning and proper lawn care — and by proper customer education to create the proper follow-through — is probably able to significantly reduce

this dire eventuality.

The thatch layer is the first thing Tecza Brothers professionals are trained to look for when diagnosing stress.

"Probably the most common stress that we come up against is stress due to improper growth of

the grass plant itself," said Ed Reier, sales manager for the Elgin, Ill., company. "That can be caused by many things including improper soil availability for the plant. We see this a lot in new construction, where an inadequate amount of topsoil was put down and a grass plant is trying to grow, believe it or not, sometimes within an inch of topsoil, with hard, compacted clay below."

Even if you keep it alive by artificially fertilizing it, you have nothing but top growth. He defines an alarmingly heavy thatch layer as one that's more than three-quarters of an inch thick.

"This is very detrimental to the plant. It's almost like a snowball effect. As soon as that thatch layer begins to get too heavy, we come across all kinds of diseases like brown patch, summer patch and fusarium blight and insects like grubs, sod webworms and others that thrive in or just above the thatch layer."

**AIRING IT OUT.** Steps can be taken to break down the subsoil. Core aeration is highly recommended, he said. If the cause of the problem is an extremely compacted subsoil, an entire lawn is sometimes ripped up and another 4 to 6 inches of topsoil is applied.

"It's going to be a long process of core aeration once or possibly twice a year, and changing over possibly to an organic fertilizer," Reier said.

The organic fertilizer will begin to add nutrients to the soil and break down compacted subsoil. Proper fertilization does not mean bombarding the lawn with nitrogen. That can be a shoddy practice for quick green-up and getting out with a customer's short-term thanks. But long-term, the lawn will struggle for survival as the root system can't keep up.

Watering is also crucial here.

*(continued on page 30)*



Snow mold, more prevalent in Northern climates, is a common turf disease. Photo: Bruce Branham.



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## Turf Stress

(continued from page 28)

Tecza Brothers personnel often recommend, in situations like this, that customers water less frequently but longer, to let the moisture down deep into the roots. A schedule of frequent but short waterings merely nurtures top growth at the expense of subsoil, he said.

And core aeration is a must. In conjunction with the revised irrigation schedule, the top 2 to 4 inches is aerated by pulling plugs. The moisture then soaks down into those cavities and is available for the roots.

"Core aeration has proved to be a good way to reduce stress in turfgrass," said Mark Cozine, acting project manager for Cushman Inc., Lincoln, Neb. (Cushman is a division of Ransomes America Corp.) "Aeration reduces compaction, opening up the roots to air, moisture and fertilizer."

The technique was developed by the golf course industry before it became common in the home lawn area.

**COMMON PROGNOSSES.** "If we see that there's a good enough layer of growing medium, then we can always bring it back with overseeding or slit-seeding, which we do a lot. And core aeration is crucial, as is getting them (customers) on a proper fertilization and watering schedule.

"The only time we have to take the step of major renovation is when we've worked with it for a season. We've pulled cores, we've taken soil samples and it's a lost cause because there is not the growing medium to work with. We can't grow turf in clay."

Another common form of winter stress takes the form of pink mold, or snow mold — a result actually more of stop-and-start thawing than of snow itself (see sidebar for scientific explanation).

"We rake those (patches) by hand or with a machine, power rake them," said Rich Gaffney, owner of Gaffney Landscaping, South Euclid, Ohio. "Those spots clean up as soon as they're broken up. Because as soon as air gets to them they die; it's a moisture thing, a mild fungus. A lot of them will come back on their own with the weather. Rain will clean them up."

Aerating, Milorganite and lime



are also used to fight this problem, he added.

Out West, drought leads the list of turf stressors, said Russ Harbaugh, director of landscape

services for Perma-Green, which fertilizes and, increasingly, mows out of seven Western locations, including Reno, Spokane and its Boise headquarters.

**Cultural management of turf, the thatch layer and its soil creates a healthy turf less susceptible to stress. Photo: Ryan.**

Aeration, fertilization and watering is the firm's three-pronged attack strategy. Harbaugh has an intriguing, and heartening, lesson to relate to anyone operating in drought-prone areas.

Last season, on the heels of a devastating drought in Reno, customers were educated on a new watering practice — which happens to be the exact opposite of what saves the day for Reier's people in Elgin, Ill. Rather than have customers use excessive amounts of water occasionally, Perma-Green had customers water frequently but in small quantities. Otherwise, Harbaugh said, the baked ground was running the water off anyhow.

The revised watering practice — supported by handbills circulated to customers, and forced by limits placed by public officials — actually created many lawns that had never looked better, the Reno manager told Harbaugh. The demonstration of hands-on concern also kept Perma-Green from losing customers through what

## A TYPICAL SCENARIO

"STRESS REFERS to an environmental condition of some kind, which could be heat, drought or cold," said Dr. Bruce Branham, professor of crop and soil science at Michigan State University, East Lansing. "But it's also anything that may adversely affect the growth of turf, so it could be chemicals, herbicides or chlorine."

So stress can come from overzealous or ignorant practices of man as well as acts of nature.

Winter injury symptoms associated with Northern climates can involve desiccation (drying) on open sites, he said. And then there are the typical freezing injuries. A lot of "winter kill" took place last winter, particularly on golf courses, he said.

"Snow is actually good, it provides a cover and some insulation," Branham said. "But in, say, March, the temperatures started to rise and the plants began to lose their winter hardiness. They got ready for growing. When you get a couple of warm days with ice melting, water, particularly on poorly drained soils, will collect around the plant, which absorbs some water."

Then if you have a series of freeze-thaw cycles, those plants will take up a high volume of water they won't be able to get rid of. Water inside plant cells freezes and bursts, resulting in cell death.

"If you kill enough cells you'll start to see some significant damage to the plant which can often result in loss of individual plants. That's the typical 'freezing injury' that occurs," Branham said.

The "pink mat" that accompanies this mold-inducing injury need not be caused by snow. Any cover of standing water or ice can cause the stress.

What to do?

"First you have to determine if the turf is simply stressed and maybe not coming out of dormancy quickly, or if it's dead. That's fairly easy, but sometimes looks can be deceiving. In other words, you may have had some damage to all the top growth but the crown of the plant may still be fine. So it will come back, in which case you probably want to give it just a little shot of soluble nitrogen to help get some growth going. But you wouldn't want to overseed.

"Now if you determined that the plants are actually dead, then you would want to go ahead and overseed as quickly as possible. One way, if you're not sure, to determine whether it's actually dead or just not coming out of dormancy is to take a plug inside, keep it moist and in a couple days if you don't have some green tissue emerging you're pretty much out of luck."

was, for the most part, a tough period. Many stressed lawns had to be mowed of their tortured top weight.

Boise itself goes for 60 or 90 days with above 100-degree temperatures, Harbaugh said, though its drought stress does not quite rival that of the Nevadan account to the south.

It's hard sometimes to keep cool-season turfgrasses — Perma-Green's main type — going healthy in that kind of environment.

"We're mulching more," Harbaugh said. "We're trying to put more nutrients back into the soil. And we're letting the lawns grow longer, about 3 inches, to create more shade."

Echoing Reier's observation, Harbaugh said customers still want green carpets, and will cancel if insects are not taken care of. "We get billbugs, chinch bugs, sod webworms and cranberry root girdlers (a white grub)," Harbaugh said.

Perma-Green's 150 trucks and 17,000 fertilization accounts

haven't slacked off of late.

**CREATIVE STRATEGIES.** "With the variety of bluegrasses and the fescues used around here in Boise, most lawns replenish every year by themselves. We don't have the overseeding that you might have in the South, or in the Midwest; areas where you have different types of grasses like bermudas," Harbaugh said.

Robert Bowden, director of landscape services at The Landmarks Group, Atlanta, comes from a botanical-garden background, and espouses a slightly different philosophy about grass.

Trying to grow tall fescues in climates that can be awfully hot and humid in the dead of summer is fraught with difficulty. So you learn to strategize. When you use fescue, you might strategically blend it with something else.

"We do a lot of Class A office buildings, skyscrapers, interiors and exteriors," he said. "We also do high-end residential and stand-alone Class B office parks. Tall turf-type fescue requires a great

deal of water, which we're concerned about."

Zoysia, which does well in Atlanta and is widely used there, is more maintenance-free to people like Bowden. It doesn't

strategic design blends, such as was the case at Promenade II, a high-profile commercial job designed by award-winning Atlanta landscape architect Roy Ashley, who combined bermuda and tall turf-type fescue.

"So when you see these gardens from up top, they're very geometric in shape and the colors during those seasons when they're dormant are absolutely gorgeous. You play the brown off the dark green," Bowden said.

Frankly, Bowden thinks that in many cases there are fitting, preferable alternatives to grass, such as when a customer insists on greenscape abutting all the tree trunks. Ground covers such as ivy, pachysandra and lamiastrum (yellow archangel) are often better suited to the aesthetic demand.

"I find that these alternatives are better suited to withstanding drought stress," he said. ■

*The author is a Contributing Editor to Lawn & Landscape Maintenance magazine and is based in Shaker Heights, Ohio.*

**When turf stress has choked off the grass's life, aeration and overseeding become vital cures.**

need to be fertilized as often as tall turf-type fescue, doesn't need to be watered as often and is virtually impenetrable to pests and diseases. But it, too, goes dormant from October through May.

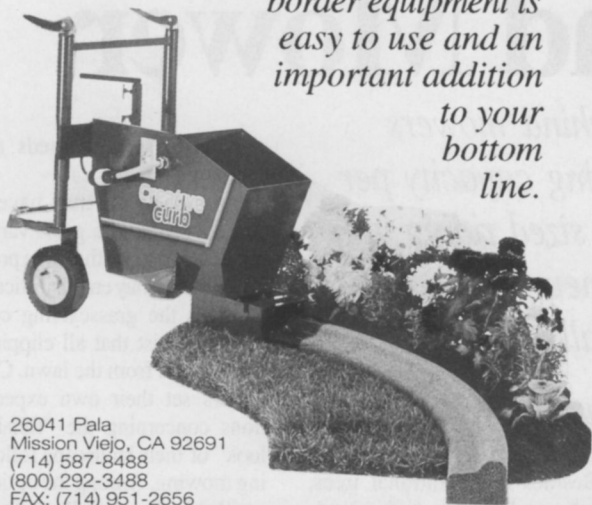
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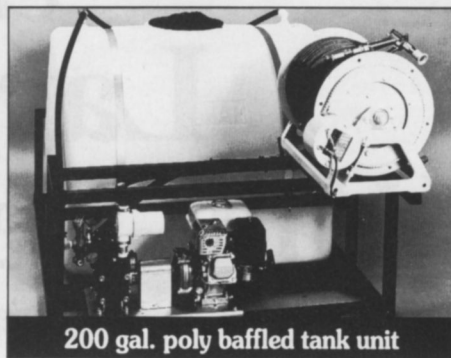
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It's important to run a few trial tests before selecting the right walk-behind mower for your crews. Photo: John Deere.

## Choosing A Large-Deck Walk-Behind Mower

*Large-deck walk-behind mowers offer the ground-covering capacity per pass of the comparably sized riding unit, with the increased maneuverability expected from a walk-behind.*

*By Steve and Suz Trusty*

TIME IS MONEY when it comes to cutting grass. No matter how large or small the commercial mowing operation, accurately matching mowing equipment to the site is a prime factor in determining profit or loss.

Mowers would be easier to choose if all the properties under your care had nothing but flat, open expanses of turf. In real life, you must deal with differing conditions on every lawn. Your accounts may range from the small, highly landscaped, single-family residence to the high-profile business with showplace-level

lawns and plantings. Turf areas may be flat, gently undulating, rough or bumpy. There may be berms, gentle slopes and steep embankments.

Besides the traditional trees, shrubs and flower beds, landscape features may include fences, walls, pools, fountains, patios, parking lots, driveways,

sidewalks, storage sheds and compost bins.

Your company may have to deal with multiple grass varieties, sometimes on the same property. Clients may enthusiastically embrace the grasscycling concept, or insist that all clippings be removed from the lawn. Customers set their own expectations concerning the "finished look" of their landscape following mowing. Among the options available for handling these widely varying sites, large-deck walk-behind mowers are be-

*(continued on page 34)*



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## Walk-Behind Mowers

(continued from page 32)

coming increasingly popular.

Obviously, many crew members would rather ride than walk. It's easier to spend an 8- to 12-hour day sitting on a riding mower than pushing any size walk-behind. Ride-on equipment can be run at much greater ground speeds, resulting in significantly less operator fatigue. Where site conditions allow it, larger lawn service companies use riders because they get more productivity — and because employees just prefer riding.

But ride-on mowers are no more efficient for every situation than 21-inch walk-behinds. For many companies, a combination of units ranging from large-deck riders through small walk-behinds provide the most productivity and profits. For other companies, the demands of specific site conditions and the limitations of transportation or crew-size make the large-deck walk-behind a wise substitution.

Large-deck walk-behind mowers offer the ground-covering capacity per pass of the comparably sized riding unit, with the increased maneuverability expected from a walk-behind.

Commercial walk-behind mow-

ers have zero-turning radius and, in many cases, eliminate the need for additional trimming. They also are easier to transport over curbs or in the smaller pickup trucks used by many commercial lawn service operators. Larger deck sizes can greatly reduce cutting time in wide open areas. Less than 40-inch decks provide additional maneuverability, particularly in tight, highly landscaped areas.

These mowers are finding a special niche in a wide range of commercial mowing situations. They're used to mow sports turf, commercial properties, industrial complexes, condominiums and residential lawns.

One landscape contracting company reported its mowing units include 144-inch and 72-inch tractors, as well as 54-inch, 38-inch and 21-inch walk-behinds. A mowing contractor said his company bought three basic mowers: 72-inch riders and 48-inch and 21-inch walk-behinds.

The owner of a full-service lawn service company, with "more mower sizes than I care to admit," determined that a two-person crew equipped with two walk-behinds is the most efficient and cost-effective combination for mowing apartment complex, condominium and motel accounts.

### EVALUATING PERFORMANCE.

On-site tests can help determine which mower types and deck

sizes perform most efficiently for your crews. Use a stopwatch to time the mowing of a specific area under "typical" conditions using the type and size units you believe would meet your needs.

Have the same operator use another mower the next time; another the next; and so on until you have compared the logical options. You probably want to run tests at two or three similar sites for each type of area you mow. You also should run tests with operators at different experience levels.

For another method of comparison, use the "Estimating Mowing Time" formula developed by John Deere. (See April issue, p. 50.) In this formula, all areas are assumed to be flat, with no landscaping details.

Using the formula, a ride-on unit with a 72-inch mower deck operating at 4 mph can mow an acre of turf in 25 minutes. A 54-inch walk-behind mower at a 3.3 mph ground speed can mow an acre of turf in 41 minutes. A 38-inch walk-behind mower at a 3.3 mph ground speed can mow an acre of turf in 58 minutes. A 21-inch walk-behind mower at a 3 mph ground speed can mow an acre of turf in one hour and 55 minutes.

Obviously, when it comes to covering flat, open turf, bigger is better, and the formula lets you see just how much better in minutes saved per acre. What the

formula doesn't reveal is the quality of cut, the efficiency of the unit on uneven or highly landscaped properties, and the performance of the mower under less than ideal situations.

Depending on each manufacturer's specific model, there are many other options to consider besides deck size. The key to efficiency is matching the mower's features with mowing conditions.

**POWER PREFERENCE.** Using a ride-on unit enables an operator to do a job quickly, but it may reduce the quality of the cut. With a walk-behind unit the limiting factors are power and transmission speed.

Traditionally, commercial walk-behind mowers have used drive-belts to not only transmit power to the drive wheels, but to brake the wheels for turning and maneuvering as well. Engine power is transmitted directly to the machine with little power loss. The exterior belts on either side of the drive wheel tend to slip in wet conditions, making mowing difficult or impossible. The exposed belts are also subject to wear.

Hydrostatic drive units eliminate the slippage problem of exposed belts and the "jump" associated with sudden gear changes. But hydrostatic drive does require extra power to operate, and the only place to get that power is to "rob" it from the machine.

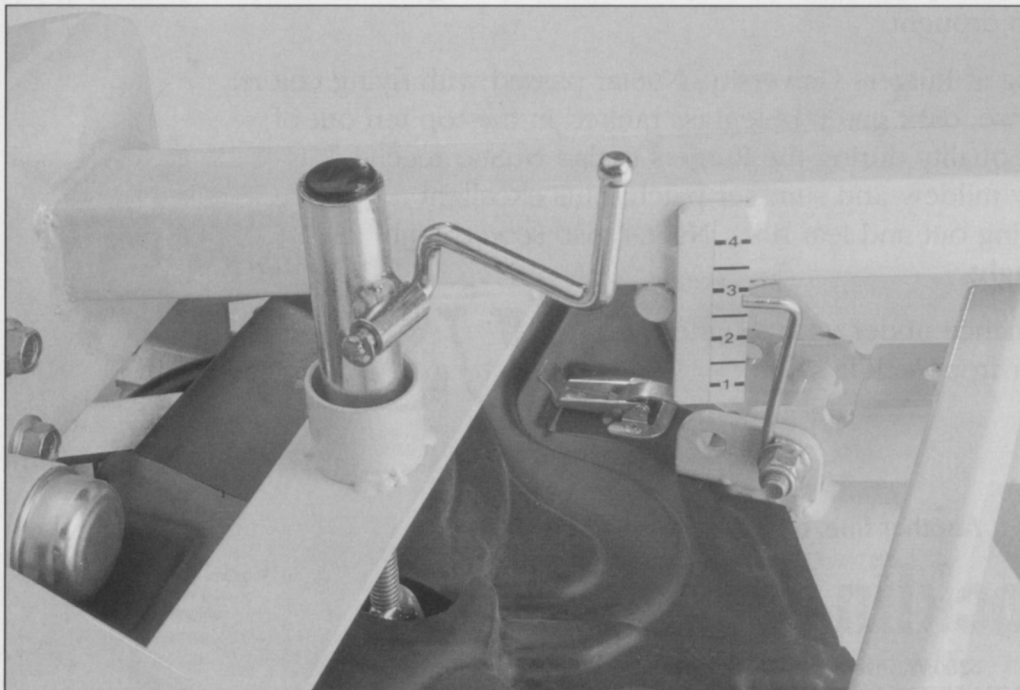
Another option is an enclosed gear transmission, where the brakes and clutches are fully enclosed and run in oil. This eliminates the possibility of belt slippage and wear, while transmitting engine power directly to the machine with little power loss.

Drive systems, engine power and ground speed options should be evaluated in relation to mowing conditions. Consider the types of grasses being mowed and the thickness or lushness of the turf. In areas such as Florida, where heavy dew lingers into mid-morning, consider the operation of the unit in wet conditions. Compare efficiency of operation under your mowing conditions to the costs of the machines with various drive system options.

With any walk-behind mower, but especially with large-deck units, examine the convenience of the controls from the operator's

(continued on page 36)

Adjustable mowing height allows the operator to cut turf in a variety of conditions. Photo: John Deere.





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USE READER SERVICE #21

## Walk-Behind Mowers

(continued from page 34)

point of view. The easier the machine is to operate, the less likely the operator is to misuse or abuse it. Rider fatigue is also reduced.

Other features to consider include: Are controls mounted on the handlebars or handlebar console? Is it easy to tell which controls affect engine operation and which engage the mowing unit? Do the controls offer multiple options? Can the operator stop the drive unit and keep the blade turning if so desired? Using the operator presence control, when the operator releases the handle and the blade stops, does the engine continue to run? How handy is the parking brake? If the operator must stop the mower on a slope, will a second step be required to set the parking brake?

Is electric start a standard part of the mower, or is the option available at an additional charge? The larger the horsepower of the engine, the more welcome the



electric start feature becomes to your crews.

A seemingly small feature can make a tremendous difference in the operator's ability to complete the job quickly and efficiently. Varying mower speed in tough conditions rather than gearing down (known as the "feathering technique") shaves minutes off mowing time. Operating the mower at the highest ground

speed turf conditions allow increases productivity.

Quality of cut is always important. Your clients may want one set of standards maintained for high visibility areas, another for occasionally observed spots and still a third for out of the way locations. Whatever the criteria used, your aim is to meet or exceed client expectations. Examining options offered on large-deck

Three-blade configurations cut a smoother circle around trees, shrubs and flower beds. Photo: John Deere.

walk-behind mowers helps achieve high quality and productivity.

**DECK FEATURES.** The mower deck must follow the contours of the ground in order to put the blades in proper contact with the grass. With large-deck mowers, look for features that allow the deck to move or "float" in response to high and low spots in the terrain. Check wheel placement and the flexibility of motion within the horizontal plane. How much variation in height across its width can the mower deck tolerate without scalping grass or leaving uncut grass on one side of the mowing swath?

Large-deck mowers with a three-blade configuration offer advantages. The middle blade is set in front of the deck with the other two blades close to the right and

(continued on page 38)

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S

USE READER SERVICE #73

## Walk-Behind Mowers

(continued from page 36)

left drive wheels. The closer the blades are to the drive wheels, the smoother the circle you get around landscape features.

With a two-blade deck, the two blades must overlap. The left blade is set in further from the drive wheel while the right blade placement remains about the same to facilitate discharge on the right side of the deck.

Height of cut is another factor that greatly affects mowing quality. Consider the ease of height adjustment in relation to the types of grasses you mow. Cutting height options should range from the lowest to the highest recommended heights for those grasses. Since turf vigor is maintained most effectively when no more than one-third of the grass blade is cut, crews may need to adjust mower height many times throughout the day. The cutting height may even need to be changed several times at one job site. Obviously, the easier it is to adjust mower deck

height, the more frequently the adjustments will be made.

Consider the alternatives available with the various large-deck walk-behind mowers. Because you maintain a wide range of properties under differing conditions, the operator's ability to adjust one mowing unit to mulch, discharge or bag grass, depending on site conditions, greatly increases the machine's productivity.

Examine the efficiency of each option. Does the mower have sufficient power to mulch effectively in tall, thick or damp grass? Is the discharge chute well positioned to resist clogging under the same conditions? Is the chute constructed of a material that reduces damage to trees, etc., in case of operator carelessness? Is the chute dent and scratch resistant? What is the grass catcher's capacity? Is it easy to attach, detach and dump? Is it made of material that allows good air flow?

To make sure your service personnel like the large-deck walk-behind mowers as well as the mowing crews do, consider the

features that reduce downtime. Your service department knows what problems crews encounter and what features minimize those problems. Have your service manager check out the equipment that you are seriously considering.

Again, time is money. With any options you consider, higher upfront costs that translate to improved productivity and reduced downtime over the life of the machine will cut overall costs. After you've researched and tried the various comparable large-deck walk-behind mowing units, put a pencil to the "what if" factor for each of the options. For example, "what if" you could mow an additional 10 hours a week with hydrostatic or enclosed gear transmissions? How much income would those additional 10 hours generate over one mowing season? How much income over the life of the machine? How quickly does that additional income "pay back" higher upfront costs? At what point does it generate increased profits?

Also compare the costs of different units. How does the cost of a riding unit compare to that of a walk-behind machine with comparable deck size? How does the cost of a large-deck walk behind mower compare to that of two smaller-deck walk-behind units? Would the higher cost of the riding unit pay off in faster mowing of open areas? Are your client's properties so highly landscaped a large-deck walk-behind can effectively replace a comparably sized riding unit? Will one large-deck walk-behind mower be able to cover nearly as much ground in a day as two smaller walk-behind units?

The commercial mowing business is complex. When it comes to mower selection, there is no one right answer to fit all situations. But, the steadily growing sales of large-deck walk-behind mowers show this is definitely one option that can fit a variety of needs. ■

*The authors are partners in Trusty & Associates, Council Bluffs, Iowa, and are consultants to the horticulture trade.*

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USE READER SERVICE #62

# Aggressive Contractors Stick Out

# Orlando Slump

THINK ORLANDO AND what comes to mind? If you're like most people, you'll think of Disney World, golf and Cypress Gardens — or any one of a number of entertainment-related destinations.

Approximately 12.8 million tourists visited Orlando in 1992, injecting more than \$5 billion into the region's economy. The tourist industry alone employs more than 120,000 people, and one in five jobs in the area is tourism-related.

But Orlando wants to be taken seriously for its other business sectors. The city is home to several major manufacturers, including Martin-Marietta (which employs more than 9,000), Siemens Stromberg-Carlson, Westinghouse Electric Corp., AT&T Microelectronics and ECC International Corp. On average, Orlando has gained nearly 2,500 manufacturing jobs every year since 1980.

A diversified and healthy economy is good news for the lawn and landscape sector, which already stands to gain from a tourism-driven economy that places a premium on appearance.

Warm temperatures for most of the year help too. As Barry Troutman, director of lawn care training and technical for Massey's GreenUp, explained, "We have an advantage over our northern brethren in that we have pest populations here almost year-round."

*Orlando enjoys a thriving tourist trade and diversified business economy. Still, landscape contractors large and small report a competitive commercial market as new construction sags and pricing plummets.*

*By Julie A. Evans*

But landscape contractors large and small report a less than glowing scenario in the commercial market, especially new construction. Resort and office construction are down, resulting in some rather fierce bidding wars. Pricing has followed that downward trend, according to many landscape contractors, with no true relief in sight.

**HIGH HOPES.** Orlando consistently makes the top 10 list of re-

spected business and industry roundups, including *Fortune* magazine's 1992 ranking of the best cities for business.

Among its many other distinctions: Ernst & Young's 1993 National Real Estate Forecast survey placed Orlando among its top 10 major urban areas that will generate the highest returns through 1995. *World Trade* magazine ranked Orlando number five in the top 10 U.S. cities for international companies. And a survey of more than 400 CEOs by Cushman & Wakefield's Monitor rated Orlando as one of the three most attractive emerging U.S. markets in which to locate a business.

What makes Metro Orlando so attractive to business? Number one is quality of life, said Melanie Forbrick, public relations director for the Economic Development Commission of Mid-Florida.

A relatively low cost of living is another key factor. Housing, taxes and service costs all rank at or below those of competitive cities, Forbrick said. Despite high marks from national business and trade publications, Orlando appears to be grappling with some of the same economic issues facing the rest of the nation.

**PRICE WARS.** New building starts remain sluggish. Disney

World, a major source of construction work, has hit the brakes on many new projects. Hotel construction was put on hold by skittish investors. And the office market is at a virtual standstill.

The halt in new construction has turned up the heat in the landscape construction market, as some of the biggest players find themselves competing head to head with smaller-size firms for the same landscape projects. Worse, the crowded market has forced prices on competitive bids down to unacceptable levels, said Mark Yahn, president of Ground Control, a \$6 million landscape maintenance and installation firm that derives most of its business from multi-family and office properties."

So now there is not only less work, but the 'big guys' are competing for every last crumb as well," Yahn said. "The trend continues with ridiculously low







The market may be competitive but the results are eye-catching. AAA Headquarters in Orlando, left, and one of the multifamily properties maintained by Ground Control Landscaping, bottom. Top Photo: Environmental Care.

## ORLANDO

**POPULATION:**  
(1992) 1,178,101

**DAILY INTERNATIONAL FLIGHTS:**  
25 to 49

**LABOR FORCE:**  
Skilled 40.7 percent; foreign  
employed 4.6 percent

**INTERNATIONAL  
PRESENCE INDEX:**  
75

**MANUFACTURING  
COMPETITIVENESS INDEX:**  
124

**PRO-BUSINESS  
ATTITUDE:**  
rank 12

Source: Fortune magazine



pricing, not only with Disney and resort work — those jobs run in the millions of dollars — but in public and multi-family residential work as well. We're seeing numbers that rival the late 1970s, and we don't see an end to it."

He added that Ground Control was cushioned somewhat by a good backlog of work from familiar clients. "But even as 1991

came to a close, projects began dropping off; and in 1992, we joined others in this slowdown."

Smaller jobs — in the \$50,000 to \$150,000 range, along with some design/build work have helped the company remain competitive. But the company also has resorted to pursuing accounts more aggressively outside of the metro Orlando area, Yahn said.

Downshifting of larger firms is not the only reason pricing has dropped, according to Jim Oyler, president of Dora Landscaping, a \$9.5 million landscape maintenance and installation firm.

"New firms enter the market, bid low and break even or lose money to establish market share," he said. "Some stay, some can't make it and go away. But you always have two or three people on the bid list from out of town."

The bottom line, Oyler said, is that everyone has to be more efficient. "Good contracts are still making profits. In a tight competitive market, you can still show a profit if you handle your jobs right and employ the right people."

Frank Smith, operations manager for Valley Crest Landscape, said he doesn't expect a steady increase in new construction for about three years. Until then, "skinnier" profit margins will continue. "I don't think we're experiencing the recession of other

marketplaces, but it's here."

Disney Development Co. offers little hope for short-term relief. According to Robert Boos, senior project manager, the company has no major projects underway, save for a new highway project that recently went to Valley Crest Landscape for \$1.18 million. Like others, Disney is tightening its belt.

"It's the general economy. There's some concern about future demand and the company has to be prudent about how it spends its dollars," he explained.

But Disney construction is not at a standstill, and most major players report some work for the entertainment giant. Reinhold Landscape, for example, a \$1.5 million landscape installation firm, has a one-year, renewable master agreement contract with Disney that allows it negotiate many projects. "After a certain dollar amount the work goes out for bid," explained part-owner Gary Outlaw.

Disney accounts for about 60 percent to 70 percent of Reinhold's work by volume.

**MAINTENANCE.** As for maintenance, Disney performs "99 percent" of its maintenance in-house, Boos said. But commercial maintenance in Orlando has never been as competitive as construction, said Ground Control's Yahn.

"We had national competitors here in maintenance before construction. The competition has co-existed very well, selling similar services. We all seem to be making money on the business that we get," he said. "The construction market here was lucrative for so long and we all made good money. When it went, it went all the way."

Mid-range companies have been hurt most by commercial maintenance competition, he added. The best strategy is to offer comprehensive services since more clients are demanding full-service landscaping.

"Customers are becoming more sophisticated," Yahn said. "They want one company to do

sprays and remedial work. This vertical demand has forced us to consider new services such as arbor care."

Gary Tungate, vice president of Environmental Care's Orlando

ties that provide momentum for growth."

Ed Bacon, branch manager for ISS Landscape Management Services, agreed that maintenance accounts are pretty conservative

**Despite a steady stream of new and expanding businesses, the continued glut of office space has put a halt to new office projects.**

office, said the maintenance market in Orlando is competitive but strong. "I think there is a decent economy and we're somewhat insulated from the rest of the country, but we still feel it (the recession). Our clients are still pursuing austerity measures. We're not able to sell upgrades as easily as a couple of years ago. But because of the tourism industry, we're afforded more opportuni-

right now as building owners look for "better deals" and seek belt-tightening measures.

Of all maintenance opportunities, the office market appears to be the most troublesome for landscape contractors. Metro Orlando's office market consists of more than 400 professional office buildings, occupying more than 21 million square feet of space. More than 60 industrial parks and free-

standing sites encompass more than 20,000 acres and provide more than 63 million square feet of warehouse and industrial space. Overall vacancy rates for commercial office space hit 33 percent last year in some metro areas, while the overall vacancy rate hovered near 20 percent.

Despite a steady stream of new and expanding businesses, the continued glut of office space has put a halt to new office projects.

Bruce Bachand, vice president of Carol King Landscape Maintenance, said bidding maintenance jobs in the office market has become very competitive. That's not welcome news for his firm, which specializes in commercial and real estate management.

"The economic conditions are improving over what we've had the last two years, but the primary problem for us is the office market is still experiencing pains from the growth of the late 1980s," Bachand said.

"With occupancies down, owners are very cost-conscious and bottom-line oriented, resulting in



**Some tools require a lot of time and manpower ...**

contract awards to low bidders.”

That situation has resulted in a flurry of competition and downward spiraling prices, he said. “We’re in there competing with everyone and either holding the line on costs or cutting prices to save market share.”

The lack of new construction leads Bachand to believe that the market will improve — if slowly. “I think offices are slowly starting to fill up and there hasn’t been any new construction. When the offices see a return to profitability, they’ll go back to shopping for quality in terms of price.”

While the office market remains depressed, Oyler and others see some opportunities in multi-family residential and time-share properties. “Multi-family is picking up,” Oyler said. “We have a couple of projects now and we’re bidding three or four.”

Much of the multi-family construction is lower-end residential, however, with no where near the landscaping demands of more upscale accounts. “The hot ticket for this area right now is in the

\$80,000 to \$90,000 range. It’s interesting: We’ve had great projects around town with \$150,000 and up housing, but it’s been going back to the lender. The upper end is sluggish in Orlando, but it’s booming in other areas.”

#### EXPLORING NEW MARKETS.

Yahn of Ground Control said he thinks he’s found a niche in multi-family housing that could further strengthen his firm’s position in this market segment — currently, multi-family housing accounts for about half of the firm’s business.

According to Yahn, a trend has emerged in Orlando and across the country in which groups that once were developing multi-family properties are now buying existing ones for renovation and possible resale. His idea is to offer these new property owners a “construction-type loan” for renovation and maintenance.

Ground Control would provide a quotation for maintenance as the property sits today and for maintenance as it would evolve. The renovation cost would be divided

into 12 units and paid with the first year maintenance contract. Ground Control would only be interested in such a deal if the building owner agrees to at least a two-year contract, preferably three, and maintenance fees would decrease after the first year’s renovation fees have been paid off.

“The problem is that when the new owners get to the point where they renovate the property, there are cost overruns. And being the landscape contractor, by the time it gets to us, there’s little money left and they can’t borrow more money from the lender so they end up doing nothing or very little with the landscape.

“We’ll bury the cost so it looks like an expense to the lender, then maintain a continued relationship for the next two to three years.”

Landscape firms are also offering additional services like lawn care to remain competitive.

As Bachand explained, “We’re trying to pump up our chemical and liquid lawn care products and push renovation to get clients to spend some money.

Chemical lawn care is very competitive, but we’re trying to sell new business with one all-encompassing contractor.”

Lawn care firms acknowledge the competition from the large landscape firms, but say they’re holding their own. “Landscape firms offering lawn care have probably added to the competition as much as anything else,” said Greg Clendenin, vice president of Middleton Pest Control. “Some companies are getting aggressive. We’re after the commercial business too, but we welcome the competition.”

He said business grew 10 percent in the first quarter 1993 compared to 16 percent the same period last year. The decline is attributed to skittish consumers.

Troutman of Massey’s Green-Up held a more upbeat outlook. The bugs and grass don’t know there’s a recession, he said. ■

*The author is a Contributing Editor to Lawn & Landscape Maintenance magazine and is based in Lakewood, Ohio.*

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.....Some don't.



# Resisting Microbial Infections With Healthy Turf

TURFGRASSES UNDER intensive management are often subject to outbreaks of infectious diseases. Diseases usually are most damaging when weather or cultural conditions favor the disease-causing microorganism, simultaneously reducing plant growth and vigor.

The best approach to managing diseases of turfgrass in the landscape is to use good turf maintenance practices since healthy turf is better able to resist microbial infections. Furthermore, good management improves the turf's ability to recover should a disease outbreak occur.

Serious disease outbreaks must be properly diagnosed for effective control. Lawn and landscape professionals should build a collection of references and extension service publications on turf diseases, and make careful field

Some root diseases such as summer patch are aggravated by close mowing. Photo: Paul Vincelli.

*Building a collection of references and field experiences on turfgrass diseases will assist maintenance managers in properly diagnosing and treating turf maladies.*

*By Paul Vincelli, Ph.D.*

observations on the development of the diseases they encounter. Observant managers will often be able to diagnose disease outbreaks if they have made a comprehen-

sive effort to learn about turf diseases. For more difficult cases, diagnostic services are usually available from your local extension service.

**RESISTANT VARIETIES AND SPECIES.** Lawn and landscape managers who seed, sod or renovate lawns have an excellent opportunity to employ the most important disease control practice — resistant varieties or species. Results of university tests for disease resistance are often available through local extension offices.

Don't despair if your land-grant university does not publish data specifically on disease resistance of turfgrass varieties. Tests in which "turfgrass quality" is measured sometimes provide an indication of disease resistance as well.

Generally, the best performers in such tests have some resistance to important foliar diseases in the region or else they wouldn't receive high quality ratings. Lawn and landscape professionals shouldn't just look at the average quality rating for the

*(continued on page 48)*



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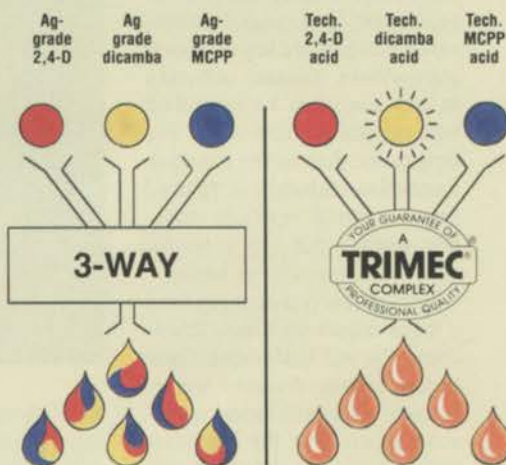
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Color code: Red, 2,4-D; yellow, dicamba; blue, MCPP; amber, Complex acid. Note: Colors are for code only and do not indicate the color of the product they are intended to identify.

The schematic drawing above indicates that, in a formulator's tank-mix (left), the molecules of 2,4-D, MCPP, and dicamba do not combine to form a new molecule. Accordingly, each droplet will be different and control may vary from droplet to droplet.

In a Complex (right), the three acids are reacted together to form a salt. Every droplet is identical, and thus precisely optimizes the intended synergistic activity.

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## Disease Control

(continued from page 46)

year, but instead select varieties that are consistently in the top statistical group over a period of several years. Consistent performance is more important than having the numerically highest-average quality rating at the end of the test.

In selecting a grass, consider that a destructive disease in one grass species may be absolutely benign in another. When seeding or renovating, mixing different grass species can increase the overall disease resistance of the turf.

**CULTURAL PRACTICES.** For an established lawn, proper maintenance practices are key to disease management. Disease outbreaks in turf can often be controlled with cultural practices alone. For turfgrasses that suffer repeated, destructive outbreaks in spite of proper cultural practices, question whether that site is seeded with the best species or variety.

Fertilization practices can have a major impact on disease development as well. Underfertilization makes certain diseases worse, whereas overfertilization aggravates others. For the healthiest turf, test its soils and make sure the service program provides moderate levels of fertility. Obtaining a copy of your state's turf fertility recommendations from your local extension office is also recommended.

When turf is fertilized can be as important as how much it is fertilized. For cool-season grasses, agronomists usually recommend applying most of the nitrogen during the autumn months. This is sound practice for disease management since autumn fertilization promotes good root growth, enhancing disease resistance and recovery from root infections. It also avoids producing succulent, disease-susceptible growth following heavy springtime applications of nitrogen.

Mowing practices can also play a role in disease management. Remember mowing, a fundamental turf management practice, is also a great stress to turf. It removes photosynthetically active leaf tissue and creates a wound susceptible to invasion by microorganisms. In addition, guttation fluids accumulate at the cut leaf



tip. Although not harmful to the plant, the nutrient-rich water provides a food source for some invading pathogens.

Lawn and landscape managers should know the recommended mowing height and frequency for the grass species they manage. Mowing too closely provides a severe stress, especially during unfavorable weather for turfgrass growth, and can aggravate certain root diseases. This is especially important since close mowing reduces rooting depth even in healthy

turf (fungi), and because there is more leaf-to-leaf contact allowing some fungi to grow outward more easily from an initial infection.

Does removing clippings help in disease management? Limited research on the subject is not definitive one way or the other. However, some encouraging research shows certain foliar diseases were actually reduced when clippings cut by a mulching mower were left on the turf.

Concerns over clippings arise when maintenance profession-

### For an established lawn, proper maintenance practices are key to disease management.

als realize some leaf-infecting fungi can colonize clippings and produce spores or other infectious structures. Under certain conditions this can lead to increased pressure.

Exceeding the recommended mowing height can also compound certain diseases. Disease problems in an overgrown turf occur because leaves stay wet longer (which stimulates leaf-infecting

als realize some leaf-infecting fungi can colonize clippings and produce spores or other infectious structures. Under certain conditions this can lead to increased pressure.

However, green industry professionals might want to consider these opposing arguments: Spores produced on clippings are only a

Diseases such as dollar spot tend to be unsightly, but usually can be managed with proper cultural practices. Photo: Paul Vincelli.

small fraction of the total number of infectious spores in the turf. Non-infectious microorganisms may often out-compete infectious fungi on freshly mowed clippings. Clippings are a source of free fertilizer and, as a result, can better serve turf than landfills.

All in all, the benefits of leaving clippings more than outweigh any possible disease-control benefit of removing clippings for most landscape situations.

Irrigation practices also deserve consideration since they provide adequate moisture during periods of drought. Frequent, light waterings should be avoided, however, since they encourage development of a shallow root system and frequently provide the moisture fungi need to infect the leaves. When watering, saturate the soil to a depth of 3 to 4 inches to promote deep rooting and check the watering depth by pushing a metal rod, screwdriver or probe into the soil.

If a disease outbreak is evident, water early in the day so that the leaves dry by nightfall. If the turf is watered late in the day, the leaves may remain wet until morning, providing long periods of leaf wetness favoring infectious fungi.

Thatch control is also an important practice when dealing with turfgrass disease. While a little thatch is not harmful, accumulation of more than about 1/2 inch of thatch can lead to increased stress and disease.

When the thatch layer is thick, roots tend to grow within the thatch rather than reaching down into the soil. Such turf will be subject to extremes of moisture and temperature because thatch does not hold moisture as well as soil, nor does it protect roots as well from temperature extremes. Thatch also serves as a reservoir for many infectious fungi, and can aggravate several turf diseases.

**FUNGICIDES.** Fungicides, pesticides that control fungi, can sometimes play a part in a disease control program for an intensively managed turf. When confronted with a disease outbreak, however, lawn and landscape managers

(continued on page 50)

## APM Perennial Ryegrass National Overseeding Victories

Results of the 1990-91 Overseeding trials in Florida and Mississippi have just been released, and Medalist America's APM perennial ryegrass has claimed number one finishes in two national test sites!

Medalist's newly released APM took the number-one spot in the University of Florida's trials for overseeding a Tifgreen bermudagrass putting green at the Gainesville, Florida location. APM scored ahead of 37 cultivars and mixes tested for turf quality based on winter overseeding. APM averaged a 7.12 rating, out of a possible 9 points for a seasonal mean on turf quality. APM's highest scores were

for the biweekly ratings between November 1st and February 15th.

APM's performance in the Mississippi overseeding trials reinforced the Florida trial results with another first-place rating for APM's winter turf quality. Seeded on dormant Tifgreen bermudagrass putting greens in November through the following May, APM's seasonal mean was 6.29, almost a full point ahead of the group's mean rating.

APM is one of Medalist America's newest perennial ryegrass selections. APM's low growth, heat/drought tolerance, and excellent disease resistance make it an outstanding candidate for winter overseeding. APM has high density, moderately-fine leaf texture, and superior quality to many of the top performing perennial ryegrass varieties currently on the market. In addition, APM shows good resistance to summer

diseases including brown patch and pythium.

### Development:

The APM population was formed from 23 selected plants from Pinnacle and other superior Rutgers lines. These lines were increased to from approximately 8,000 plants that were space planted in Albany, Oregon. Extensive selection has reduced this number to less than 6,000 plants. Additional selection is continuing.

### Characteristics:

APM is a low growing, heat/drought tolerant, and excellent disease resistant perennial ryegrass. APM has high density, moderately-fine leaf texture, and superior quality to many of the top performing perennial ryegrass varieties currently on the market. In addition, APM shows good resistance to summer

diseases including brown patch and pythium. APM is recommended for use on lawns, sports fields, parks and play areas. It should perform well when mixed with a blend of Kentucky bluegrasses and for winter overseeding of dormant warm-season turfgrasses.

### Probable Applications:

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## Disease Control

(continued from page 48)

should ask themselves whether fungicides are the best solution.

Let's be honest, maintenance professionals have a tough job. Often there is intense pressure to have picture-perfect grass, no matter how stressful the weather. The right fungicide, properly applied, will provide disease control in some cases when cultural practices aren't enough, but consider the opposing arguments as well.

The disease must first be diagnosed correctly and the appropriate fungicide must then be selected to correct the problem. The application must then occur before infections arise. It is important to recognize that no fungicide will make brown leaves green again.

Once a disease outbreak occurs, all maintenance professionals can do is protect the new growth. They must also realize that by the time a disease is detected and diagnosed, the infection period may be over. The bottom line is that in many cases applying a fungicide often does nothing to speed recovery, but can prevent disease recurrence.

Cost considerations also come into play when launching a disease control program. For

**Thatch control is  
especially important  
when dealing with  
turfgrass disease.**

example, contact fungicides may need to be applied several times because of their short persistence on leaf surfaces. Systemic fungicides may last longer, but can also be expensive when applied at curative rates.

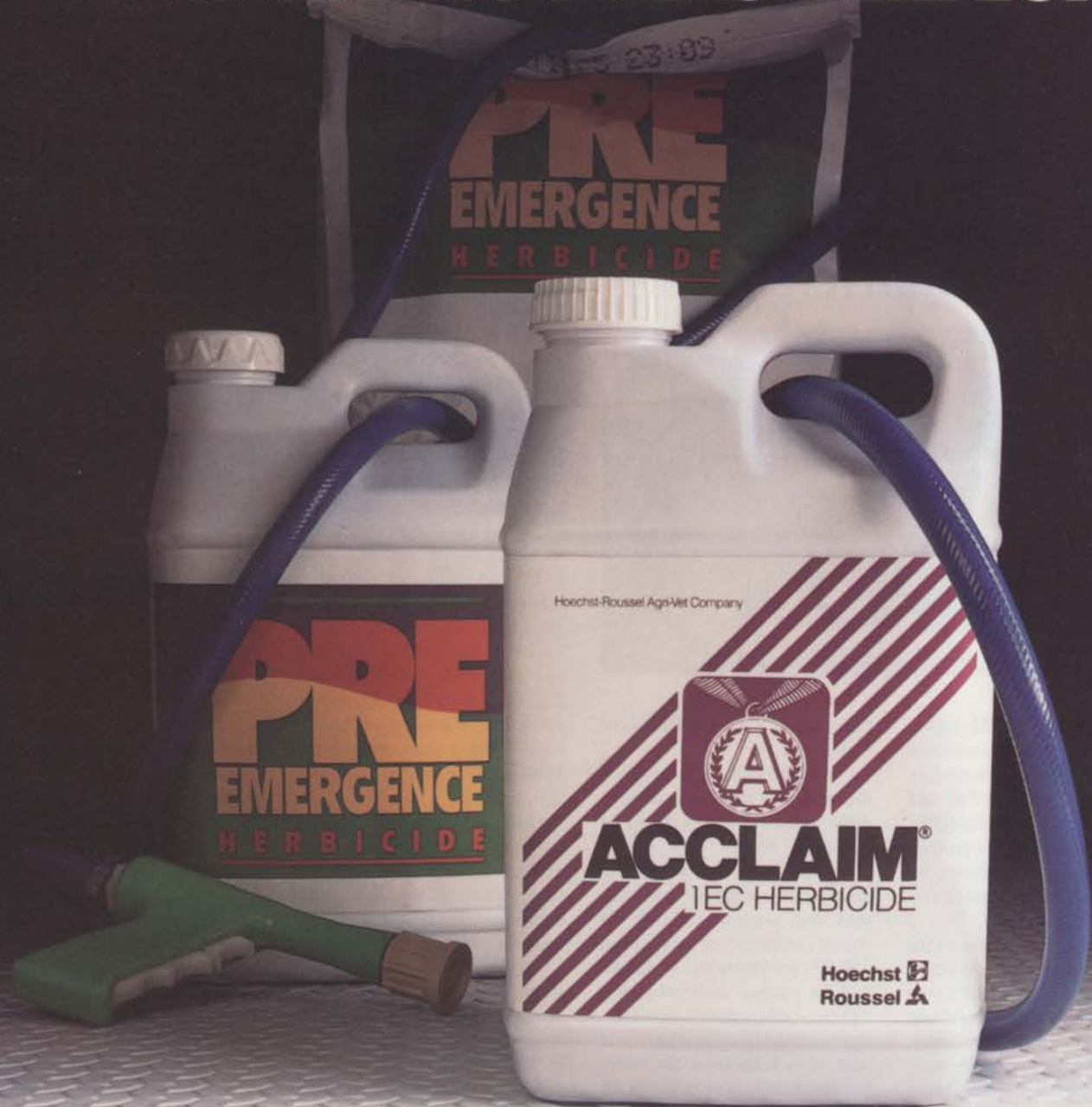
There are other, more complex considerations maintenance managers must consider as well. Spot treatment vs. blanket applications, potential liability issues and possible non-target effects of fungicides must all be given careful thought. Benzimidazole fungicides like thiophanate-methyl, for example, are toxic to earthworms. Since earthworms play an important role in decomposition of thatch, reducing the number of earthworms in the turf may result in thatch problems down the road.

There are times when fungicide use can be easily justified in a landscape setting. However, managers should consider all aspects of the specific turf situation before making the decision to apply a fungicide. It is important to keep in mind that even if a disease breaks out in your turf, a return to weather favorable for turf growth and vigor will often alleviate the problem. ■

*The author is an extension specialist in the plant pathology department at the University of Kentucky, Lexington.*



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**USE READER SERVICE # 18**

# OPEI EXPO

## Commemorates 10th Anniversary

Viewing and demonstrating products is the main attraction of the EXPO.



THE INTERNATIONAL Lawn, Garden & Power Equipment Expo celebrates its 10th anniversary July 25-27 at the Kentucky Fair and Exposition Center in Louisville, Ky. Show organizers are promising a more attractive setting, in-depth seminars and a host of features and special events.

This year EXPO moves to the east side of the exposition center to use the complex's new South Wing, a state of the art addition boasting a dramatic atrium lobby, higher ceilings and wide-open exhibit space, said Stan Byers,

chairman of the Expo Executive Committee.

"With the change in location, the show will have an extremely different look. It will be more airy and open," he said.

EXPO 93, sponsored by the Outdoor Power Equipment Institute, will provide 237,000 net square feet for indoor exhibits and 750,000 net square feet of natural turf for outdoor demonstrations. "There's not as much square footage of exhibit space available as in past years because of the move, but the show will be closer to the

outdoor demo area. This floor plan is more convenient," said Polly Moler, communications director for EXPO 93.

Additional exhibit space will be available next year after construction on a second section of the South Wing is completed.

Since this is the first time EXPO will use the South Wing, organizers are launching the show's 10th anniversary celebration at an opening ceremony there Saturday, July 25. An Anniversary Gala is planned for Monday, July 26, featuring country singers Lee Greenwood and Tanya Tucker. Charge for the concert and buffet dinner is \$32.

Soon after EXPO's debut in 1984, exhibitor participation grew by leaps and bounds. The first year's show drew 210 exhibitors; that number nearly doubled to 400 in 1985. Participation climbed steadily each year through the 1980s, then plateaued at about 550 in 1985.

Booth space for this year's show sold out by late May. Additional exhibitor hopefuls are being placed on a waiting list in case of other exhibitor cancellations, Moler said.

Attendance also rose fairly consistently each year. The 1984 show drew 12,000 visitors. The most noticeable growth spurt occurred in 1986, with 20,420 in attendance, up from 14,946 in 1985.

More than 22,000 attended in 1991 and in 1992; this year's is expected to pull in a record 25,000.

Byers believes the show has probably reached its peak in terms of size. "I don't envision the EXPO growing bigger and bigger, but it will continue to hold great importance. It is the place to be the last weekend in July for our industry," he said.

Byers partially blames the participation stagnancy on economic constraints, which he said have forced some manufacturers to consolidate product displays. He cited The Toro Co. which did not exhibit last year due to budget cutbacks, but rented reduced booth space this year for Toro and Lawn Boy products.

Show organizers point proudly to EXPO's steady increase in international participation. Eleven foreign countries were represented the first year; that number has grown to 60.

"We are quite pleased with how the international segment has developed," Byers said.

Landscape contractors and commercial mowing operators constituted a fair portion of the 1992 attendee list, at 15.5 percent. The breakdown includes dealers/retailers, 36 percent; distributors, 16 percent; manu-

*(continued on page 54)*

## EXPO 93 SEMINAR SCHEDULE

SEVERAL SEMINARS are scheduled for dealers, commercial end-users and, for the first time, rental dealers. All but one seminar are free and take place in the VIP Suite, second floor of the Exposition Center.

A preview of some of the seminars includes: "Leaders in Selling: What They Know and Do Consistently," presented by Alan Simmons and sponsored by the Outdoor Power Equipment Aftermarket Association. It will be held at the Galt House East, downtown Louisville. Tickets are \$15 in advance, \$20 at the door.

"Marketing Opportunities Using Environmentally Safe Products." Panel discussion focusing on dealers and retailers using environmental concerns to their advantage.

"EDI Networks — Moving in the 90s." Sponsored by the Engine Service Association.

"The Servicing Dealer's Niche in the Modern Marketplace." Panel

discussion sponsored by the National Equipment Servicing Dealer's Association.

"More Mow for Your Money." Speaker Charles Vander Kooi explains a financially sound way to replace grounds maintenance.

"Success Stories in Tough Times." Panel discussion illustrating how service and diversification can help a dealer remain profitable, even during a recession.

"Demands and Rewards of the Rental Market." Panelists of successful private enterprises and large chain stores share insight into expanding industry opportunities.

"Pricing for Profits, Bidding for Bucks." Following his '92 topic, "Bidding with Confidence," Charles Vander Kooi offers practical profit-making advice on estimating.

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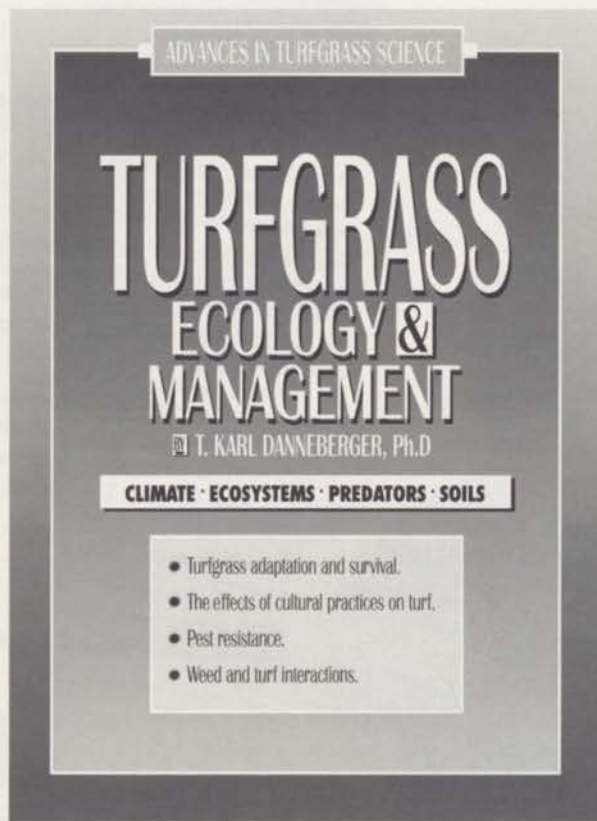
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Steve Wilbraham  
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## OEPEI EXPO

(continued from page 52)

facturer's representatives, 15 percent; trade visitors, 12.5 percent; merchandisers/buyers, 3 percent; and rental equipment dealers, 2 percent.

Commercial representation at the show continues to increase slightly. About 15 percent of exhibitors displayed commercial products ex-

(continued on page 78)

## MAJOR PLAYERS PLAN TO ATTEND EXPO, NOT EXHIBIT

SOME POWER equipment manufacturers, while conceding the International Lawn, Garden & Power Equipment Expo is the "show of all shows" to attend, are opting not to exhibit there.

"It's the industry function of the year. We have to be there in that regard," said Bill Peel, market development manager for Echo Inc., Lake Zurich, Ill.

Echo will have representatives at the show, but no display. "We just don't see the pay-back from the show," Peel said. "We work exclusively through two-step distributors. We have all those in place. We're not seeking new customers."

The EXPO is "a wonderful vehicle if you're looking for new customers. We highly endorse the show," Peel added. "Our company has good coverage around the U.S. and it's hard to justify paying multi-hundred dollar costs to exhibit."

Scag Power Equipment, Mayville, Wis., also will have representatives at the show, but no exhibit. "We plan to take the same approach we took last year," said John Crowson, Scag's national sales manager. "We supported more local and regional shows, which put us in more direct contact with our customers. That approach allows us to be more cost efficient."

Though some manufacturers have said EXPO is in itself becoming regionalized, Stan Byers, chairman of the EXPO Executive Committee, refutes that perception. "I think that's just a perception some people have. The statistics speak for themselves. We have attendees from every single state and 60 foreign countries at the show. There's nothing regional about it."

The Toro Co., Minneapolis, will be returning to exhibit at EXPO after skipping last year. "We're back to support the industry," said Jim Wallace, Toro's marketing manager. Last year's absence was "mainly a financial decision," he said.

Snapper Power Equipment, McDonough, Ga., attended the show last year, but will not this year due to a distributor council meeting just prior to the show, according to Doug Grote, vice president of marketing and sales. Snapper may return to the show next year, according to a company spokeswoman. "There's no telling at this point," she said.

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"Hunter I-40s proved to be the best sprinklers to handle these sandy soil conditions. Heavy-duty retraction springs and stainless-steel risers give us positive pop-downs, greater player safety and reliability.

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*A third-generation major league groundskeeper, Roger Bossard was recently named SportsTurf's Man Of The Year.*



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IRRIGATION  
TRAINING SERIES

# THE HYDRAULICS OF ELECTRICITY

*Learn how to compute  
the consequences of electrical  
hydraulics.*

*By Larry Keesen*

**MOST IRRIGATION SYSTEMS** are controlled by electrically activated timers, valves and sensors. The wiring for these components must be properly sized and connected to ensure proper operation of the irrigation system.

If the conductor size is too small, the voltage at the valves and sensors may be inadequate to operate the equipment. Conversely, if the voltage is too high the equipment may be damaged.

Water movement within piping systems is somewhat similar to the flow of electricity within wiring systems. Water pressure is like voltage or power. Accordingly, water volume and flow rate compares to electrical current in amperes, and water pressure loss to resistance is measured in ohms.

Voltage is the force applied to the flow of electrical current and is measured in volts. It can be compared to a pump or static water pressure that supplies the irrigation system. This force is measured in volts (V or VAC for alternating current vs. DC for direct current).

Alternating current is provided by electric utilities for most of the irrigation controllers on the market, and direct current is used primarily by solar and battery-powered controllers.

Current is the flow of electricity and can be compared to the flow requirements (gpm) of a sprinkler head. Current is measured in amperes or amps (A). The solenoid on a control valve requires a higher amperage inrush current to actuate the solenoid. A lower voltage generally is required for a holding current to maintain the solenoid position during operation, and a dropout voltage of 6 to 12 volts at about 0.005 amperes or 50 milliamperes (ma) is needed.

Voltage drop is the electrical resistance found in wire and other components. With water, friction loss causes a drop in water pressure as it moves



through the pipe. The same is true with electrical conductors carrying current and the voltage drop caused by resistance.

Voltage drop varies with wire length, diameter and the conductor material. Voltage drop or resistance is measured in ohms (R). A review of Ohm's Law will aid in the understanding of voltage, amperage and voltage drop. This shows the relationship between voltage, current and resistance:

$$V = I \times R$$

Where:

V = Voltage in volts

R = Resistance on ohms

I = Inrush current in Amps

and

$$R = V/I$$

$$I = V/R$$

When the circuit resistance is constant, the voltage can be changed by varying the current. When the current is constant, the voltage can change by varying the wire size and the resistance.

Most equipment is designed to operate at plus or minus 10 percent of its rated voltage. A device rated at 120 volts has an operating range of 108 to 132 volts. A solenoid rated at 24 volts has an operating range of 21.6 to 26.3.

But beware. The lower voltage requires more current or amperage to operate the equipment, and higher current produces more voltage loss in



*When installing an irrigation system, it's important to look beyond the specific products to the effects inclement weather can have on the system. Early consideration will help maintain a pleasant landscape setting.*

the conductor.

The power supply for the irrigation controller is usually obtained from the local electric utility which feeds 220-volt power through a meter to the circuit breaker box where it is then split into two separate power supply legs of 120 volts each. In some areas of the country, this may only be 115 volts each.

These two 120-volt power source legs are out of phase with each other. All controller power supplies must be in phase with each other or they will cancel each other when connected to the same common valve

neutral wire.

Generally, all other breakers from top to bottom are in synch. If the voltage at the output connectors of the circuit breaker read 220 VAC, then that power source is out of phase. If it reads 0 VAC then the source is in phase and can be used.

The industry standard recommends a separate common valve neutral wire for each controller.

Good design practices limit the voltage drop to 2 percent of the rated voltage. A device rated at 120 volts could afford a voltage drop of 2.4 volts, and an operating range from 117.6 to

122.4 volts. Most controllers have an electrical input rating of 115 to 117 VAC at 1 amp or less, and an output of 24 to 27 VAC at 2 amps or less.

**WIRES.** Sizing the wire requires the following information: wire circuit length, allowable voltage loss in the circuit and inrush amperage. The allowable voltage drop is equal to the minimum voltage at the power source, less the voltage required by the equipment. Equipment voltage and amperage requirements are available from manufacturers.

For example, the wire length from the controller to the valve is 1,650 feet. Double the length of the wire to complete the circuit and it equals 3,300 feet. With a peak demand current of 0.30 amps and a resistance of 2.58 ohms per thousand feet of 14 AWG wire equals:

$$\text{Voltage drop} = \frac{3,300' \times 0.30 \text{ amps} \times 2.58 \text{ ohms}}{1,000} = 2.55$$

A voltage loss of 2.55 is not within the allowable 2 percent loss of 2.4 volts for a 120-volt supply. At 115 volts, the allowable loss is 2.3 volts. To correct this problem the common wire size could be increased to 12 gauge and calculated as follows:

$$\text{Voltage drop in 1 leg (\#12)} = \frac{1,650 \times 0.30 \times 1.62}{1,000} = 0.80$$

$$\text{Voltage drop in 1 leg (\#14)} = \frac{1,650 \times 0.30 \times 2.58}{1,000} = 1.28$$

Total of both legs: 0.80 + 1.28 = 2.08 voltage drop, which meets the 2 percent standard.

WIRE GAUGE (AWG)	WIRE TYPE (UF)	RESISTANCE IN OHMS 1,000 FEET PER	
		77F	149F
18	Solid	6.51	7.51
16	Solid	4.09	4.73
14	Solid	2.58	2.97
12	Solid	1.62	1.87
10	Solid	1.02	1.18
8	Solid	0.641	0.739
6	Stranded	0.403	0.465
4	Stranded	0.253	0.292
2	Stranded	0.159	0.184
0	Stranded	0.100	0.116

Note: Use 77F temperature for wire buried underground and 149F for above ground wiring. The resistance in copper wire increases with the rise in temperature.

Determine the maximum distance for a 12-gauge wire circuit using the

formula at the top of page 60. If you want to avoid the

formulas and do it the easy way, check design manuals for the allowable wire lengths for different sizes of wire and various amperage requirements.

**LIGHTNING.** Lightning striking the ground can damage and/or destroy irrigation electrical control systems. Lightning and surge protection are necessary to protect these controls.

$$\text{Length} = \frac{\text{allowable voltage loss} \times 1,000}{\text{amp} \times \text{resistance in ohms} \times 2}$$

or

$$\text{Length} = \frac{2.3 \times 1,000}{0.25 \times 1.59 \times 2} = 2,893 \text{ feet}$$

A low-resistant earth ground should be used followed by surge protection on the power supply side of the controller. In lightning prone areas, surge protection should be provided for the 24-volt outlets at the controller.

All 115 VAC irrigation controllers should be connected to an earth ground, whether they are installed inside or outside. In many situations the earth grounding can be achieved by grounding back through the three-legged power supply.

Be careful. When controllers are a considerable distance from the power supply or pedestal mounted, they should be earth grounded at the controller location. This will prevent you from being the "ground" or liable for an electrocution. This is also required by law in the National Electrical Code.

A ground, which is an electrical connection with the earth, conducts electricity and provides a discharge path for short circuits, power surges and lightning. The earth ground is usually copper wire from the controller to a copper rod in the ground, or a copper wire connected to a metallic water pipe

that originates in the earth.

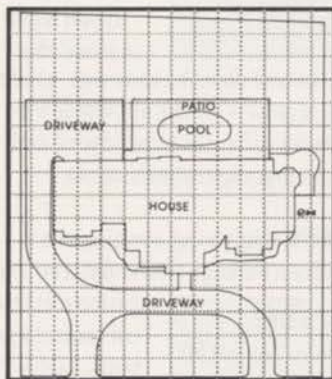
A ground is measured by its resistance in ohms to the surrounding earth. A good ground is low in ohms. Accepted industry standards require that grounding not exceed 15 ohms of resistance in the earth ground. It's best to stay under 5 ohms when conditions permit it.

If you can't meet these standards try one of the following steps: using longer or larger rods, setting the rods deeper in the ground, using parallel rod systems or chemically raising the salt level of the soil with nitrates. A good ground is usually less than 15 ohms

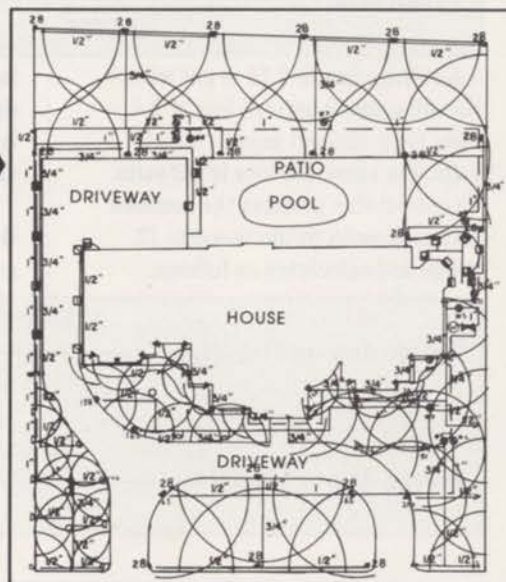
(continued on page 62)

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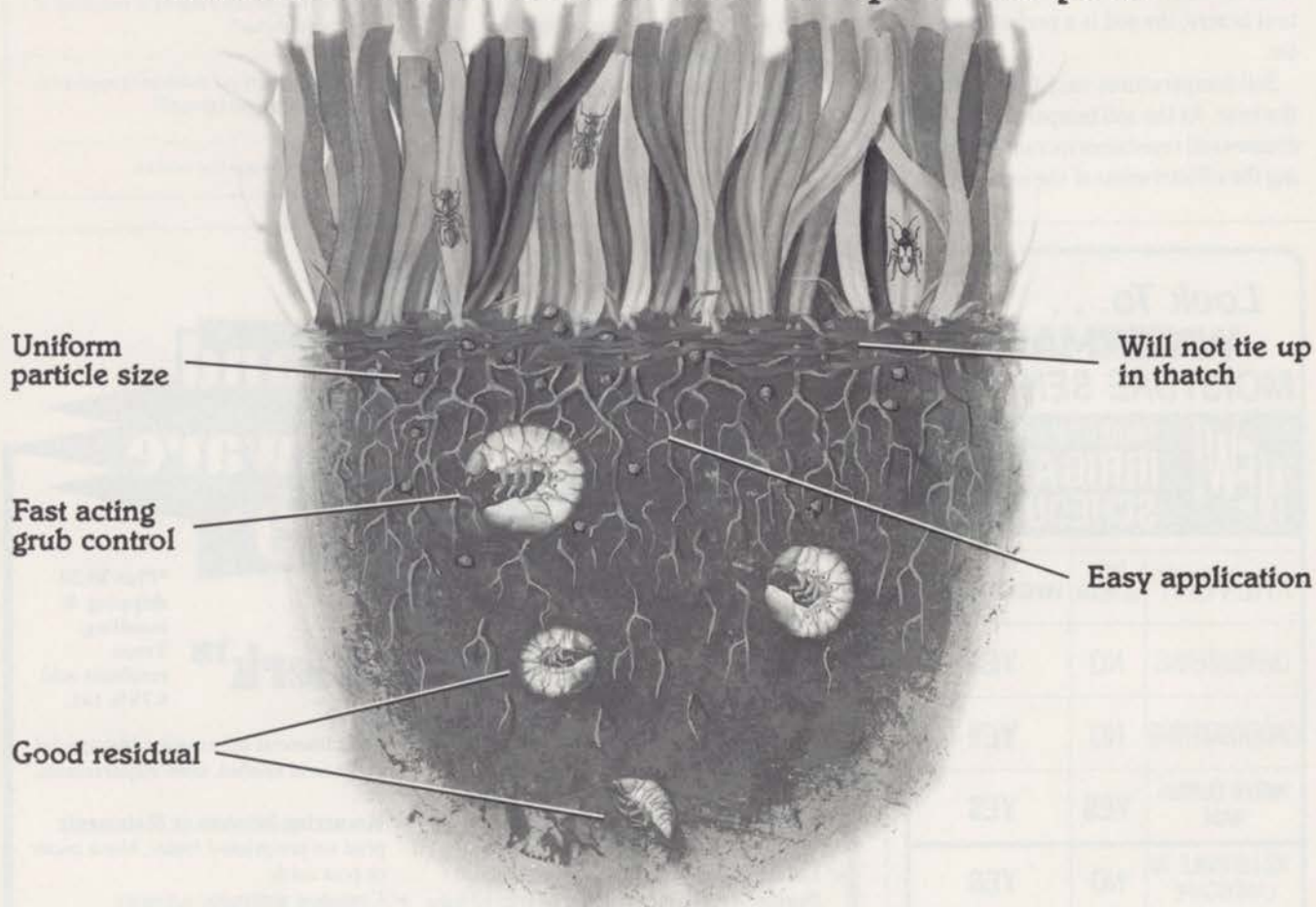
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USE READER SERVICE #54

(continued from page 60)

and may vary in resistance depending on soil moisture, soil minerals and soil temperature changes. Soil moisture should be kept at a minimum of 20 percent.

Either water the ground rod area with an extra pop-up sprayhead, or install the rod in a drainage swale or low area to maintain the 20 percent moisture content. If the soil moisture content is zero, the soil is a perfect insulator.

Soil temperatures vary throughout the year. As the soil temperature decreases soil resistance increases, reducing the effectiveness of the earth

ground. Below are the approximate levels of resistance in ohms for various soil temperatures.

SOIL TEMPERATURE (F)	RESISTANCE OHMS
68	7.2
50	9.9
32	13.0
32 (ice)	30.0

High water pressure can affect the operation of the solenoids on some valves. If the water pressure at the valve is more than 80 psi, check with the manufacturer to determine the

(continued on page 78)

#### IRRIGATION QUESTIONS


1. Which wire has the smaller diameter, a #8 or #10?
2. What is voltage?
3. What is the industry standard for voltage drop?
4. What is current?
5. When should surge protection be installed on the 24-volt outlet of the controller?
6. What is inrush amperage?
7. Does temperature affect the resistance of the conductor?
8. What percent soil moisture is required to maintain a good ground?

Answers appear on page 78 of June LLM.

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# People

L.R. NELSON CORP. named **Greg Natvig** national sales manager of the turf division. Natvig previously served as marketing manager.

**Todd Martin** was appointed product and quality assurance manager of Briggs & Stratton's large engine division. Martin joined the company in 1988 as quality foreman.

ISK Biotech announced the following appointments: **Gary Goolsby** as East maintenance supervisor; **Joseph Melancon P.E.**, as senior maintenance engineer; **Mario Padroni** as technical sales support in Milan, Italy; **Raul Coto** as sales manager for the Central American territory; **Barbara Murray** as retail products business manager for the industrial biocides division; and **Shawn Kennedy** as sales representative in Southern California and Arizona.

Winco Inc. announced the following appointments: **Peter Gallegos** as director of sales, in charge of all domestic industrial sales and representative agencies; **Clyde Veldhuizen** as Western regional sales manager, responsible for Western domestic industrial sales; **Anthony Weir** as CD account executive, in charge of key Western



Ellison

accounts; and **Sara Pollard** as marketing administrator, responsible for coordinating trade shows, literature production and market research.

**Bobby Lancaster** joined Precision Laboratories as manager of the wholesale division. Lancaster formerly served in various sales and marketing positions for IMC Fertilizer.

Husqvarna Forest and Garden Co. appointed **David Mast** Northeast territory manager. Mast is responsible for recruiting, developing and servicing outdoor power equipment dealerships in Connecticut and Rhode Island.

**Clair Ressler** was promoted to vice president of sales and marketing for Novelty Manufacturing. Ressler joined



McGee-Roberts

Novelty in 1987 as sales manager.

**Daniel Kim** joined Hardie Irrigation as test engineer. Kim formerly served as assistant domestic water engineer at Coachella Valley Water District, Coachella, Calif.

In addition, Hardie appointed **Alan Dawn** senior engineer, responsible for designing and developing turf irrigation products; and **Tuan Le** and **Jack Nguyen** as research and development engineers. Le develops Turf products; Nguyen works in product support.

Jacobsen Textron named **Diane McGee-Roberts** business development manager, in charge of establishing dealer and distributorships worldwide, and forecasting and administering sales.

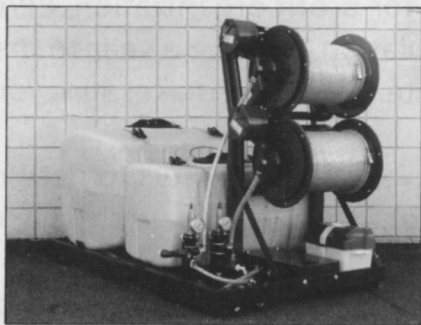
Jacobsen also appointed **Armand Almeida** vice president of finance. Almeida formerly served as Textron's group controller.

International Seeds named **Chuck Crampton** research agronomist. Crampton conducts turf quality and seed yield trials, data collection and analysis and provides technical support to sales and marketing.

Isuzu Truck of America promoted **Dick Ellison** to director of marketing and sales administration, and named **Mike Reardon** national marketing manager. ■

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Express is available in limited quantities through select Pickseed West distributors in the U.S. and Canada. Additional supplies are expected for fall.

**Circle 125 on reader service card**

nutrients that can be absorbed through leaf and root tissue to improve plant physiology.

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The Cushman Fifth Wheel Sprayer from **Ransomes** has been upgraded to include a larger, 300-gallon tank, reducing time-consuming refills. Constructed of lightweight

fiberglass, the re-designed tank has a lower profile than former models, providing improved stability on uneven terrain and reduced spillage.

Six jet agitators, combined with an internal gel coating, help ensure even chemical mixture throughout the tank's three chambers. The "triple deuce" nozzle system produces high capacity agitator flow, even when wet boom or spray gun pressure is reduced or shut off.

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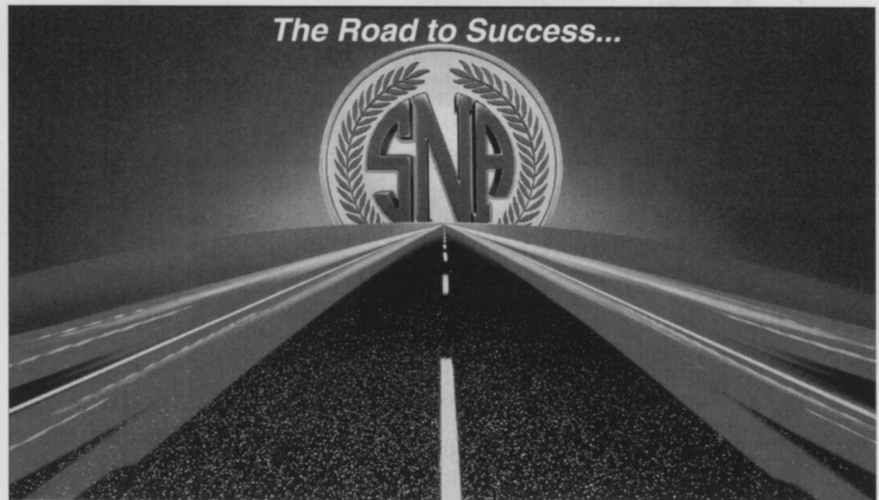
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**THURSDAY, July 29th** - The annual "SNA Kick-Off Reception" welcomes you to SNA '93, featuring the sophisticated sounds of the **"The Rikki Lee Trio"**.

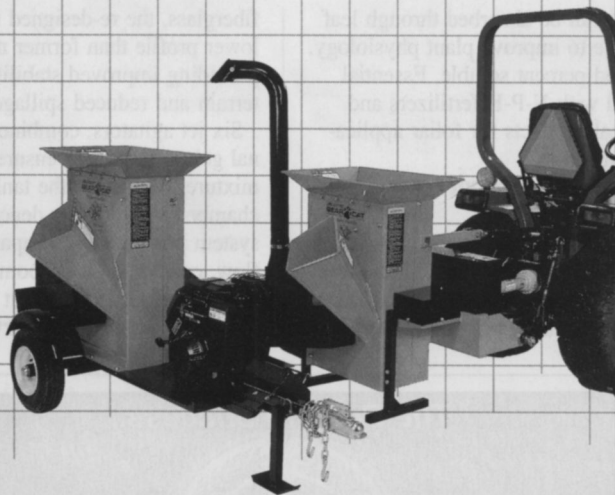
**FRIDAY, July 30th** - "The South's Biggest Dinner & Show" sets the night in motion, featuring the legendary **"Brenda Lee"**. Then dance the night away at the "Pit Stop Lounge" to the rock 'n roll beat of **"The Fabulous Kays"**.

**SATURDAY, July 31st** - The tradition continues with the annual "SNA Awards Banquet". This elegant tribute to **SNA Past Presidents** is celebrated with the piano and vocal sounds of **"Don Discenza"**.

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**Hardie Irrigation** offers a full line of products for reclaimed water use. The products are molded, non-potable and colored purple to identify them as reclaimed water products.

The line includes Hardie's 205TF-RW valves; 700 and 703 Ultraflow Series Valves; 100, 102 and 103 Century Series Valves; 100 model sprayheads; 533-RW bubbler; and the 530PR Rotors.

The RW models with molded purple bonnet and body indicate non-potable water systems. U.V. inhibitors and stabilizers ensure that the purple material maintains its structural integrity and color when exposed to sunlight.

**Circle 128 on reader service card**

**Land Pride's** 10-foot primary seeder comprises a 30-bushel, water-tight seed box with double-wall lid and V-shape bottom. The seeder distributes seeds off the front roller where they are fanned evenly by a wind-



protected seed "splash board."

The first row of cast-iron packer wheels, mounted loosely around a steel pipe, pulverizes dirt clods and pushes rocks down into the seed bed. The second row of wheels press the seeds firmly into the soil.

The seeder's carrying wheels can shift from back to front to reduce the unit's width, making it easier to plant close to trees and other landscape features.

**Circle 129 on reader service card**

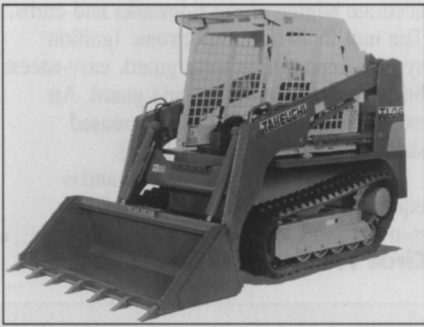
**LANDCADD International** upgraded its Release 12 computer software modules, including major changes to quadrangle, plant specifier and EZ-Estimate.

Version 2 allows landscape professionals to customize databases and implement new graphic options and interfaces in their designs. Modules are seamlessly integrated with AutoCAD and run with any of AutoCAD's foreign language versions. With cascading menus and new dialogue boxes, the new interface is much more user friendly.

Now operating with a standard DBASE format, EZ-Estimate works inside AutoCAD, using ASE to interface with the database. There is no need to shell out to DOS.

**Circle 130 on reader service card**





**Takeuchi Manufacturing** offers a compact, full-feature track loader equipped with specially developed rubber tracks.

The TL26 comprises a fully hydrostatic drive system coupled with heavy-duty, elevated planetary final drives. The high-ground surface contact of the long track base provides a stable platform for digging and loading on slopes, and stability for finish grading. The TL26's rubber track undercarriage also provides traction for excavating tough, heavy materials and the flotation for working in muddy, swampy areas or on loose materials.

**Circle 131 on reader service card**

The Maintenance Meter line from **SenDEC Corp.** includes more than 100 models of LCD hour meters, job timers, tachometers and service alarms with up to four functions. Input options include inductive, DC and REVTRAC for rotating shafts.

The HMJTSA meter, geared for landscape professionals, offers an hour meter for total time, job timer for job costing and employee productivity checks, and service alarm for proper periodic preventive maintenance service.

**Circle 132 on reader service card**

The General All-purpose turf and Off-Road vehicles from **John Deere**, dubbed GATORs, offer low-center gravity and wide-stance front ends.

The 10-h.p. GATOR 4X2 has four wheels with two-wheel drive and differential lock. Powered by a single-cylinder, air-cooled



engine, the vehicle's 10-cubic foot cargo box can haul 500 pounds. Payload capacity with operator and passenger is 900 pounds.

The 18-h.p. GATOR 6X4 has six wheels with four-wheel drive and differential lock.

Powered by a twin-cylinder, liquid-cooled engine, the 11-cubic foot cargo box hauls 800 pounds. Total payload capacity with operator and passenger is 900 pounds.

**Circle 133 on reader service card**

**Parmiter** Flexible Harrows help promote turf and sod production by resisting wind and water erosion. For root aerations, the harrows help stimulate growth for better water infiltration and root development.

Two harrow drawbars, 4 to 16 feet in length, are dragged over the soil, covering seed and firming soil for uniform germination, growth and distribution. Two harrows can be coupled together to



provide a 24-foot working width.

Parmiter harrows can be turned for aggressive or passive tine deflections, or used with tines pointed upward to lightly crumble and smooth the soil.

**Circle 134 on reader service card**

**Sandoz Agro's** Mavrik Aquaflo provides control of a broad spectrum of damaging insects and mites.

Mavrik eliminates whiteflies, aphids, caterpillars, flea beetles, mealybugs, mites, thrips, Nantucket Pine and other tip moths, fleas, ticks and a variety of surface-feeding insects.

Mavrik's recommended application rate is 8 ounces, mixed with 100 gallons of water per acre of turf. Application can be repeated every 10 days.

For plant coverage, mix 5 ounces with 100 gallons of water. Treated areas may be re-entered after the spray dries and any mist settles.

**Circle 135 on reader service card**

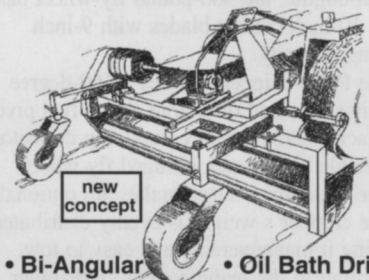
The gas-powered **Partner** Stump Grinder reduces stumps to below ground level fairly quickly, preparing the soil for immediate re-sodding or landscaping. Even hardwoods like live oak can be ground to a pulp.

The 44-pound stump grinder is designed for easy walk-behind control and should be suitable for delicate landscaping. Its 8-inch grinding wheel is specially designed for grating large stumps. Blades can be resharpened and replacement blades are readily available.

**Circle 136 on reader service card**

## 3 NEW Harley Power Rakes For Rugged Versatility

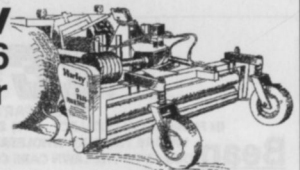
### Harley Model T-6 Power Box Rake



- Bi-Angular
- Oil Bath Drive
- Heavy-Duty Construction

Right- or left-throw raking. Drop adjustable end plates and rake simulates box scraper action. Move, pulverize, level more dirt in less time. Designed for 27-45 hp range tractors.

### Harley PRO-6 Power Rake



- Oil Bath Drive
- Bi-Angular
- Double Roller
- 3-Point Hitch

Here's the #1 rake of choice by landscape contractors for 27-45 hp range tractors.

### Harley PRO-8 Power Rake



- Bi-Angular
- Oil Bath Drive
- Rugged Bridge Frame Construction
- Vertical Hydraulic Float Control

This rake is designed for heavy-duty work. Electric control box lets you make adjustments with a fingertip for perfect shaping, leveling and fine grading. Never before has there been so much versatility in a Harley rake for the 35-55 hp range tractor.

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Bulb-Tone is ideal for all bulbs including tulips, daffodils, crocuses and hyacinths. It is available in 5-, 25- and 50-pound bags.

**Circle 137 on reader service card**

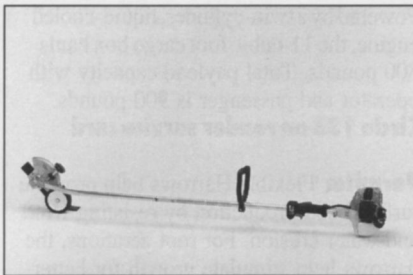
The **PeCo** model 40/30H mid-size hydraulic brush chipper offers variable hydraulic feed, to 170 feet per minute. Powered by a 40-h.p. diesel engine, the 300-pound fly-wheel has two, 10-inch cutting blades with 9-inch cutting capacity.

The PeCo chipper features a 360-degree rotating base and discharge chute, two pivoting jack stands, a heavy-duty chip deflector, reversible blades and a hinged fly-wheel cover. Electric or surge brakes are optional.

The chipper's weight is evenly distributed, making it maneuverable and easy to tow, according to the manufacturer. The trailer offers a torsionally sprung axle for smooth tracking behind the tow vehicle.

**Circle 138 on reader service card**

**Stihl's** FC 72 professional landscape edger features a depth-adjustment wheel for



accurate edging along sidewalks and curbs. The unit includes an electronic ignition system, replaceable wear guard, easy-access blade nut and flexible debris guard. An extra-wide depth wheel for increased stability in soft grass is optional.

The FC 72 weighs 12.6 pounds and is equipped with a shielded, extra-baffled muffler and loop handle.

**Circle 139 on reader service card**

## FYI...

**Developing a whitefly control program.** The Pest Management Bulletin from Whitmire Research Laboratories outlines seven key areas for growing poinsettias and other crops.

**Circle 140 on reader service card**

**Installing plastic plumbing.** The NIBCO Plastic Plumbing Handbook provides a reference guide for installing plastic fittings, valves and pipe for residential, irrigation, pool/spa and light commercial markets.

**Circle 141 on reader service card**

**Training Technicians.** The Landscape Horticulture Center for Personnel Development published a manual for training landscape management technicians. The manual can be used for training in the field, tailgate talks and in-house training sessions to help develop a company-wide standard of performance.

**Circle 142 on reader service card**

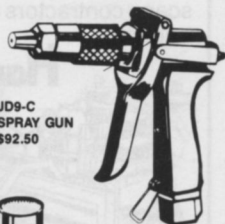
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# Product Profile

## Business Thrives With Effective Marketing

LOOK IN THE San Diego Yellow Pages directory under "aeration services" and you will see that the largest ad is for Four Seasons Aeration and Thatching. Company owner Dominic Carlos said his ad is primarily for professional recognition; he gets most of his new business from door-to-door marketing.

"It used to be, Four Seasons was the only ad in the Yellow Pages for aeration services," Carlos said, "but with ongoing water concerns in Southern California, homeowners are taking more interest in lawn aeration."

Long before the drought, however, Carlos determined that person-to-person marketing was the best way to promote his aeration business. He began door-to-door solicitation shortly after moving to the San Diego area 12 years ago. Today he employs three full-time sales managers, a full-time telephone solicitor and scheduler, 15 part-time sales people and six full-time aeration technicians.

Four Seasons' sales representatives go door-to-door in assigned neighborhoods explaining the company's aeration services. When the homeowner isn't available, the representative leaves a door hanger which explains the benefits of aeration and provides the Four Seasons telephone number.

"I don't mind paying the door-to-door sales people on an hourly basis, even when they don't sell too many jobs," Carlos said. "We get a lot of customer follow-up calls from the door hangers."

The door hangers explain that aeration reduces water runoff, improves fertilizer movement to the root zone, stimulates new root growth and improves soil structure. They also describe Four Seasons' special



Ryan's Lawnaire 28 aerator increases maneuverability.

## Equipment Efficiency Provides Key to Success

PHIL SANKAR knows his business. He's owned Phil Sankar Landscaping, a full-service lawn and landscape business in northeastern Ohio, for 16 years; continuously looking for new and better ways of providing service to his customers. He always tries to be the highest quality company around while offering competitive prices.

Sankar wanted to find a more efficient way of providing both fertilizer and weed control applications to residential and commercial properties the firm maintained. He had been making two passes over the turf — one for fertilizer and another for weed control — which proved time consuming. Also, he had many larger properties that his employees dreaded having to spread and spray by hand.

He soon found a solution. "The first time I saw the Turf Tracker was at a trade show," Sankar said. "It looked just like what I was looking for — a riding unit that would allow me to put down a dry fertilizer and a liquid weed control all at one time."

The product, sold nationally for five years by C&S Turf Care Equipment, has the ability to reduce production time by 50 percent or more. In some instances, Sankar's productivity increased by 100 percent. The Turf Tracker's three-speed electric fertilizer impeller allows crews to control the width of patterns from 4 feet to 24 feet wide, depending on the selected material. In addition, spray widths of up to 12 feet wide can be applied over the entire property or on a spot treatment basis.



The Turf Tracker's speed is set at 4 mph.

guarantee: "We guarantee that within the next 31 days your lawn will not only look healthier, but will have developed a deeper root system, or we will re-do any portion of the service necessary to gain your satisfaction."

Four Seasons includes lawn fertilization as part of its aeration service. Immediately after aerating, the operator applies a slow-release nitrogen granular fertilizer which is coated to minimize the chance of burning if the homeowner doesn't water right away. Four Seasons uses a 15-5-7 blend in the summer, a 16-6-8 blend in the fall and a 22-3-9 formula during the winter months.

Four Seasons also offers an organic fertilizer for customers who prefer it.

Carlos buys his fertilizer in bulk, and during the busiest summer season he purchases about two tons a week. He credits switching his aeration equipment as making a positive difference in his business. Carlos leased three new Ryan Lawnaire® 28 aerators from San Diego Turf, the lo-

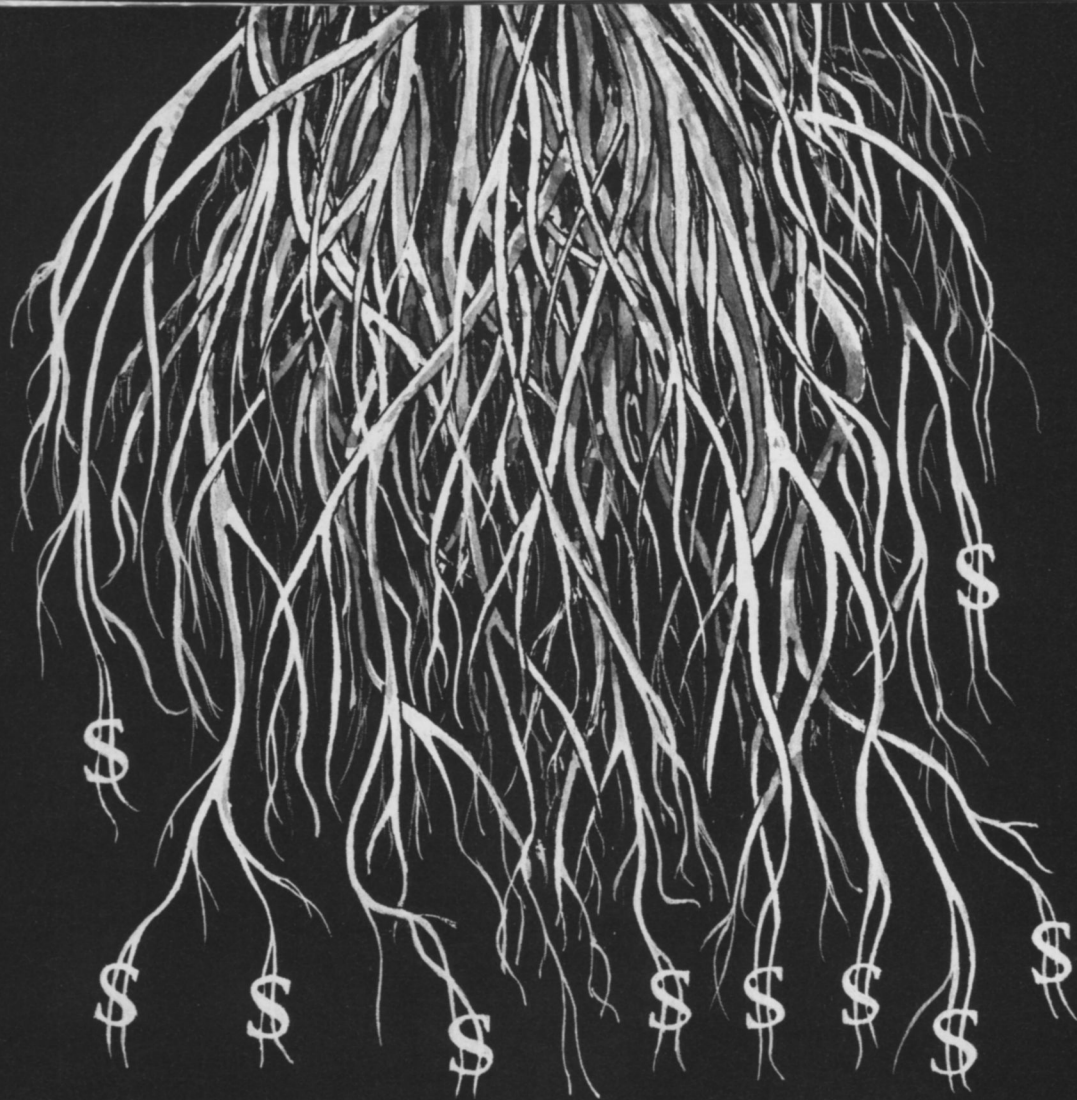
cal Cushman dealer, a few years ago and now owns two.

"We were using Lawnaire IVs, but we can cover a lawn much quicker with the LATM 28. Because of its maneuverability, we can get in and around the small lawns just as easily," Carlos said. "The LA 28 has made it easier to stay ahead of the competition, too. When customers see the soil cores the machine pulls, they instinctively know it's doing a better job."

Although Four Seasons works in all San Diego neighborhoods, most of their canvassing is concentrated in areas where home values are \$200,000 and up. According to Carlos, Four Seasons aerates about 200 homes per week in a typical year and, although most of his business is residential, the firm also handles some shopping centers, condominium projects, private schools and estates.

The average charge for aerating ranges from \$40 to \$60 per lawn, which includes the follow-up fertilizer application. Four Seasons generally prices its aerating service for the owner's front yard, but offers a 50 percent discount for the backyard when it's done at the same time. Most of the lawns Four Seasons services are relatively small, averaging less than 5,000 square feet, both front and back.

Carlos' business has increased at a rate of 16 to 18 percent per year, and Four Seasons' projects gross sales will reach \$375,000 this year. ■



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**JULY 7-8** Pesticide Institute, Embers Convention Center, Carlisle, Pa. Contact: Pennsylvania Nurserymen's Association, 1924 N. Second St., Harrisburg, PA 17102; 717/238-1673.

**JULY 8** The University of Georgia Turfgrass Field Day, Georgia Station, Griffin. Contact: Douglas Moody, Georgia Turfgrass Association, 5198 Ross Road, Acworth, GA 30102; 404/975-4123.

**JULY 9-10** Second Annual New York Re-Leaf, Urban and Community Forestry Conference, Cornell University, Ithaca, N.Y. Contact: Dr. Nina Bassuk, 607/255-4586.

**JULY 14** Annual Nursery Field Day, Hampton Roads Agricultural Experiment Station, Virginia Beach. Contact: Dr. Bonnie Appleton/HRAES, 1444 Diamond Springs Road, Virginia Beach, VA 23455; 804/363-3906.

**JULY 14-15** Midwest Grounds Management Conference, Miami University, Oxford, Ohio. Co-sponsored by the Professional Grounds Management Society and the Association of Physical Plant Administrators. Contact: George Persinger, Miami University, Cole Service Bldg., Oxford, OH 45056; 513/529-6786.

**JULY 14-16** Mailorder Association of Nurseries Summer Convention, Greenville Hilton, Greenville, S.C. Contact: MAN, 8683 Doves Fly Way, Laurel, MD 20723; 301/490-9143.

**JULY 14-16** Summer Convention & Field Days, American Sod Producers Association, Opryland Hotel, Nashville, Tenn. Contact: ASPA, 1855-A Hicks Road, Rolling Meadows, IL 60008; 708/705-9898.

**JULY 18-24** International Turfgrass Research Conference, Breakers Resort Hotel, Palm Beach, Fla. Contact: Dr. George Snyder, University of Florida, IFAS, Everglades Research and Education Center, P.O. Box 8003, Belle Glade, FL 33430; 407/996-3062.

**JULY 19-21** IAN Summer Meeting and Field Day, Indianapolis. Contact: Philip Carpenter, Indiana Association of Nurserymen, 202E 650N, West Lafayette, IN 47906; 317/497-1100.

**JULY 22-24** TTIA Conference and Trade Show, DFW Hilton Conference Center, Grapevine, Texas. Contact: Texas Turfgrass Irrigation Association, 9530 Forestview, Dallas, TX 75243; 214/321-0155.

**JULY 24-29** American Society for Horticultural Science's Annual Meeting, Opry-

land Hotel, Nashville, Tenn. Contact: Christine Radiske, 703/836-4606.

**JULY 25-27** International Lawn, Garden and Power Equipment Expo, The Kentucky Exposition Center, Louisville. Contact: EXPO 93, 6th floor, 6100 Dutchmans Lane, Louisville, KY 40205; 800/558-8767.

**JULY 27-29** East-Penn Allied Nursery Trade Show. Contact: Pennsylvania Nurserymen's Association, 1924 N. Second St., Harrisburg, PA 17102; 717/238-1673.

**JULY 28-29** LCA Summer Conference, Holiday Inn Crown Plaza, Rockville, Md. Contact: Landscape Contractors Association, 9053 Shady Grove Court, Gaithersburg, MD 20877; 301/948-0810.

**AUG. 1-3** Georgia Golf Course Superintendents Association Summer Conference, Augusta. Contact: GGCSA, 706/769-4076.

**AUG. 4-8** 1993 AAN/TAN Annual Convention, Dallas Convention Center. Contact: Kevin Morales, AAN, 1250 I St. NW, Ste. 500, Washington DC 20005; 202/789-2900 or TAN, 7730 IH-35, Austin, TX 78745-6621; 512/280-5182.

**AUG. 5** National Turfgrass Evaluation Program Turfgrass Research Field Day, USDA Beltsville Agricultural Research Center-West, Beltsville, Md. Contact: Kevin Morris, USDA-BARC-West, Bldg. 001, Rm. 333, Beltsville, MD 20705; 301/504-5125.

**AUG. 12** Landscape and Garden Tours, St. Paul. Various locations. Minnesota Nursery and Landscape Association. Contact: Jim McCarthy, MNLA, P.O. Box 130307, St. Paul, MN 55113; 612/633-4987.

**AUG. 12-13** Invasive Exotic Plants: Contemporary Issues and Options conference, Virginia Tech, Blacksburg. Contact: J.C. Gordon, Donaldson Brown Continuing Education Center, Virginia Tech, Blacksburg, VA 24061; 703/231-5241.

**AUG. 13** 1993 Summer Meeting and Trade Show, Bailey Nurseries Inc., St. Paul, Minn. Contact: Jim McCarthy, Minnesota Nursery and Landscape Association, P.O. Box 130307, St. Paul, MN 55113; 612/633-4987.

**AUG. 17** Wisconsin Turfgrass Field Day, O.J. Noer Turfgrass Research and Education Facility, Madison, Wis. Contact: Dr. Frank Rossi, 608/262-1490.

**AUG. 17** Ohio Turfgrass and Landscape Horticulture Research Field Day, The Ohio State University, Columbus. Contact: Phyllis Selby, 614/292-2601 or Dr. Karl Danneberger, 614/292-8491. ■

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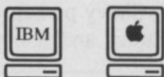
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## OPEI EXPO

(continued from page 54)

clusively last year, 13 percent showed only consumer products and 72 percent exhibited both.

Since 48.4 percent of visitors surveyed after the 1992 EXPO said they attended the show to see new products, exhibitors will banner their latest innovations with bright ribbons this year. "Both the visitor and exhibitor will benefit," said Dennis Dix, OPEI president and CEO. "Clear identification will make it easier for visitors to find new products — and easier for exhibitors to point (them) out, even during peak periods."

Hours for indoor exhibits are Sunday and Monday, 9 a.m. to 5 p.m., and Tuesday, 9 a.m. to 3 p.m. The outdoor exhibition area is open Sunday and Monday, 8 a.m. to 5 p.m., and Tuesday, 8 a.m. to noon.

A few seminars have been added to the program this year (see sidebar, p. 52). Other features include the Hall of Yesteryear, an industry time line exhibit featuring photos and landmark events in the outdoor power equipment industry; the Garden Tool Giveaway drawing for a new, \$22,000 Chevy pickup; a 6,500-square foot Model Store; and a new

Kentucky Bluegrass Food Court.

The Service Dealers Association will administer certification testing on two-stroke engines July 25 and 26, at 2 p.m., and on four stroke engines at 8 a.m. both days. Testing is limited to the first 100 registrants.

Special events planned outside of the show include A Day of Racing at the Sports Spectrum, Saturday, 2 to 7 p.m., \$27/person; A Sunday Brunch at the Derby Dinner Playhouse, noon to 4:30 p.m., \$30.50/person; Tour: Kentucky Derby Museum and Farmington, Sunday, 1 to 4:30 p.m., \$19/person; Tour: Wild Turkey and Wild Politics (tours of a distillery and Frankfort, Kentucky's capital city), Monday, 9 a.m. to 3 p.m., \$25/person; Tour: Star of Louisville Luncheon Cruise Plus Shopping Spree, Monday, 11:30 a.m. to 3 p.m., \$31; Tour: Hillerich and Bradsby, maker of the famous Louisville Slugger baseball bats, and Thomas Edison's 1866 house, Monday, 1:30 to 4:30 p.m., \$16/person.

Preregistration for EXPO 93 is free; on-site registration is \$20. A free preview video is available. For more information, contact EXPO 93, 6100 Dutchmans Lane, 6th floor, Louisville, KY 40205; 800/558-8767 or 502/473-1992 (inside Kentucky or outside the U.S.); fax 502/473-1999. ■

### IRRIGATION TRAINING SERIES LESSON ELEVEN

Answers to questions on page 62.

1. #10
2. The force applied to the flow of electrical current.
3. 2 percent of the rated voltage.
4. Current is the flow of electricity.
5. In areas where a high incidence of lightning occurs.
6. The amperage required to actuate the solenoid or electrical device.
7. Yes.
8. 20 percent.

## Irrigation Training

(continued from page 62)

additional voltage/amperage that may be required by the solenoid.

Because soil conditions may change or the grounding system can be damaged, check the system annually for resistance to determine if it still meets standards. This is particularly important in lightning prone areas.

Surge protection or suppressers should be installed on the power supply or input side of the controller. In areas where lightning is a problem, install surge suppressers on the 24-volt output lines. The surge suppresser can be grounded to earth for additional protection. Coil the wire at the solenoid (20 turns around a 1-inch pipe) to dissipate electrical surge from lightning.

Wire should be buried 24 inches for 110-volt or higher voltage, and a minimum of 6 inches for circuits of 30 volts or less. See the National Electrical Code for additional information.

The next two lessons will discuss the installation of control systems, sensors, pipes, heads, as-built drawings, instructions and related information. ■

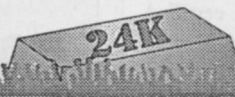
The author is vice president of Keesen Water Management, 10700 E. Bethany Drive, Suite 103, Aurora, CO 80014-2625.



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"I first bought an Isuzu in 1986; within 6 months I bought another one. Ever since, I've averaged one or two new Isuzus per year," says Greg Coleman, owner of Vision Scapes.

According to Andrew Baldy, vice president of Oakwood A.P.C.I., half his company's 20 trucks are Isuzus. "As we keep growing, we'll keep on buying Isuzu trucks. Reason being, we get longer life out of them. We also get better fuel mileage, easier maintenance, lower

upkeep and much better overall durability."

Ken Thomas, owner of Landscape Techniques says, "I didn't know what cargo room was until I got an Isuzu."

Adds Greg, "My mechanic loves it. He likes the tilt cab. And if you take an Isuzu in a cul-de-sac, you can almost do a figure eight"

Terry Walton of Greenscape just bought two new Isuzu trucks. "People I talked to had nothing but good things to say about the trucks."

Andrew sums it all up, "I will never go to another truck. And that's truth."

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For more information or to place your order, contact your LESCO Sales Representative, visit a LESCO Service Center or call (800) 321-5325 (In the Cleveland area 333-9250).

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