

# Lawn & Landscape MAINTENANCE

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AUGUST 1992 • \$2.50



## FAMILY TIES

*The father/son team of Ed and Dan Connelly brings imaginative designs to residential landscape settings.*

ALSO IN THIS ISSUE:

Turf Make Overs

Irrigation Scheduling

Controlling Grubs

# OFTANOL USERS KNOW THE BEST WAY TO OUTSMART GRUBS IS WITH A LITTLE EXTRA HOMEWORK.

Getting rid of grubs that attack your customers' lawns can be pretty tricky sometimes. Unfortunately, simply treating against these destructive pests doesn't always guarantee success.

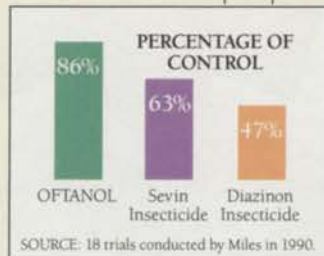
But many lawn care operators have learned that all it takes to outsmart grubs is a little preparation—finding the right product and the right time of year to make the application. The product is OFTANOL Insecticide. Studies show that time after time, OFTANOL provides grub control. And delivers better control than other widely used products such as Sevin® and Diazinon Insecticides.

The right time to apply it? That will vary from region to region. But a good rule of thumb is

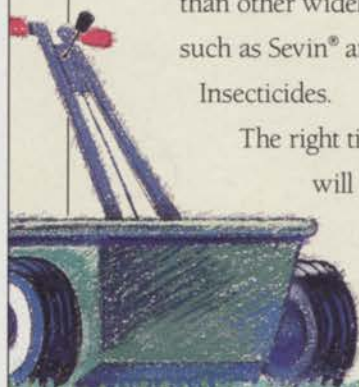
to treat with OFTANOL when grubs are at or near the surface. An easy way to check is by just pulling back a bit of sod and looking for an infestation. Or call your local Extension office to determine peak periods of grub feeding in your area.

These are, of course, just the basics of effective grub control. If you'd like to learn more about OFTANOL and its proper usage, contact your local Miles representative. Or just give us a call at (800) 842-8020. One of our trained professionals will be standing by to answer your questions. Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120.

So why let grubs continue to test your patience when the easy answer is OFTANOL.



Sevin is a Reg. TM of Rhone-Poulenc Ag Company



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Cover Photo:  
Michael Harrison, Akron, Ohio

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# Editor's Focus

WHILE MANY GREEN industry issues have reached a standstill — pesticide regulations, emissions standards, noise pollution and landfill regulations, just to name a few — many suppliers, end-users and distributors alike are reflecting on the past year's triumphs as well as initiating campaigns for the new year.

Increasingly, a number of these firms are committing themselves to the commercial contracting industry. As the consumer industry continues to shrink, the professional landscaping market is becoming more alluring to those firms hoping to expand both marketability and revenues.

On the supplier side, manufacturers are realizing the significance and specialization required to develop commercial equipment. Professional landscapers aren't simply users of consumer equipment on a heavier use schedule. They are users of customized equipment designed to handle continual use and abuse, and equipment that can function in inclement weather as well as stand up to the test of time.

Likewise, commercial contractors are beginning to request the type of equipment options they need from manufacturers to get a grip on labor costs and to improve professionalism.

The commercial contracting industry is a dynamic market equaling the size and diversity of the golf course market. Its potential is limitless, and far from being saturated. More commercial products were showcased at the recent International Outdoor Power Equipment Expo in Louisville, and more landscape contractors showed up at the traditionally consumer/dealer-oriented trade show.

In a subtle way, these actions match those outlined by the New Alliance two years ago. The concept, developed by the American Society of Landscape Architects and eagerly accepted by landscape contractors, nurserymen and grounds managers alike, burst into the green industry with much aplomb, but has adopted a lower profile this year. Nevertheless, it's still in the minds of its founding members, and visible within various echelons of the green industry.

The goal of the organization — more communication between the landscape contractor and the nursery grower as well as increasing links between contractors and landscape architects — is still sound, and perhaps more important than ever in this litigious society in which we live.

Signs of this growing collaboration are the continued unions between industry trade shows, joint efforts to establish national certification programs and the for-



mation of coalitions to efficiently handle environmental and legislative issues.

In keeping with this theme, the Associated Landscape Contractors of America, the Professional Grounds Management Society and the Professional Lawn Care Association of America will join together for the third year to hold the Green Industry Expo. Leaders of these three associations have managed to combine their aims and goals, in lieu of any differences, to present a trade show which dramatizes the strengths of the commercial market.

While the show is still in its infancy, suppliers of equipment, pesticides, fertilizers and seed have found success here. It's hoped that the show's growing identity will attract manufacturers of irrigation products as well as goods related to the nursery market.

Likewise, the American Association of Nurserymen will merge its trade show, on a rotating basis, with regional nursery shows. The first will be held with the Texas Association of Nurserymen next year in Dallas.

As far as education goes, ALCA's impending certification program is designed to offer contractors training on three levels, with the ultimate goal being that of quality landscape operator. Additionally, PLCAA and the Responsible Industry for a Sound Environment are working jointly on a certification program for lawn care technicians.

These exciting new programs hold a lot of promise for the green industry and it's hoped that these small steps toward a common goal will continue. The future of the green industry should be based on the market's ability to tell its strong story in an efficient and unified manner. *Cindy Code*

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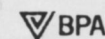
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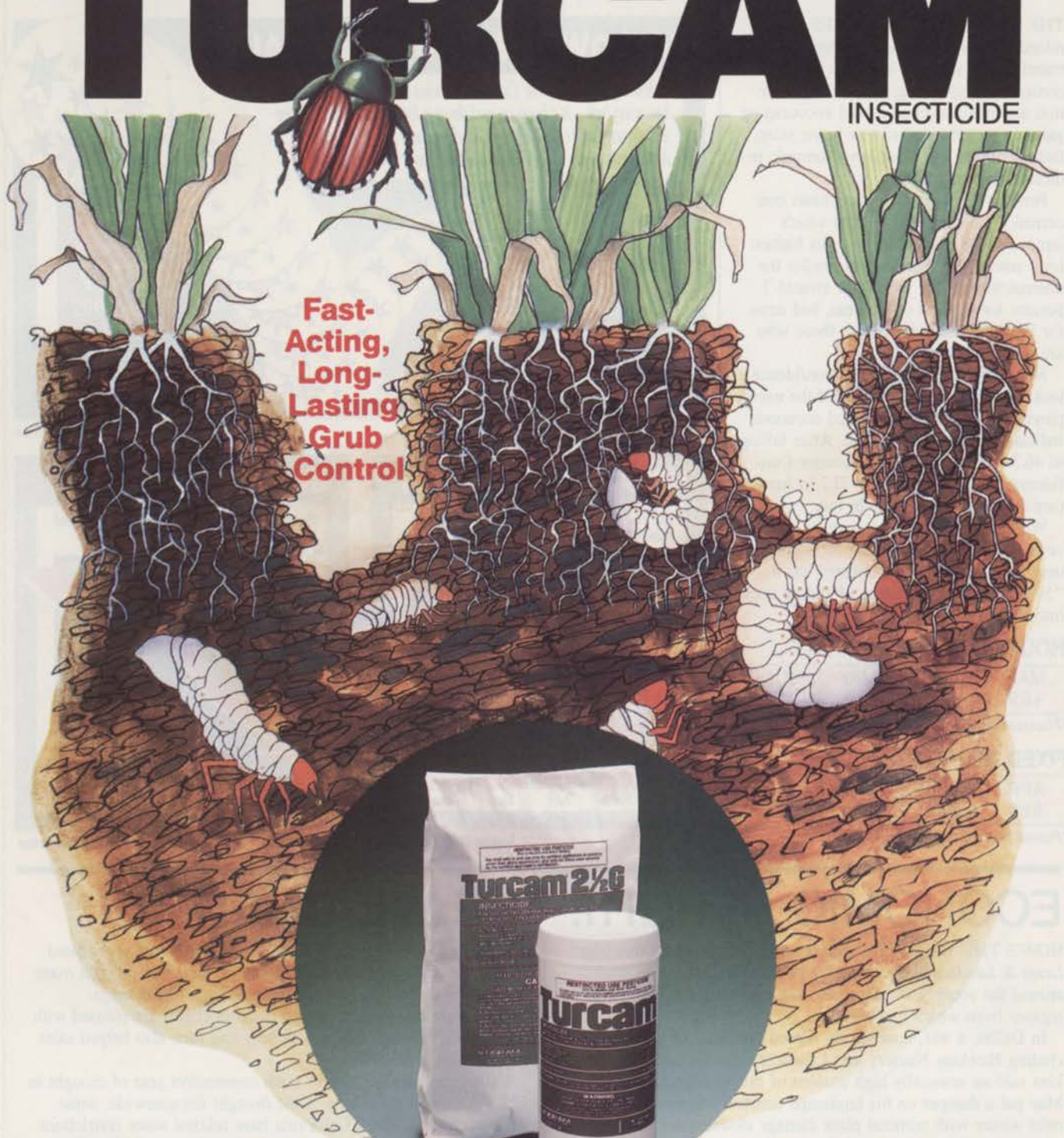
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USE READER SERVICE #11

# Business Watch

THE ECONOMY CONTINUES to send mixed signals to financial analysts frustrated by the sluggish recovery. While construction spending, industrial production and retail revenue posted encouraging gains in recent months, new home sales, factory orders and other key economic indicators turned sour.

Perhaps the most disturbing news concerned the unemployment rate which jumped to 7.8 percent in June, its highest level since 1983. Economists predict the unemployment rate will hover around 7 percent for the rest of the year, bad news for President Bush as well as those who are out of work.

Not surprisingly, consumer confidence took a tumble in July, as news of the unemployment rate and other stalled economic indicators reached the public. After falling to 46.3 in February, the Consumer Confidence Index rebounded to 71.7 in June (see chart) then fell to 61 in July.

While 90 percent of economists surveyed by *USA Today* say the recession is over, 23 percent say the country has a "50-50" or "high" chance of sliding back into recession.

## HOUSING STARTS

MAR.	APR.	MAY	JUNE
+6.9	-19.2	+11.0	-3.2

(Thousands of homes, seasonally adjusted)

## FIXED MORTGAGE RATES\*

APR.	MAY	JUNE	JULY
8.68	8.45	8.42	7.93

\*Posted yields on 30-year mortgage

## FOLLOW THE BOUNCING BALL...

Following the Consumer Confidence Index has been like watching a bouncing ball — it's been up and down a lot. After bottoming out in February at 46.3 it bounced back up to 71.7 in June as Americans begin to feel more positive about the economy.

50.6  
November 1991

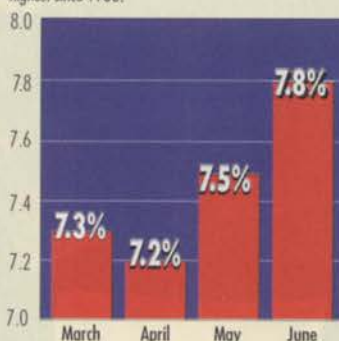
46.3  
February 1992

71.7  
June 1992

Source: The Conference Board

## UNEMPLOYMENT WOES

June's 7.8 percent national unemployment rate was the highest since 1983.



Source: Labor Department

## GAS PRICES RISE

The average price of a gallon of unleaded gas has increased steadily, contributing to higher overall costs for PCOs.



Source: American Automobile Association

## ECONOMIC REPORT: THE WEATHER

HOW'S THE WEATHER been treating your business this year? *Lawn & Landscape Maintenance* posed that question to readers around the country. As expected, responses were as diverse as the regions from which they came.

In Dallas, a wet, cool spring slowed business for area firms, including Hawkins Nursery and Landscape Co. Owner Otis Hawkins said an unusually high amount of rain in March, April and May put a damper on his landscape construction business. Also, a mild winter with minimal plant damage slowed sales of broadleaf ornamentals. But as of late July, weather — and business — have been warming back up, he said.

An especially wet summer has been a boost to business for Carol King Landscape Maintenance in Orlando, Fla. According to Vice President of Operations Bruce Bachand, rain "encourages our grass to grow, puts a strain on our competitors' equipment and allows us to acquire new business through disenchanting customers."

Further up the East Coast, Ed McGuire, president of The Lawn Co., S. Dennis, Mass., said spring "never showed up."

"Every weekend was cooler and wetter than the one before. The lousy weather in spring did not help sales."

The weather has created ideal business conditions in the "Field of Dreams" state of Iowa, said Daryle Johnson, president of All

American Turf Beauty Inc., Van Meter. Few weeds germinated during the dry months of May and June; then July brought many rainy days, promoting green grass with little turf damage.

Lawn care applications are up because clients are pleased with their lawns, he said. Dryness in May and June also helped sales of irrigation installations.

California marched into its sixth consecutive year of drought in 1992. Although the effects of the drought are statewide, some areas such as southern California have relaxed water restrictions.

Dee Davis of the Drought Information Center said San Francisco is one of the most severe water rationing areas in the state. Other areas such as Santa Barbara, Ventura County and Marin County have relaxed their once-severe water restrictions due to increased water supplies.

In Seattle, a mild, dry winter forced some employees of the landscape industry into the ranks of the unemployed, as turf watering restrictions caused consumers to cut back on their landscaping expenditures.

Angered by what they perceive to be bad water management, members of the green industry have banded together and formed the Seattle Coalition for Sensible Water Management. Their task is to educate consumers on water restrictions. ■

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Our new high torque Shindaiwa 377 pumps out 2.5 horsepower from an 8.8 pound package.

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## NEWS DIGEST

### **Simplicity Buys Tornado Products**

Simplicity Manufacturing signed an agreement to purchase Tornado Products of Germantown, Wis. Tornado is a manufacturer of chipper/shredders and related equipment for recycling yard waste. No purchase price was disclosed.

Simplicity will move production of the full line of Tornado's chipper/shredders to its Port Washington headquarters. Some of Tornado's staff will be retained.

### **Jacobsen Earns Environmental Honor**

Jacobsen Division of Textron won the 1992 Wisconsin Governor's Award for Excellence in Hazardous Waste Reduction. Jacobsen has reduced the amount of hazardous waste it generates by 75 percent since 1988.

Among its waste-reduction tactics, Jacobsen installed a still to recycle and reuse cleaning solvents. It converted its system for preparing, undercoating and painting parts to use environmentally safe cleaners, sealers and paint formulations. The company also recycles other waste materials such as oil and paper.

### **Software Seminars Slated for Fall**

L-W Software, a division of Lawn-Wright, will hold day-long seminars throughout the East Coast to give maintenance operators an opportunity to tryout the CLIP management software.

Seminar locations and dates are: Oct. 15, Philadelphia; Oct. 20, Long Island; Oct. 22, Plainfield, N.J.; Oct. 27, Patterson, N.J.; Nov. 17, Boston; Nov. 19, Hartford, Conn.; and Dec. 1, Washington, D.C.

Registration is free. Call: 800/635-8485.

### **Jacklin Honored by International Group**

Jacklin Seed Co. recently was selected as the first honorary international member of the China Pratacultural Association. Representatives of the Chinese Ministers of the Interior and Agriculture presented the award to Jacklin Seed representatives Doyle and Duane Jacklin.

The CPA is comprised of more than 6,000 seed producers and seed marketing companies involved in seed production and reclamation throughout China.

## **Commercial Sales On The Rise at J-D**

MORE TWO-INCOME families and increased environmental issues have led to an increase in commercial sales in the last three years, according to Mark Rothsfeld, John Deere's vice president of lawn and grounds care division.

The gains are expected to continue through the 1990s and, based on John Deere's current product line-up, may exceed consumer product sales. Rothsfeld, attending a recent dealer meeting in Toronto, included sales of golf equipment in his commercial sales predictions.



**Backed by a new line of commercial products, John Deere expects sales to increase.**

The firm also finds itself in tune with imminent regulations designed by the California Air Resources Board. Similar legislation is now pending nationally and emissions standards are expected to be enacted in 1994. Since the state began working on the standards, John Deere has been an active participant in writing the engine legislation. Already, 90 percent of John Deere's engines meet the 1994 standards.

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"Where the environment is concerned, we feel it's our responsibility to become involved and not fight (emissions standards)," Rothsfeld said.

Rothsfeld said that product development will be one of the firm's most important challenges in the commercial field over the next three years. Keeping in line with its commitment to the growth of the commercial market, John Deere has located its lawn and grounds care division in Raleigh, N.C. The firm's headquarters remains in Moline, Ill.

The new division office coordinates activities of sales branches and lawn and grounds care division factories, and provides support services such as product development, marketing, public relations, sales and administration.

The division's sales branch has been operating in North Carolina for more than a year. Jeff Gredvig is the general manager.

## **EPA Files Suit Against Miles**

The Environmental Protection Agency filed a civil complaint against Miles Inc. for allegedly failing to notify the agency in a timely manner about the adverse effects of two pesticides: triadimefon (Bayleton) and trichlorfon (brand names Bovinox, Dipterox, Dylox, Néguvon and Nulox). The EPA seeks a \$10,000 penalty for the violations.

Section 6 (a)(2) of the Federal Insecticide, Fungicide and Rodenticide Act requires that if at any time after a pesticide is registered, a registrant has additional factual information on a pesticide showing unreasonable adverse effects on the environment, the registrant must submit it to EPA. Toxicological data must be submitted to EPA within 30 days after being received by the registrant.

Mobay (Miles' former name) allegedly received a study in April 1986 that showed that Triadimefon induced liver tumors in laboratory mice. Mobay was required to

inform EPA of the adverse effects by May 1986; EPA said it was informed in July 1988.

EPA has classified Triadimefon as a possible human carcinogen, but believes the risk from dietary or worker exposure is negligible.

In the second instance, Mobay was said to have received a study in September 1990 that showed that Trichlorfon induced kidney tumors in laboratory rats. EPA said it was informed 10 months later.

Miles intends to contest the allegations, according to Elaine Osborn, manager, divisional communications for Miles. Product availability is unaffected.

## **East Meets West In Fertilizer Deal**

Harmony Products recently signed a non-binding letter of intent to send the fertilizer manufacturer's expertise to Russia.

The potential agreement allows repre-

*(continued on page 10)*



NEW FROM TURF-SEED!

# MOW-LESS

Brand Tall Fescue Blend



Dark blue-green MowLess blend stands out against a Southern California background. Drought and heat tolerant Mow-Less offers year-around color in areas not before considered possible.

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- Natural insect and disease resistance reduces chemical tools.
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Mow-Less Brand Tall Fescue blend was developed to save conscientious turf managers time, money and clippings.

Mow-Less is a blend of the latest generation of dwarf tall fescues. Today, Mow-Less is composed of Silverado, Tomahawk (5DX), Monarch and EIDorado. As newer varieties are developed, like 5PM and 59D, they will be included in Mow-Less.

The components of Mow-Less all contribute dark blue-green color, heat, drought, shade and insect tolerance ... naturally. Mow-Less has made inroads into areas that tall fescue has not traditionally been adapted. Is this the start of something big? We think it's the start of something small ... with a big savings in mowing.



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**News**

(continued from page 8)

representatives of a Russian joint venture to license Harmony's process knowledge, obtain assistance in equipment procurement and use Harmony's expertise in the build-out of a fertilizer facility in Volgograd, (formerly Stalingrad) Russia.

The potential licensing agreement would be Harmony's second this year. In May, the company entered a Licensing, Equipment Purchase and Consulting Agreement with representatives of a Ukrainian joint venture.

Both ventures were introduced to Harmony through Catalyst International, a Chesapeake, Va.-based company that specializes in international joint ventures and technology licensing arrangements.

Harmony manufactures fertilizers through a process that converts poultry manure into granular fertilizers and animal feed supplements.

**Toll-Free Hotline Helps Pesticide Users**

The 24-hour, toll-free pesticide information line at Texas Tech University in Lubbock logs 40,000 to 50,000 calls a year, most of which are safety related.

The service, funded by the Environmental Protection Agency, is available 365 days a year to anyone in the continental United States, Puerto Rico and the Virgin Islands.

Callers can get quick answers to such questions as detecting pesticide poisoning, what to do in case of poisoning, safety information and cleanup and disposal procedures. The service does not include product recommendations. To take advantage of this free service, call 800/858-PEST (7378).

**Salary Survey Reveals Regional Differences**

*Martin Associates, Vernon Hills, Ill., recently conducted a national salary survey of landscape managers of retirement communities, universities, government facilities, hospitals, park districts, corporate headquarters and luxury residential communities. Southern regions lag behind the rest of the nation. The findings:*

	Manager	Crew Leader	Full Time	Part Time
Midwest	\$40,200	\$27,280	\$10.00/hr.	\$5.00/hr.
Northeast	\$42,650	\$28,400	\$11.00/hr.	\$7.75/hr.
California	\$47,600	\$44,500	\$16.00/hr.	\$7.25/hr.
Southeast	\$22,300	\$16,500	\$5.00/hr.	\$4.50/hr.
Southwest	\$29,500	\$16,250	\$5.75/hr.	\$5.00/hr.

**Survey: Composting Is On An Upswing**

According to a national study by the Roper Organization, 96 percent of environmental professionals expect composting to increase in the next five to 10 years.

Seventy-one percent think source separation of compostable materials is the best way to recover recyclable and compostable materials, rather than centralized mixed waste composting.

Representatives from government, business and environmental groups were queried.

**Industry Acquisitions Making the News**

Industry acquisitions continue to make the news.

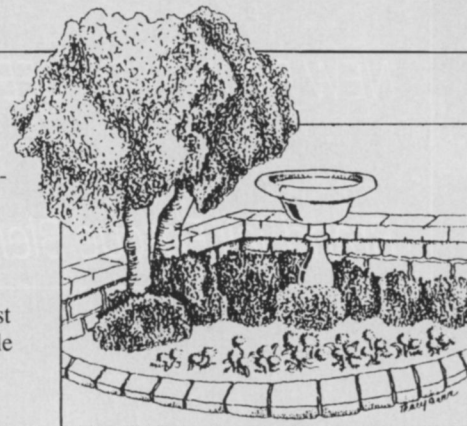
Hako Minuteman of Addison, Ill., acquired Parker Sweeper of Springfield, Ohio, while Altec Industries of Birmingham, Ala., bought out the manufacturing division of the Asplundh Tree Expert Co., Creedmoor, N.C.

Jerry Rau, president of Hako Minuteman, said the buy out of Parker Sweeper will broaden Hako's product line, provide more efficiencies and possibly lower pricing. Parker Sweeper production will remain in Springfield. No immediate personnel changes are expected.

Parker Sweeper, a family business since 1884, will continue to use the Parker name. Look for more product innovations down the road, according to Rau.

Altec's agreement to acquire the assets of Asplundh's North Carolina manufacturing division includes the firm's service facilities in El Monte, Calif.; Deposit, N.Y.; Fox Lake, Ill.; and West Palm Beach, Fla.

Altec manufactures mobile equipment.



**Consumers Spending More on Landscaping**

Consumers spent an average of \$237 for landscaping in 1991 compared to \$179 in 1990 and \$167 in 1989, according to a 1991 survey by the National Gardening Association.

The number of households participating in landscaping fell to 26 percent in 1991 compared with 31 percent in 1990 and 22 percent in 1989.

Retail sales reached \$4.8 billion in 1991, up 26 percent from the \$3.8 billion spent in 1990.

**Ohio Locale Dares To Counter State Law**

A Northeast Ohio city which first passed notification legislation one year ago then was advised to repeal it, now has decided it will keep the law on its books even though it expects to be challenged in court.

At the advice of its law director, Fairview Park city council decided to keep its notification legislation, which enacts more stringent legislation than what the state requires, and enforce it. The ordinance, which requires notification of abutting property owners within one week of an application, among other requirements, does not include homeowners.

The decision comes several months after the city's law director first told them their legislation was illegal according to Ohio law. The city believes its ordinance will stand up to a court challenge.

**Laundry Starch Offers Applicator Protection**

Cotton work clothes treated with laundry starch provide some protection to users of many dry formulation, low-toxicity pesticides. According to researchers with the American Chemical Society, starch binds pesticides in clothing and reduces potential transfer to the skin, but releases the pesticides in soap and water. ■

# Association News

THE CERTIFIED Landscape Professional Contractor program, developed by the **Texas Association of Landscape Contractors**, has gained the support of the Texas chapter of the American Society of Landscape Architects and the Texas Department of Agriculture.

TALC is doing its part to make the program worthwhile for Texas landscape contractors. For starters, the CLPC certification committee developed the following bidder's qualification statement which is in use throughout the state: "All prospective bidders shall employ the services of a certified landscape professional contractor or approved equal to supervise this project for the entire length of the contract term."

Also, the Texas Department of Agriculture has formed a nursery/floral advisory committee to recommend changes and updates to the Texas Nursery Laws and Regulations. A proposed classification in its nursery/floral certification program would allow the department to co-certify or register those landscape contracting firms employing CLPCs.

The next CLPC examination will be

## For more information...



### NAA

The Meeting Place Mall  
Route 101/P.O. Box 1094  
Amherst, NH 03031-1094  
603/673-3311

### CAN

4620 Northgate Blvd.  
Suite 155  
Sacramento, CA 95834  
916/567-0200

### PGMS

10402 Ridgland Road  
Suite 4  
Hunt Valley, MD 21030  
410/667-1833

### TALC

3001 LBJ Freeway, Suite 105  
Dallas, TX 75234  
214/241-1399

### LCA/MD DC VA

9053 Shady Grove Court  
Gaithersburg, MD 20877  
301/948-0810

held in October at the annual TALC convention. A certification preparation seminar will be held this month.

Spanish-speaking employees who work closer than 10 feet to energized wires will benefit from a new training program from the **National Arborist Association**.

Accidental contact with energized conductors presents a serious threat to arborists, and proper training in hazard recognition and avoidance can reduce the risk of injury.

Because many companies involved in tree care employ Hispanic workers, the NAA now offers two of its video programs — "Electrical Hazards & Trees" and "Aerial Rescue" — and an accompanying "how-to" booklet in Spanish.

The **California Association of Nurserymen** is offering a free job placement service at its 1992 Pacific Horticultural Trade Show, Oct. 19-20 at the Los Angeles Convention Center.

The new service is available to all at-



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USE READER SERVICE #40

USE READER SERVICE #41

tendees during show hours at CAN booth #116. Horticulture educators will answer questions and share information about employers and careers within the horticulture industry. Employers can list specific job openings, and job seekers can send their resumes using the job service at the show.

To list job openings or submit resumes, contact CAN education and career committee member Dave Lannom at Mt. San Antonio College, 110 North Ave., Walnut, CA 91789; 714/594-5611 ext. 4538.

The committee is also working to recruit high school and community college students to horticulture programs through a recently completed video, brochure and poster called "Choose Horticulture." To order, call Vocational Education Productions, 800/235-4146. Copies are \$10 (CAN members) and \$49.95 (non-members) each plus shipping and applicable taxes.

A regulatory review of key Occupational Safety and Health Administration standards specifically applicable to grounds management is now available from the **Professional Grounds Management Society**.

Included is an overview of the federal regulations, plus a copy of the specific regulation under review. Information is

broken down into individual packets, and purchasers can select the areas pertaining to their respective interests.

Packets and their code numbers include: (351) hazard communication, (357) storm water/wetlands, (352) small chemical disposal and (360) record keeping. Other topics are available.

Each packet is \$18 (PGMS members) and \$22 (non-members), plus a \$6 shipping and handling charge for each order. A three-ring binder is included free with orders of three or more sections.

A complete set of *Standardized Contracts* is available from the **Landscape Contractors Association (MD DC and VA)**. The project was developed with the endorsement of the **Associated Landscape Contractors of America** and leading state landscape associations.

Contracts are available for: landscape maintenance, short form and long form installation, landscape design and subcontractors agreement. Included are complete sections on price, scheduling and job specifications.

The contracts are sold in minimum sets of 50 at \$1 per contract for ALCA/LCA and affiliated association members; and \$2 per contract for non-members.

**IN BRIEF...** Erosion control professionals are invited to list their products and services for free in the **International Erosion Control Association's** 1993 Product & Services Directory. Deadline is Sept. 1. Call 303/879-3010. The board of directors of the **Rocky Mountain Regional Turfgrass Association** voted to contribute \$32,000 to the Rocky Mountain Turfgrass Research Foundation. The foundation promotes turfgrass research and education and provides scholarships to outstanding students in the field...A new guide is available: *Weeds of Southern Turfgrasses* includes 437 color photos of 193 weed species. For a copy, send \$8 to: Agricultural Business Office, Room 203, Conner Hall, The University of Georgia, Athens, GA 30602. Make checks payable to Georgia Cooperative Extension Service...The **National Landscape Association** is preparing for its 23rd annual National Landscape Design Awards Program. Deadline for entry in the members-only contest is Oct. 31. Call 202/789-2900...The **Professional Grounds Management Society** is now offering its updated 1992 membership directory. Contact: PGMS, 410/667-1833...**Green Industry Expo** is coming to Indianapolis this November. For information, call 404/973-2019. ■

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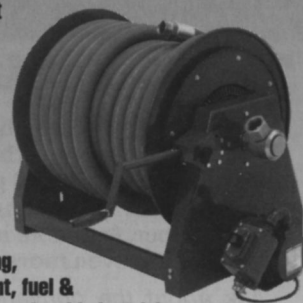
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USE READER SERVICE #72

# Lawn & Landscape MAINTENANCE

# FAX SURVEY

## Do you have the right to know?

*Studies have shown that 65 percent of all work-related accidents somehow involve drugs or alcohol, but do landscape owners/operators have the right to test for substance abuse?*

1. Do you screen your employees for drug or alcohol use?  
 Yes, voluntarily  
 Yes, mandatory  
 No
  2. If yes, when do you test? (If no, go to question 3.)  
 Preemployment only  
 Ongoing, random  
 Ongoing, cause only
  - 2a. Whom do you test?  
 Job candidates only  
 New employees only  
 Technicians/foremen/crew members only  
 All employees
  - 2b. How do the majority of your employees feel about testing?  
 They object  
 They resent it, but understand  
 They comply willingly
  - 2c. If an employee tests positive, what action is taken?  
 Dismiss employee immediately  
 Ask/require the employee to begin a rehabilitation program  
 Establish a warning system that may result in dismissal  
 Other \_\_\_\_\_
  3. If you don't test, why not? (Check all that apply.)  
 Substance abuse isn't a problem  
 Tests aren't reliable and/or effective  
 Testing is intrusive and unethical  
 Testing is too expensive  
 Other \_\_\_\_\_
  4. Do you have a written substance-abuse policy?  
 Yes  
 No
  5. Have there ever been any drug- or alcohol-related accidents or problems at your firm?  
 Yes, quite a few  
 Yes, but not many  
 No
  6. How big a problem is substance abuse in your company?  
 Major  
 Significant  
 Minor  
 Not at all
  7. How many people does your business employ (including yourself) on a year-round basis?  
\_\_\_\_\_
  8. Which of the following best describes your position in the company?  
 Owner/president  
 Sales/marketing manager  
 Branch manager  
 Other \_\_\_\_\_
  9. What is your primary business within the industry?  
\_\_\_\_\_
  10. In what state do you operate?  
\_\_\_\_\_
- Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

FAX TO

# 800/456-4865

Or mail to: **Fax Survey, LLM magazine**,  
4012 Bridge Ave., Cleveland, OH 44113.  
OPTIONAL: Include your name and phone number if  
you wish to be contacted for an interview.

PLEASE RESPOND BY SEPT. 15



THE

# LLM FAX SURVEY

RESULTS FROM JUNE

## Are increased pesticide regulations and customer concerns making it difficult to profitably offer pesticide services?

*Today's contractor must be business savvy and follow the politically correct business route when selling pesticide services.*

GOVERNMENT LEGISLATION — at federal, state and municipal levels — is increasingly becoming a thorn in the side of many a maintenance operator. Since the U.S. Supreme Court decision in June 1991 giving cities the right to enact more stringent pesticide regulations than what the Federal Insecticide, Fungicide and Rodenticide Act already calls for, landscape contracting — particularly for those offering pesticide services in more than one locale — has become a crap shoot.

Not all are opposed to prenotification and posting. In fact, some operators choose to do so voluntarily. But others worry about the increased cost of applications should such measures be enacted, particularly if they begin to appear regularly in varying operating cities.

Nevertheless, companies of all sizes are becoming vocal about the cost of regulation.

In response to our fax survey, 60 percent of those who responded to our questionnaire said pesticide regulations are making it more difficult to profitably offer pesticide services. Forty percent said it hasn't affected revenues.

One landscape contractor from Maryland, apparently suffering an overload of increased regulation, said it would simply be better to train and educate residential customers to apply their own pesticides and make money from selling materials to customers.

State registries have been a source of frustration for both opponents and proponents alike. Since the American Medical Association has not defined the term "chemically sensitive," law makers and landscape practitioners are at odds as to how to compile this list.

Only seven states — Colorado, Connecticut, Florida, Louisiana, Maryland, Pennsylvania and West Virginia — had established registries. Six of the seven required medical certification. Five others — Hawaii, Michigan, New Jersey, South Carolina and Virginia — are considering registries.

Alternative programs are becoming more commonplace in the green industry. Of those offering an alternative program, 100 percent said they use organic/natural fertilizers; 33.3 percent, biological pesticides; 20 percent, compost-based fertilizer mixes; and 13 percent offered other alternative services such as proper plant selection, iron and potash.

Provoked by competitive claims, green industry environmentalism and the challenge to rein in new customers, operators have strong feelings about pesticides and their alternative counterparts.

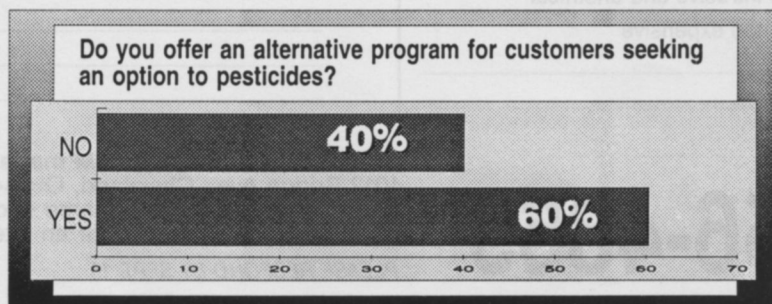
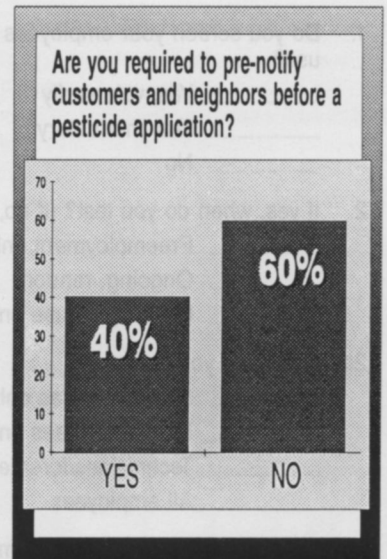
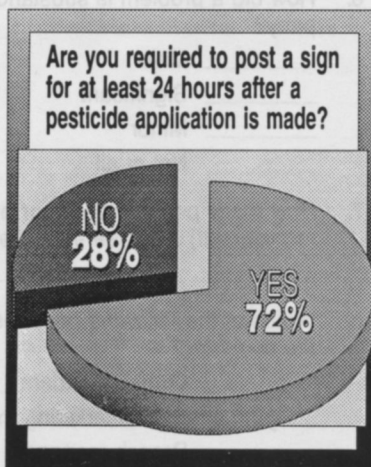
"Natural lawn care operators have presented misleading and sometimes slanderous propaganda toward chemical applications which has made our industry more difficult to survive," said an operator from Pennsylvania.

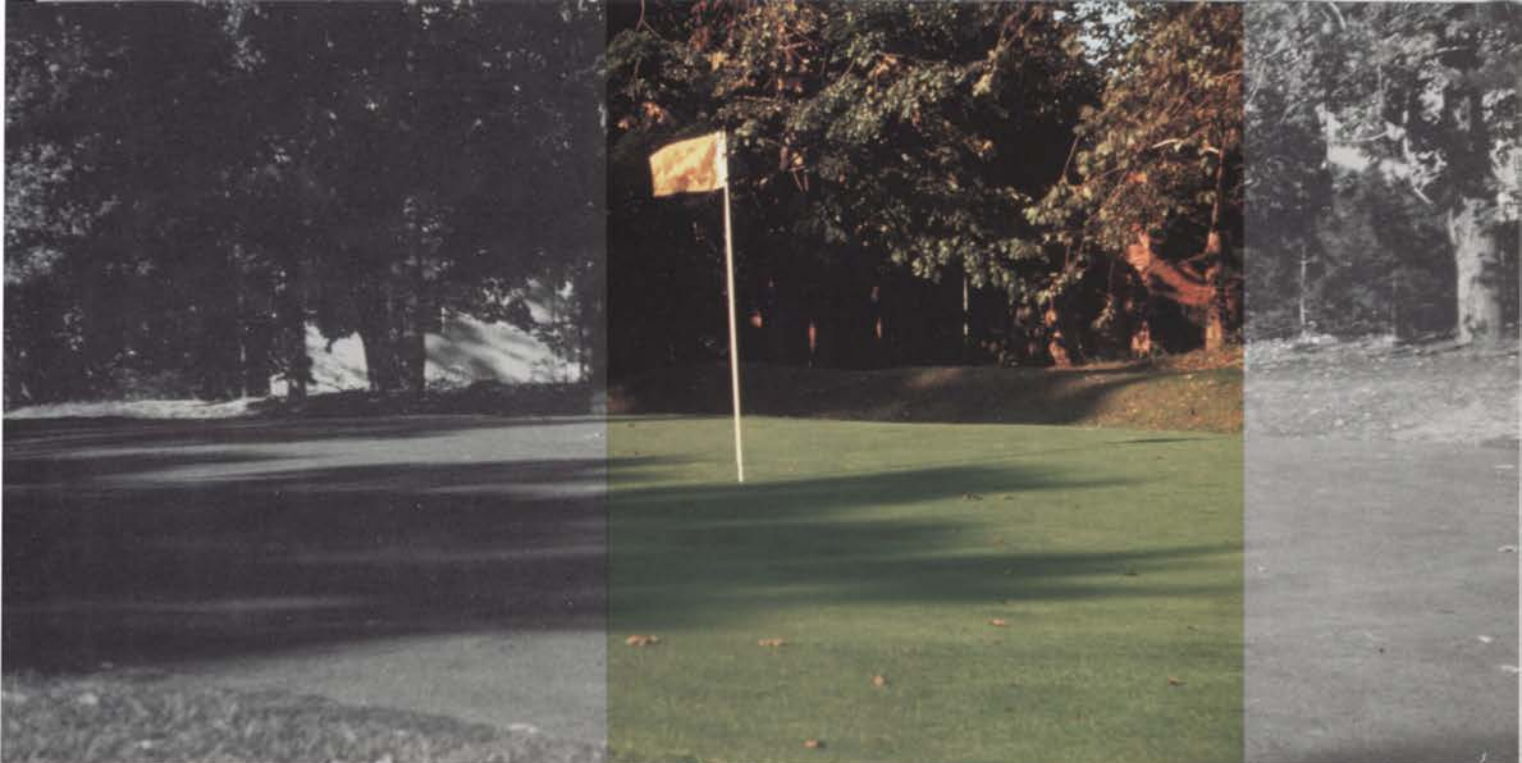
Still others have chosen to stay out of the fray. "At this time we do not offer pesticide services. We offer only less controversial methods," said a South Carolina reader.

From the diligent responses from our readers in New York, it appears that this state has suffered the most agitation in recent years. One reader said, "After six years of environmental turmoil, we're ready to get back to 'normal.'"

Connecticut, on the other hand, has taken a sane approach to regulations, according to one reader. State legislation requires both professionals and homeowners to post after pesticide applications. Stow, a city in northeast Ohio, recently passed similar legislation.

One New Jersey resident said he tries to answer customer concerns as intelligently as possible. "Most people are reasonable," he said. He added, however, that he's received anonymous responses to some marketing efforts with the words "polluter" or "baby killer" marked on them. — Cindy Code





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# Irrigation News

## IA Seminars Address Critical Water Topics

A NUMBER OF technical conferences for lawn and landscape contractors will be presented at the Irrigation Association's International Irrigation Expo, Nov. 1-4 in New Orleans.

Topics include: "Alternatives for Conserving Landscape Water Dollars" by Robert Beccard of Aqua Engineering; "The Use of Emitter Lines in Landscape Irrigation," by Tom Bressan of The Urban Farmer Store; and "Gray Water — A Secure Future for Landscapes?" by Larry Farwell of the California Department of Water Resources, Water Conservation Office.

Three business-oriented seminars include "Stress Management" by Dr. Chrisman Wilson of Tulane University's psychology department; "Building a Winning Team" by Jim Whitt, an independent consultant; and "Motivation" by Dr. John Keller of Florida State University.

Jack Anderson, a nationally syndicated columnist and author will be the keynote speaker.

In addition, the association is holding a series of workshops in conjunction with the conference.

A two-day school of irrigation is scheduled for Oct. 30-31. The school will cover the basics of water movement, infiltration and evapotranspiration rates for system design. Registration fees are \$150 for IA members and \$175 for non-members.

A one-day micro-spray design workshop is set for Oct. 31 and will address distribution, uniformity and efficiency as they relate to design, pressure control and pipeline design. Registration for IA members is \$150; non-members pay \$200.

A one-day water auditor training course on Oct. 30 will cover the basics of landscape irrigation water auditing and includes an on-site auditing demonstration. Registration for IA members is \$150; non-members pay \$175.

The IA will sponsor a Silent Auction during the show's grand opening. Participating exhibitors will display donated prizes which will be auctioned to the highest bidder. Proceeds from the silent auction will be used by the IA to develop

educational programs.

For more information, contact: Irrigation Association, 1911 N. Fort Meyer Drive, Suite 1009, Arlington, VA 22209; 703/524-1200.

## Rain Bird Sets Up Customer-Service Line

Rain Bird introduced a new customer-service answer line designed to provide distributors, contractors and homeowners with technical information and assistance about Rain Bird residential products.

The phone lines are manned by a staff experienced in a variety of areas including controller programming, sprinkler adjustment, replacement parts and wiring problems, among others. Answers are provided immediately or within 24 hours.

The technical services line is open seven days a week — Monday through Friday from 3 a.m. to 8 p.m. EST, and Saturday and Sunday from 7:30 a.m. to 8 p.m. EST.

To reach Rain Bird's technical services line, call 800/247-3782. ■

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Growing better through technology.

# FAMILY TIES

*A cautious and conservative business approach, coupled with competitive and creative designs, characterize this successful northeast Ohio design/build firm.*

MORE THAN 100 awards adorn the walls of Connelly Landscaping's Rocky River, Ohio, office. The design/build firm, headquartered in nearby Avon, enters numerous competitions and wins at an enviable rate.

"I can't say money motivates me because it doesn't," said Ed Connelly, 58, CEO and owner of the 20-year-old firm. "I love to win and I like awards. I don't have to be on top, but I do have to know that I did my best."

That competitive spirit is one of the driving forces behind a family business that has secured its niche in the high-end residential design/build market.

The other motivator is creativity. Both Ed and his son, Dan, who is president, enjoy the challenge of a fresh sheet of paper and the intricacies of design. Although neither is a landscape architect, both men sketch out ambitious projects for their well-to-do clientele. A team of designers and installers help take the designs off the drawing board and onto a client's property.

Last year, the duo's sketches helped earn the firm revenues in the range of \$1 to 3 million. That's a far cry from Ed's earliest days in the business.

Connelly Landscaping is actually Ed's second landscape company — if you count the business he opened and closed in three weeks more than three decades ago. He said he was wooed away from that early entrepreneurial adventure when a local nursery and garden center owner, John Horton, asked Ed to join him and learn the industry. Ed obliged and spent his next 13 years there.

"I started out by selling annuals out of the garden center. I was selling shrubs and trees, reading labels, reading seed catalogs," he said. "I read a lot of books, any books that I could get my hands on in landscape design."

Eventually, Ed started up a landscape division for Horton, then left in the late 1960s to form a partnership that would last three years. Finally, in 1972, Connelly Landscaping opened its doors.

Ed attributes much of his success in design/build to "a strong interest and a natural ability to draw."

"I can look at a space and visualize it when I go back to the office," he said. "If I've been to your yard, I could probably tell you anything you wanted to know about it, 10 years after I've been there, but I'd have a tough time remembering your name. It's an uncanny gift. It's my computer."

**FAMILY MATTERS.** Family is integral to the success of Connelly Landscaping, a notion that Ed supports and Dan dismisses. To Dan, the father/son business connection is secondary to matters at hand.



Before and after: Connelly Landscaping prides itself on its complete residential make overs.



But Ed is proud of his family ties to the business. Besides Dan, Ed's wife, Dee, and many of the couple's 12 children are now or were at one time employed by Connelly Landscaping.

Dee is secretary/treasurer, responsible for office management. Son Tim works at the Avon headquarters, learning the ins and outs of the company's expanding nursery sector.

Son-in-law Scott Sparks is a designer. Other Connelly children have worked summers there.

Non-family management-level employees include: Greg Gajewski, nursery manager; and Bill Becks, landscape manager.

A family business has its ups and downs, Ed explained. "When you are a family business, the toughest people to be the kindest to are your own family. You ex-

pect more of them. My wife has worked in the office for the past 10 to 12 years. That means you take family and the business home, which isn't always a plus," he said.

## CONNELLY LANDSCAPING CO. INC.

**HEADQUARTERS:**

Avon, Ohio

**BRANCH OFFICE:**

Rocky River, Ohio

**FOUNDED:**

1972

**OWNER/CEO:**

Ed Connelly

**PRIMARY SERVICES:**

Design/build, nursery, annual plantings, prunings

**EMPLOYEES:**

17-20 full-time

28-30 seasonal

**1992 NET SALES:**

\$1 to \$3 million



Dan and Ed Connelly match vision with style.

cept more of them. My wife has worked in the office for the past 10 to 12 years. That means you take family and the business home, which isn't always a plus," he said.

"But there are also benefits. Dee is a sounding board. And by the same token, the new blood comes in with new ideas. The second generation tries to do things a little different."

That's where Dan comes in. Last year, the company announced that Ed would step down from daily operations and focus on its nursery division. Dan was promoted from sales manager to president, strengthening the firm's design/build operations.

Dan, 33, got his start at Connelly's when he was 14 years old. He earned a two-year horticulture degree from The Ohio State University and came on board full time in 1980.

Association involvement has played an important role in his professional development. He is a second-term president of the Ohio Landscapers Association, a member of the board of directors for the Ohio Nurserymen's Association, a member of the Association of Professional Landscape Designers and the Asso-

ciated Landscape Contractors of America and active with the local chamber of commerce.

He also teaches landscape design courses to residents of his hometown of Rocky River.

Although their management styles appear to differ (Ed is more laid-back than his energetic son), both men insist that growth must be slow and steady to maintain the high quality their clients have come to expect.

Personnel is critical to preserving that quality. Connelly Landscaping prides itself on its highly trained staff, from sales and design to installation and nursery.

"With the type of installation we're doing, the people we have working for us take three to five years to become first-class foremen. I can't afford to send an unqualified candidate to my client," Dan said.

All business decisions are carefully calculated, sometimes to the point of no resolution. One example of this cautious approach is found in the company's stalled attempts to revive its maintenance division. Although clients have requested the service, neither Ed nor Dan has found a satisfactory candidate to head up this business sector. That's not for lack of trying.

"A lot of our clients say 'why don't you maintain my place?' But we have a lot of problems finding people who can maintain it the way we want it to look," Ed said.

"The biggest problem maintenance companies have is keeping their people from one year to the next. Selecting the right management person is critical. That guy has to be an expert in everything — lawn problems, tree problems, bush problems, flowers. You expect this person to be all knowledgeable and then he says, 'you want to pay me how much?'"

"In California and other parts of the country where it's a year-round business and not 33 weeks a year, it's a lot easier to train those people and keep them," Ed continued. "For the 'North Coast' area, it's really a tough job. You're going to say, 'go on unemployment and come back in 20 weeks?' I don't have the answer to keep (maintenance) people busy."

**SPREADING THE WORD.** Connelly Landscaping does little advertising. Most of their new accounts are based on referral, and new

prospects are also culled from their extensive exposure at home and flower shows. Beginning in mid-January, the company shifts gears away from its client base toward industry competitions. This keeps installation staffers employed throughout most of the year.

Marketing has never been a business strength, Ed said, but that may change. "I can't say we've been outstanding in our marketing practices in the past. That's where Dan is going to fill in. He's stronger, he's got more direct thoughts. Still, I think our best marketing approach is through our shows. I'd say 90 percent of our leads are made at shows."

"Newspaper advertising, unless you're doing it on a regular basis, is probably a waste. I don't claim to be an expert, but I think the best thing is to go out and talk to your old customers."

Ed said another helpful strategy is to talk to people in your client's neighborhood. "If you happen to see people while you're doing a job, say 'hello' to them and tell them that if they ever need help,

you'd be happy to talk to them."

The company does no commercial landscaping. Ed explained that commercial landscaping usually goes to the lowest bidder and he doesn't see profit in it.

"We never, ever bid. We will negotiate. There is nothing immoral or improper in making a profit at your job. That's the only way you're going to stay in business."

Ed also sees limitations on design in commercial accounts. "If you've got a crew that's used to putting down 3,000 yards of sod a day, they're not going to be the same ones putting in annual beds or ground covers. We train our people to be very fussy, so we're going beyond what's bid in a contract."

Ed added that most of the commercial accounts that the company has accepted in the past have been based on referrals from residential clients.

**HIGH STANDARDS.** Dan and Ed's cautious approach to quality shows up in the nursery division as well.

Twice a year, Dan and Ed travel to nurseries in northeast Ohio and carefully select large quantities of nursery stock. The plant materials are brought back to Connelly's 17-acre site, where they are grown up to larger container sizes and tagged for resale to the client.

Quality control is the major reason for this approach. "We feel that when we tell our clients that our plants are gorgeous and big, we know they're gorgeous and big because they're sitting in our yard," Dan said.

The nursery also saves time and effort for the installation and sales staff.

As to whether the nursery has been a profitable venture, Dan explained: "Most people don't buy things sight unseen. I'm not about to buy from a catalog. Even though it costs me money to operate (the nursery), I still think it saves me money in the long run."

"If I didn't have the nursery, every morning my men would have to go out to nurseries and find plants," Dan said. "They're not out selling design services."

(continued on page 24)

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USE READER SERVICE #14

## Family Ties

(continued from page 22)

It's also tied up my people's time when they could be out installing. What did that cost me compared to what my nursery costs? In that sense, it makes me money."

Dan said the nursery will propagate more plant materials in the future. Currently, ground covers, wildflowers, ferns, sedums and ornamental grasses are grown there. Down the road, the nursery may supply not only most of its own plant materials but for other landscape companies as well, Dan said.

**TOP OF THE LINE.** Creative yet pragmatic designs are a hallmark of Connelly Landscaping's most ambitious projects. Looking at before and after photos of clients' properties, one sees the transformation of an ordinary landscape into something uniquely personal. Plant materials and walkways, patios or other amenities are successfully blended to create the illusion of space, the feeling of community or the comfort of

seclusion — whatever it takes to satisfy the client's demands and lifestyle.

But these designs come at a price. Depending on the scope of the project and the materials required, design/build projects are priced from \$500 to upward of \$200,000. The average is \$25,000 to \$30,000.

"It's not a Ford and it's not a Chevy — unless it's a very nice Chevy," Ed said of his designs. "That doesn't mean it has to be a big project. It can be very small for just as much money. Some of the smallest cars are selling for the most amount of money," he said.

"One person may like the oranges and yellows and really bright colors and another client may want pastels and soft colors. On our initial contacts, we try to find out what it is that they want to do — whether they want to maintain it themselves or have it professionally maintained."

Although Connelly's doesn't offer maintenance, it does provide annual plantings and early spring pruning.

Competition in their region is "not bad," according to Ed. "It's no trade secret. If we come up with a better design or a design that fits the party's needs, usually it's negotiated out. If it's too much money, we ask, 'what parts don't you want?'"

Dan added that the weak economy hasn't impacted the company as much as expected.

"We have not been hurt as bad as some of our competitors because we've grown slowly and watched our budget. Also, the type of client we've gone after is the type who can weather the economy. The guy who wants the low dollar and quick fix probably won't call us back."

About one-third of the company's business comes from established clients requesting anything from annual plantings to total design renovation. As for new clients, Dan estimates that number at anywhere from 100 to 150 a year.

One repeat client has proved to be especially pleased with the Connelly Landscaping design team. Business relations began

when the client called Dan and asked him to bid on a backyard garden and patio. The company did no bid work but Dan reconsidered because of the magnitude of the project and the likelihood of future assignments. It proved to be a wise choice — the company has been asked back many times, always for bigger and better projects.

For example, Dan and his crews recently installed a small "mountain" in front of the residence to hide from view the construction of a condominium development across the street. The mountain is eight to 10 feet high and 300 feet wide.

As Dan explained: "I suggested creating small mountains with several peaks. I built a clay model and took it back to the client. His first reaction was 'this is too big, it won't work.' I told him it was built to scale and not too overpowering. He gave the go-ahead."

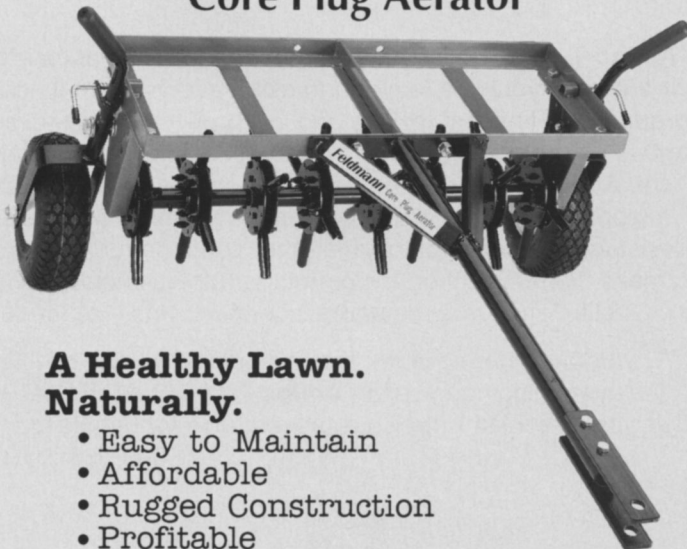
The enormous undertaking required 8,000 yards of soil, 150 tons of boulder and very heavy equipment. Today, horses graze on the

(continued on page 60)

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**USE READER SERVICE #15**

# MAKING TURF RENOVATION

## A PROFITABLE BUSINESS

*Good timing, aggressive marketing  
and strong customer service leads to sales  
success in turf renovation.*

*By Bob Gitlin*

WHETHER IT'S total eradication of a tired lawn or overseeding one that's less traumatically stressed, turf renovation is a part of just about every lawn and landscape contractor's business. Geographic, weather and market factors determine to what extent this sector becomes a significant portion of that business.

In many parts of the United States, recent droughts have spurred lawn maintenance contractors to do something proactive to hold onto accounts that might otherwise blame them for brown patchy grasses.

One such innovative marketer is Bill Clutter, president of TurfGard, Dayton, Ohio. Renovation projects more than tripled for him this year because of his astute response to the drought of 1991.

In a customer-satisfaction survey begun in January, route drivers called clients and asked if they'd had any contact with the TurfGard office, how they felt about their lawn tech and other customer-satisfaction questions. The final query was: "Given last year's weather conditions, how do you feel about our service?"

The common response? "We had a few spots die, but that wasn't your fault, it was the weather."

TurfGard's people then asked if they wanted someone to stop by and give them a seeding proposal. By February, Clutter had completed more than 400 new seeding proposal estimates — mostly to existing customers — as a result of the survey. He also increased the size of his Yellow Pages ad with an expanded entry on seeding, and ran seeding ads in the Personal Services classifieds section of a local newspaper.

"We turned lemons into lemonade," Clutter said of the drought and his company's response to it.

Most of the firm's work involves slice-seeding or aerating/overseeding on thatch layers. "We would either just single slice it or crosshatch it depending on the severity of the problem," he said. "Aeration and overseeding, when the thatch layers exceed three quarters of an inch, are the only viable alternatives other than stripping and reseeded."

TurfGard prices turf renovation by the number of square feet. Last year's minimum price was \$80. The work starts in August, stops in early October, resumes in early November (continuing through the winter whenever weather conditions allow) and ends early in May.

As Clutter's people start work this month, their prices will depend on the latest market conditions. For last year's slit-seeding renovations, TurfGard charged \$70 per 1,000 square feet for new customers and those who had been with them for less than one year. "Anybody that had been with us longer than that, we gave it to them for \$40," he said.

Though the bulk of the problems solved through renovation arose from summer stress and resulting diseases, perhaps 20 percent of the problem consisted of grub damage, corrected by insecticide application at the same time as the slice-seeding.

"Renovation" to Clutter means repair rather than radical elimination of existing vegetation.

"After the stuff dies out, you have to go back in there and kill the junk and start from scratch. But why kill the survivors? Grasses that have survived in these lawns — as long as they're blues or some other lawn-quality grass — are the very ones that have shown the ability to withstand stress."

Most contractors with an eye toward total eradication are typically looking at resodding, he added.

Customer response to his program has been good, he said. "Many times, when we've gone in and slice-seeded the front yard, people have us come back the following year and redo the back or side. The introduction of new cultivars, and some of the perennial ryegrasses, has given them an earlier spring green-up and darker color."

Renovation has positively impacted TurfGard's regular maintenance business, he added. "Our newspaper ads enabled us to convert 60 percent of people who called in for seedings to full-service customers. It worked extremely well."

Turf renovation began as an add-on for Clutter. However, a business that once accounted for 2 percent of his profits now accounts for 20 percent.

**INTELLIGENT MARKETING.** Dick Tice, owner of the Greenkeepers in Cheshire, Conn., has had similar success with renovation. Through smart marketing, he's enjoyed a profitable year selling renovation accounts while competitors have suffered cancellations and cutbacks.

He sent bulletins to potential and existing customers late last summer. The bulletins explained that the company was aware of the turf damage riddling the area — much of it permanent — caused by heat so intense the area had even sweltered through five straight 100-plus-degree days. The mailings suggested they contact The Greenkeepers. Bulletins mailed to existing customers included special rates.

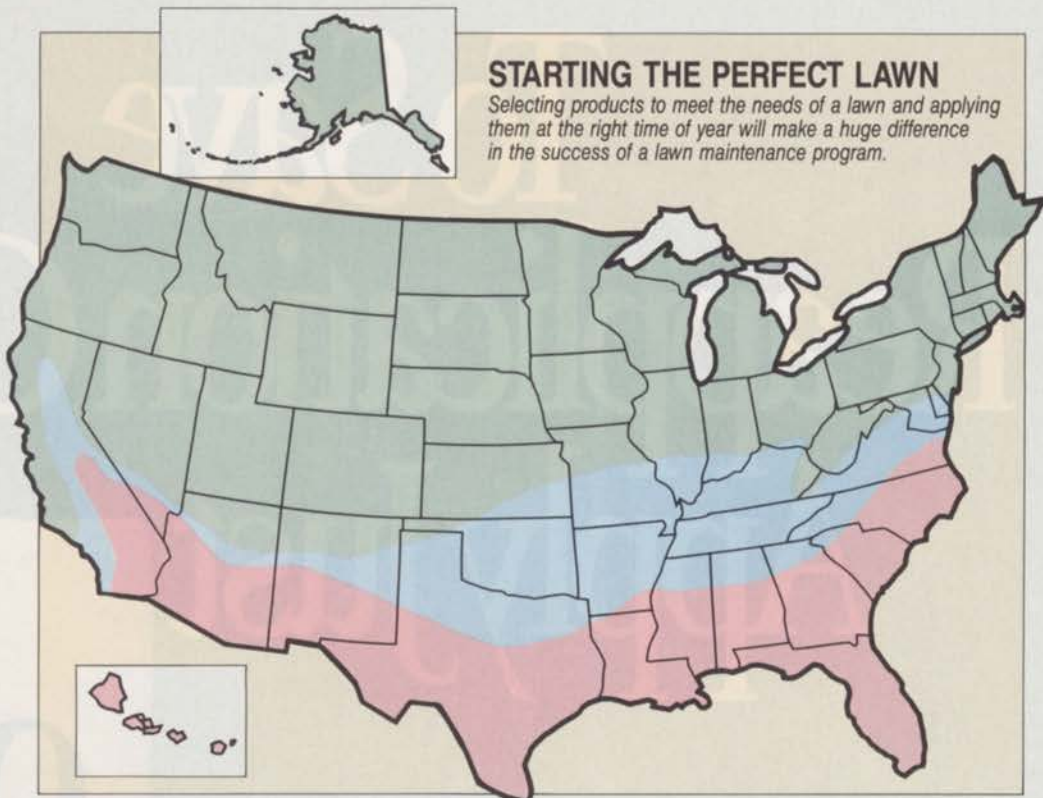
"We beat them to the punch," Tice said. "Before they got an opportunity to call us and blame us, we blamed the weather and told them a decision had to be made about reseeding — dropping the hint we didn't think it was our responsibility."

While competitors fielded calls from irate customers demanding free reseeds, The Greenkeepers didn't get a single such call.

A significant portion of the renovation projects required total start overs on completely lifeless

## STARTING THE PERFECT LAWN

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turfs. One technique was aerating/overseeding; the other, drill-seeding. Worst-case scenarios required both aeration and drill-seeding.

"Our basic renovation is this: We Roundup the area, wait a week, drill-seed it twice over — crisscross pattern — rake off the debris, lime and then overseed. In the fall we also insist on two fertilizer applications as part of the package," he said.

To gain customer favor, Tice waives his standard 4,000-square-foot minimum. "We just salvaged everybody," he said. "We didn't have one cancellation because of lawn damage last year. We had our usual move outs and customers who aren't satisfied no matter what you do, but not a single lost account because of a bad spot on the lawn."

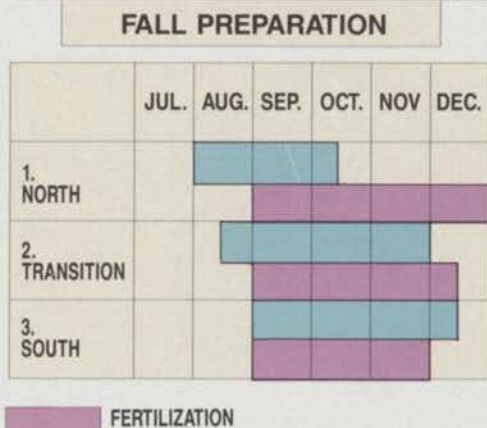
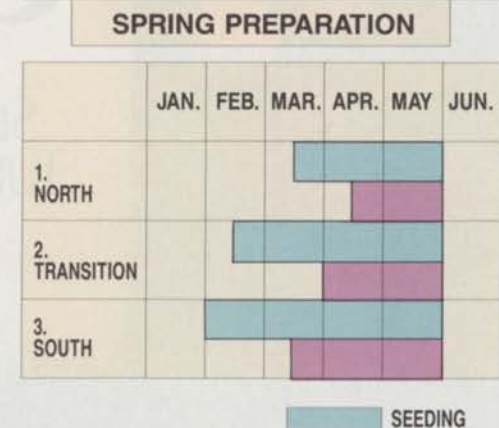
Like Clutter, Tice has padded his maintenance business with people he attracted to renovation projects. "Most of the time when somebody spends money on renovation we wind up getting the fertilizer program next year."

Tips from Tice about dealing with extremely poor-condition lawns: "Don't hesitate to use Roundup; it removes all the competition. And don't screw around trying to drill-seed in one direction; go two directions, using a crisscross pattern."

**REGIONAL DIFFERENCES.** Different geographies present different challenges to maintenance companies involved in turf renovation.

Dr. B.J. Johnson, professor of agronomy at the University of Georgia, Tiffin, said renovating warm-season grasses is more of a problem than cool-season grasses.

"If you've got any common bermudagrass in an area and you want to convert it to a different type of grass, you've got a problem. One application of Roundup at the recommended rate will only control 65 percent of the bermudagrass. In four weeks the stuff greens back up. When you treat it again you get 85 percent. You have to wait until that greens back up again, another four weeks.



SEEDING FERTILIZATION

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Then you get 97 percent."

On the other hand, he said, one application of Roundup might be adequate in eradication efforts in the North.

In some areas of the country, people don't want to pay for turf renovation. That's been the experience of Marvin Gross, owner of Marvin's Garden & Landscape Services in Sarasota, Fla.

"Down here, where turf grows 12 months a year and very rapidly," he said, "proper renovation would be something you'd have to do every two years or so. In order to do the renovation, you need to take care of turf exactly as they do on a golf course."

A common south Florida turf is coarse-textured St. Augustinegrass, which uneducated folks commonly call "crabgrass." Another is Argentine bahiagrass, which, because it arises from seed and is very sparse, is susceptible to weeds and other invaders. Both were originally developed as pasture grasses.

"The bahia doesn't withstand a lot of people traffic," Gross said. "The worn-down path requires aeration. But people are not willing to pay to do this type of thing on what's commonly considered junk grass."

Most of the renovation he does involves power raking to correct

for thatch buildup.

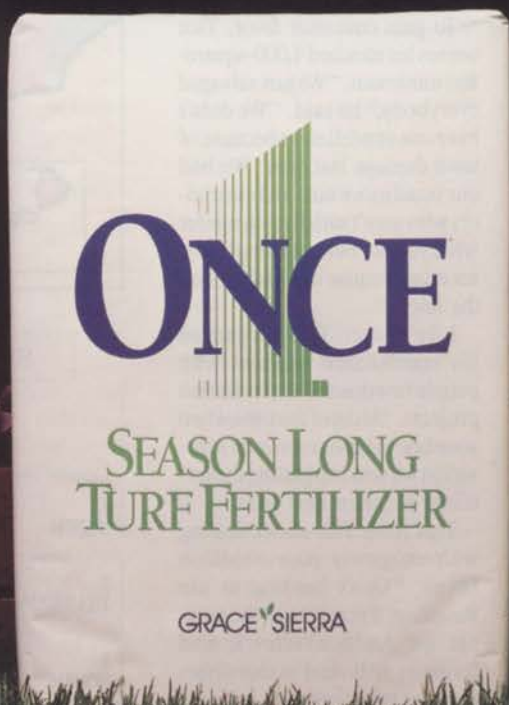
Renovation is a small but active portion of the business for David DuBois, vice president of Mission Landscape Services, an all-commercial contractor based in Costa Mesa, Calif.

"Pretty regularly, we get out to a property that wants to upgrade the quality of landscape. This happens on a lot of 15- to 20-year-old projects, where there's not much but common bermuda or pieces of kukuyu that crept in. It starts to look shoddy."

Any turf area that old normally also has irrigation that old. Updating the irrigation system is the

(continued on page 30)

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USE READER SERVICE #63

## Turf Renovation

(continued from page 27)

first priority. In the intense heat of this region south of Los Angeles, damage can be severe. Total eradication is the common policy.

"The first thing we recommend is spraying with Roundup. Then we sod cut, rototill, backfill in all the amendments and, depending on the budget, hydroseed or lay sod," DuBois said.

Any time Mission Landscape Services does renovation, it recommends going with the taller fescues, because they need a lot less water, he said.

DuBois recommends two good kills with Roundup on severely damaged properties. And be patient, he added.

"We did a renovation last year on 25,000 square feet. We got the go-ahead in February. It was hard not to go ahead and do the work right away and get paid, but we held off and recommended they have us do it in August and September, when bermudas begin to go dormant and pull nutrients down to the roots.

"If you get a good spray late August or early September, it's taking that all the way down to the roots. Your kill is better, and your chances of it coming back are low. Otherwise, a year later you've got bermuda or kukuyu creeping back through — mud in your face with customers."

Lou Wierichs Jr., president of Pro-X Lawn Care, Appleton, Wis., said drought conditions in his Midwest location have been worse this year than last year.

He markets aeration in the third round of his five-application season, sending out a flyer with price information. "We mention they can do overseeding with aeration. If they aerate they can buy the seed from me, or they can buy the seed themselves and we'll spread it for free. About 95 percent buy it from me."

Wierichs also tells customers that slit-seeding, a more expensive procedure, accomplishes more than simply overseeding, and he offers

them that option.

Killing out old turf is recommended only under dire circumstances such as inundation by quackgrass and other insidious plant life, he said.

"I tell people they'll never totally get rid of it; it'll always find its way back somehow. I would prefer to just kill spots.

"We come in and slit-seed, or just fill in the bare spots with slit-seeding or overseeding. Then you're not starting over; you have a little of the other grasses to help hold moisture on the seed, and you don't kill hardy surviving grasses. If you've got some good grass in there, you just want to get the weeds out and get proper nutrients on it."

Many renovations follow on the heels of inept homeowners and their inattention to basic horticulture.

"Most people who have problems mow too short. If you mow long enough, you'll get a good strand of desirable grass and be able to mask some of those undesirables," Wierichs said.

With quick-hit artists flooding the market, pricing becomes an exercise in market fluctuations.

"I used to get \$10.50 a thousand square feet for aeration," he said. "Now we've got some people who have come in and done them for application prices, \$5.50 (per thousand square feet). We're now charging between \$7 and \$8. My minimum price (to accept the job) is \$40. Slit-seeding is higher, about \$60, because of the equipment, the seed and the effectiveness of the job."

Wierichs tries to steer customers away from jumping the gun. When people disgusted with their lawns call him in early spring and immediately suggest a reseed, his counter-suggestion is an aggressive maintenance program consisting of proper nutrients, weed control and better attention to mowing heights and watering strategies.

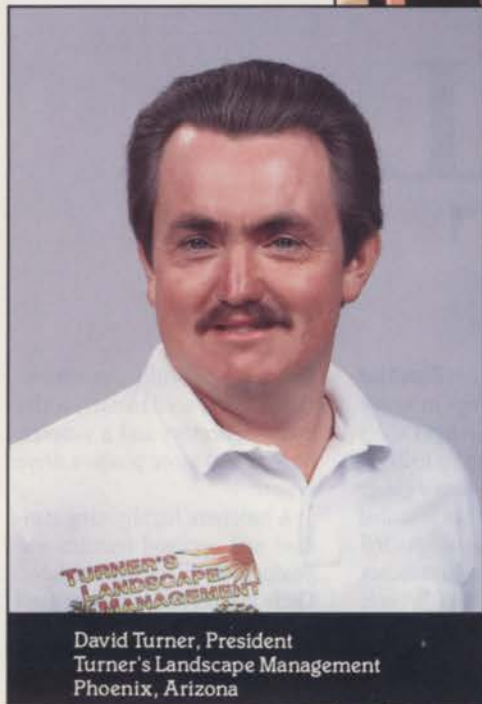
(continued on page 60)

## STEP BY STEP: RENOVATING AN OLD LAWN

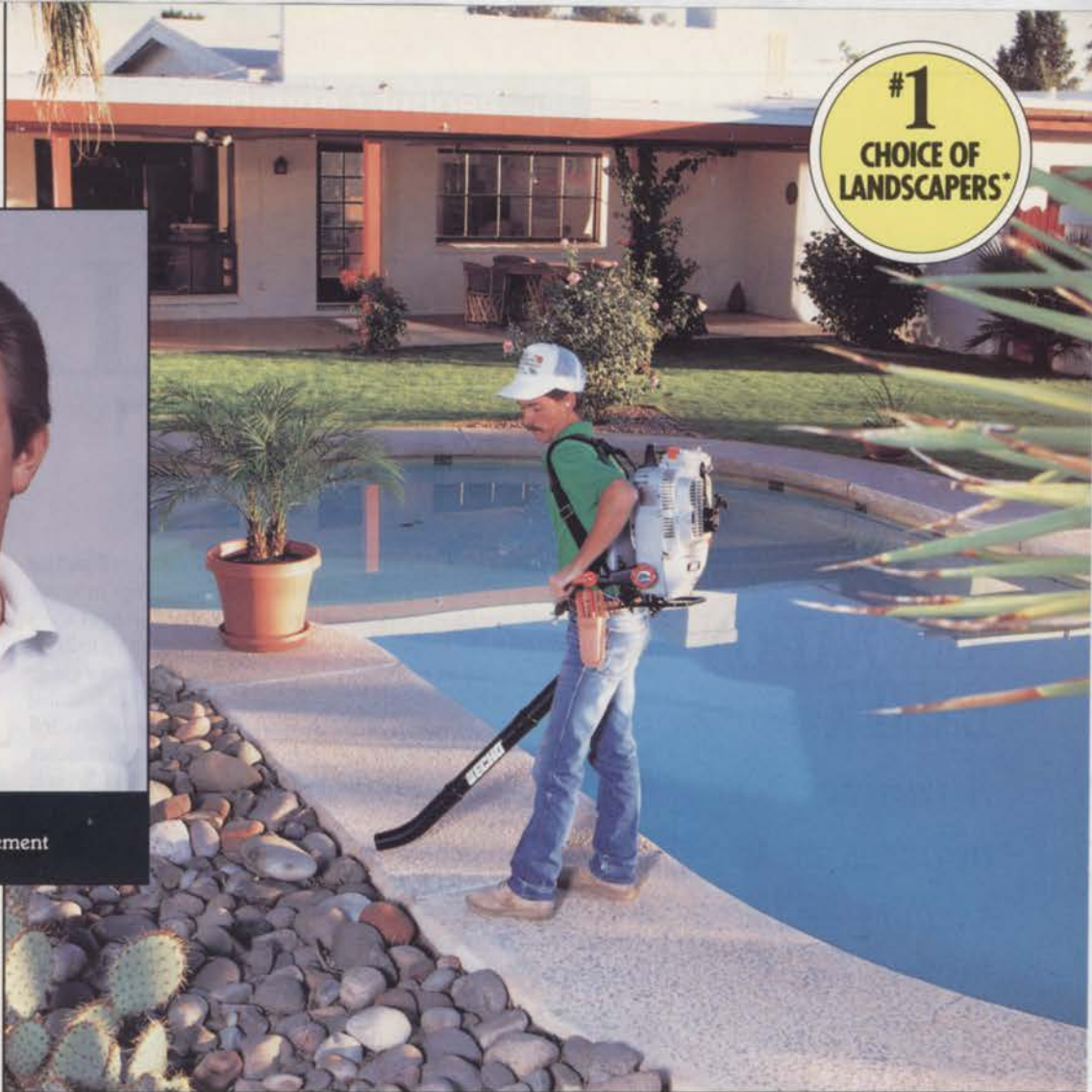
WHEN LESS THAN 50 percent of a lawn is comprised of desirable turf, total renovation is recommended. Start by correcting any insect, disease and soil problems, then proceed as follows:

- 1) Apply Roundup on hardy weeds and grasses.
- 2) Mow the lawn to a height of about 1 inch.
- 3) Aerate the turf by slicing, coring, spiking or with dethatching equipment that helps relieve soil compaction and eliminate thatch.
- 4) Rake or sweep the lawn to remove clippings and other debris.
- 5) Apply 3 to 5 pounds of a good nitrogen-based, slow-release fertilizer per 1,000 sq. ft.
- 6) Rake or rough the soil surface giving special attention to bare spots.
- 7) Spread the seed with a spreader; give special attention to bare spots where extra seed should be applied by hand.
- 8) Drag or rake the grass to be certain the seed comes in contact with the ground. On bare spots apply a light mulch of peat, straw or sawdust.
- 9) Water the seedbed lightly so the soil surface is moist. Continue watering lightly so the soil does not become hard or baked.
- 10) When the seedlings reach a height of 2 to 3 inches, mow to a height of 1½ inches with a sharp mower at a time when the grass is not wet. — International Seeds Inc.

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David Turner, President  
Turner's Landscape Management  
Phoenix, Arizona



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"And we don't handle these blowers with kid gloves either. They're used day-in and day-out and get bounced around a lot."

Mr. Turner, whose company has 38 employees and a fleet of 10 trucks, adds, "We're also long-time users of Echo line trimmers. Like the blowers, they not only do a great job but are very dependable.



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"That's important when you've got customers who demand top-notch work at all times, such as the Biltmore Commerce Center and the Luxurious Pointe Residential Properties here in the Scottsdale area.

"We like to keep spare parts on hand, and with Echo they're easy to get. But the way these tools are holding up, our supply of replacement parts gathers a lot of dust."

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# FUNCTIONAL EQUIPMENT

## MAKES RENOVATION EASIER

*A variety of aerators, seeders and hydroseeders are available to keep your turf renovation accounts well-served.*

The AERA-vator from First Products, top; and the model 2340-48 from Feldmann, bottom.

TURF RENOVATION IS a profitable business venture for many *Lawn & Landscape Maintenance* magazine readers. In a 1992 reader survey, 73 percent of respondents said they offered seeding; 63 percent, lawn renovation; 60 percent, aeration; and 19 percent, hydroseeding.

To help you jump-start or revitalize your turf renovation business, *LLM* has compiled a cross-section of aerators, dethatchers, seeders and hydroseeders. Look for durability, wear-resistance and time-saving features.

The lawn aerator from **BlueBird** pulls 3-inch soil plugs in heavy turf. It maneuvers in tight spots and through openings up to 27 inches wide. Made of heavy gauge steel with shafts that run in sealed ball bearings, the unit weighs 265 pounds and measures 40½ inches long with handles folded. Wheels are fully adjustable for depth penetration. The aerator is shipped fully assembled.

**Circle 150 on reader service card**

The line of grass and landscape seeders from **Brillion Iron Works**

features glass-filled, precision-fluted nylon seed meters, wider metal deflectors and a simpler, heavier and more positive drive system.

A brochure highlighting standard and optional features and product specifications is available. **Circle 151 on reader service card**

The Ryan Lawnaire V aerator from **Cushman** covers a 26 1/2-inch aerating swath and aerates up to 29,000 square feet per hour. It is equipped with 3/4-inch, open-sided coring tines that penetrate up to 2 3/4-inches deep, depending on soil type and conditions.

The unit is powered by a 4-cycle, 3.5-h.p. Honda engine. It comes equipped with a 38-pound removable weight bar and polyethylene water drum that holds up to 10.2 gallons of water for extra penetrating pressure.

**Circle 152 on reader service card**

A new dethatcher accessory is available for the **Exmark** Explorer.® With a double row of spring steel dethatching tines, the unit rakes the turf, bringing thatch to the surface.

**Circle 153 on reader service card**

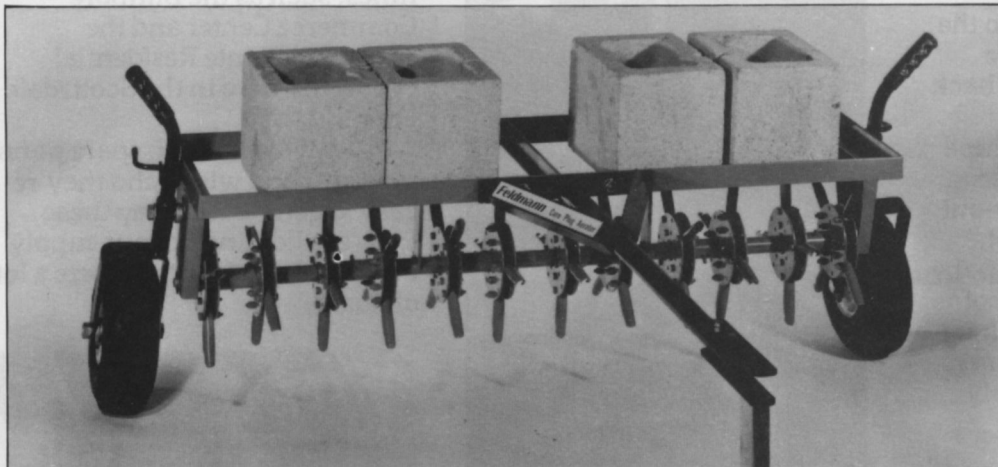
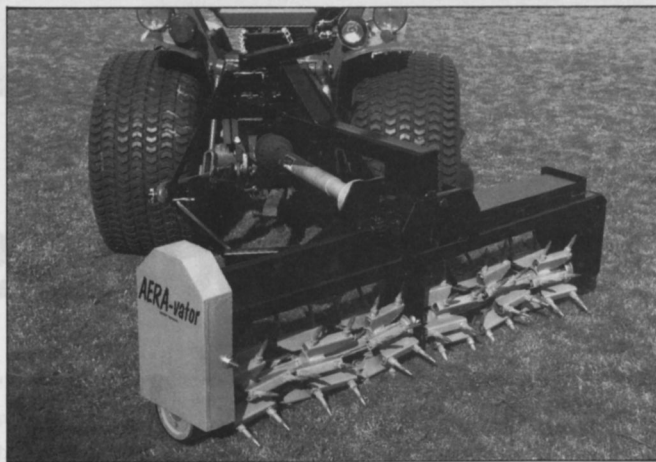
**Feldmann** offers the 48-inch swath, model 2340-48 pull-behind core aerator. It connects to a tractor or riding mower with a hitch pin and draw bar or by way of a 3-point hitch adapter.

Penetration from ½ inch to 2½ inches allows oxygen, water and fertilizer to reach the root system.

**Circle 154 on reader service card**

**Finn** offers the 300-gallon TL30 HydroSeeder.® It features mechanical paddle agitation and liquid recirculation; reversible, variable

(continued on page 34)





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**RANSOMES**

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## Functional Equipment

(continued from page 32)

speed hydraulic motor drive; and discharge distance up to 60 feet from the end of the hose. Material capacity is 500 pounds granular solids and 125 pounds fiber mulch.

The unit is powered by a Briggs & Stratton 18-h.p. Twin II engine with electric start and oil guard protection.

**Circle 155 on reader service card**

The PTO-powered AERA-vator from **First Products** fractures top-soil around and between tine holes to improve aeration and reduce the runoff of water and chemicals. A rotor-to-axle connection causes the tines to swing in a burrowing motion as they enter the soil, enabling them to penetrate harder soils without destroying established turf.

An automatic hitch allows the unit to trail around curves and contours. It aerates a 60-inch swath and requires a 17-h.p. or larger 3-point hitch tractor.

**Circle 156 on reader service card**



Three models of the **Jacobsen Aero King™** commercial aerators are available, including a roll-type and two reciprocating models, with aerating capacities to 30,000 square ft./hr.

The aerators are designed with fewer moving parts for lower maintenance. Each model has a 4-cycle engine with electronic ignition for fast starts. All three models fit through a 30-inch gate.



The **Lawn Aerator** from **Blue-Bird**, top left; the **Aeroseeder 84** from **Toro**, bottom left; and the **Aero King** from **Jacobsen**, above.

**Circle 157 on reader service card**

The **LESCO aerator-30** is equipped with a 5-h.p. Briggs & Stratton I/C recoil-start engine; two steel castor wheels with pneumatic tires; large, curved handles; extended shielding on the back of

the machine for operator safety; and spoons that move in an arc-shaped pattern to shatter and displace the soil. Only two spoons are driven into the ground at any one time for deeper soil penetration.

The unit has a combination belt and chain drive.

**Circle 158 on reader service card**

The **A&L Tuff Turf renovator** from **Parham Industries** is designed to promote plant growth, aerate the soil, relieve compaction, activate fertilizer and relieve root boundness. Hydraulic lines are engineered with high out-of-the-way clearance and allow depth penetration from 1 to 8 inches.

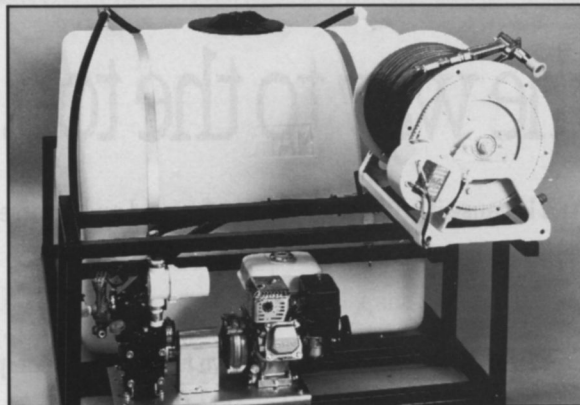
The solid steel tines are made from heat-treated, wear-resistant material to give durability in abrasive and rocky soil. The spiral-patterned tines offer a uniform spacing that allows water to soak in. The barrel offers easy-to-fill water weight.

**Circle 159 on reader service card**

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pass. A pickup sweeper is available that collects thatch in a hopper for easy dumping.

Flexible polypropylene bristles on the rotating brush remove debris without scalping or damaging the root system. The sweepers mount to tractors, commercial turf mowers and loaders. Mechanical and hydraulic drives are available.

**Circle 160 on reader service card**

**Terracare** offers the Terra T200 aerator. It aerates up to 1½ acres per hour. The new double 4-inch spiking blade leaves 400 holes in a 3-foot width.

Also available is a double-tine spiker that fits all Terra aerators. The blade is 4½ inches long, and spaced 1¾ inches by 3 inches. The free-swinging tine has a rubber turf hold-down.

**Circle 161 on reader service card**

The **Toro** Aeroseeder 84 slit-seeder is equipped with an 18-h.p. engine for heavy-duty renovation jobs. Features include forward and reverse action to increase maneuverability, shatter blades that require less power while bringing up more topdressing and rear-wheel drive that helps prevent surging. One handle engages blade and sets depth.

**Circle 162 on reader service card**

The Turbo Turf HS-150-P hydroseeding system from **Badger** applies seed, fertilizer, mulch and tackifier in one step. It accommodates pregerminated grass seed and all fertilizer types.

The unit has a 150-gallon tank, a two-inch centrifugal pump, jet agitation system, high flotation tires and 50 feet of 1-inch ID hose.

**Circle 163 on reader service card**



The model CS-600 seeder/spreader from Work Saver/Farm Star, top; and the A&L Tuff Turf from Parham.

The model CS-600 broadcast seeder/spreader from **Worksaver/Farm Star** has a cone-shaped steel hopper with a 600-pound load capacity. Designed for Category 0 and 1 3-point hitches, the unit spreads seed, fertilizer and other materials.

It features a heavy-duty 90-degree cast-iron gearbox that operates on a 540 PTO and uses a Weasler PTO driveline. A rotating heavy-duty knife-type bottom agitator breaks up clods and provides better material delivery to the unit's gates.

The free-standing unit is designed to connect and disconnect with ease.

**Circle 164 on reader service card**

The model LFT rake from **York Rakes** de-thatches a three-foot swath in one pass. Three rotating tine bars contain 108 closely spaced "spring teeth," mounted in molded plastic.

The arms are angled to discharge materials to the right in continuous windrows for pickup or re-rowing on the next pass.

**Circle 165 on reader service card**

New from **AgriFab** is the model 45-0230 lawn aerator (spike type). The all-steel unit weighs 60 pounds and covers a 36-inch path. It attaches to a tractor with a standard 1/2-inch pin-type tow hitch.

**Circle 166 on reader service card**

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**USE READER SERVICE #19**

# SCOUTING FOR GRUBS CAN MINIMIZE DAMAGE

LAST FALL, severe grub damage appeared on home lawns, golf courses and commercial environments in many Midwestern states causing landscapers and superintendents to search for answers to the unexpected outbreak.

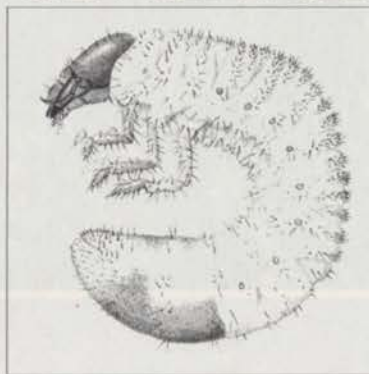
Japanese beetles, masked chafers and European chafers were the primary beetle species responsible for the turf damage, and resulting grief to maintenance operators. The larvae of these beetles — white grubs — feed on grass roots, and in heavy infestations may consume all of the root system, leaving grass plants vulnerable to water stress.

The combined range of these beetles extends from Florida to Maine and from the Atlantic Ocean to the Mississippi River. The masked chafer may also cause problems in Texas, Missouri and Nebraska.

The greatest damage from grubs last fall occurred in states suffering from drought. This connection between water stress and grub damage is not a new idea, but people seem to have a hard time understanding the significance of water stress.

When turf from dead parts of lawns is easily pulled back like a carpet, and white grubs are so abundant it looks like someone dumped a bowl of popcorn on the soil, it leaves a strong impression. Yet the ability of turf to continue growing and to remain relatively healthy, even with 20 grubs per square foot, is equally impressive.

As the old story goes: (*American Lawn Applicator*, July/Aug. 1981) a lawn care company reported eight inches of rain and 170



*Earlier this year, grub damage became readily apparent across much of the Midwest, a trend expected to continue. With proper management, however, grub infestations don't have to be fatal to turf.*

*By David Smitley*

grub-related service calls from August to October of 1977. During the same period in 1979, they had 16 inches of rain and only 17 service calls.

Entomologists are coming to the same conclusion: Turf that receives enough rain or irrigation, keeping the soil moist throughout the period of grub feeding, will remain green even if infested with grubs.

Of most concern this year are those areas experiencing heavy grub damage from last year. Operators want to know what to expect from August through October. Is the grub damage going to be even worse this year? What should be done to keep customers?

By describing the three beetles responsible for most of the problems, when to expect damage from grubs and how to scout for

grubs, most of these questions will be answered.

**SCOUTING FOR GRUBS.** It is not a good idea to treat all home lawns with an insecticide to prevent grub problems. After losing customers to grub damage, it may be tempting to apply a blanket insecticide treatment. However, it will lead to more problems and more lost customers should a blanket application kill beneficial predators, parasites and organisms that cause insect diseases.

Instead of treating all lawns, target the most heavily infested lawns for an insecticide or recommend frequent watering; or both. The best way to determine when to use an insecticide is with a scouting program in late August.

Some golf courses in New York are participating in a scouting program in which the shape of each

fairway is mapped onto a piece of paper. Samples are taken at regular intervals with a cup cutter, grubs are counted and the data is recorded in a notebook. When the grub sampling is finished, the scout recommends spot-treating only areas that are above the grub threshold. This approach can be modified for home lawns and other managed turf areas.

Using a golf course cup cutter is a good way to look for grubs because the samples are small and easily examined. A six-inch-wide shovel may also be used. Make a square cut using one shovel width for each side of the square. This will provide a 1/4-square-foot sample.

Determine how much time can be spent on scouting, then determine how many samples can be taken in that time. If 20 minutes can be spent at each location, about eight samples can be counted. At each site draw a rough map of the lawn divided into eight sections. Write down how many grubs are found in each section.

If only four samples are taken at every site, take an additional eight samples in grub-infested areas to determine where the hot spots are.

Scouting may seem time-consuming at first, but for companies that are already spraying for grubs, scouting may actually save time. A quick sample at sites with no grubs takes less time than spraying an insecticide.

**ESTABLISHING LIMITS.** A decision-making tool called a threshold is needed to determine when to apply insecticides.



For Japanese beetles, European chafers and masked chafer grubs, thresholds of 5 to 10 grubs/sq. ft. is acceptable for average lawns, and 20 grubs/sq. ft. for lawns irrigated daily. Use 10/sq. ft. for homeowners likely to irrigate frequently during dry weather, and 5/sq. ft. for those not likely to irrigate. If the threshold is exceeded in August, an insecticide should be applied. In some cases, only part of a lawn will need treatment.

Another component of scouting and integrated pest management is using all available management strategies, not just insecticides. For grubs, starting a good irrigation program may be all that is needed to prevent damage. Therefore, for moderate grub infestations (5 to 20/sq. ft.), you can give customers the choice of using frequent irrigation instead of insecticides. However, they must irrigate on a regular basis to prevent the infested lawn from drying out, even for just a few days.

There are several advantages to using an IPM approach. First, using insecticide on an as-needed basis is the best way to grow a healthy lawn and keep predators of turf pests intact. Secondly, it provides a useful marketing tool for customers seeking an alternative to pesticides.

**JAPANESE BEETLES.** *Damage:* Larvae (white grubs) feed on turf roots in April and May and again in September and October. Damaged turf may turn brown in patches if it is not frequently watered. *Size:* White C-shaped larvae are 1/2- to 1-inch long by late September.

*Threshold:* 20 to 30 grubs per square foot on daily irrigated turf; 5 to 10 grubs per square foot for non-irrigated turf.

Japanese beetles are a dark, metallic-green color, stout-bodied and approximately 1/2-inch long. They emerge in May and June in North Carolina, and June or July in Ohio and New York. The beetles feed

on flowering fruit trees, roses, basswood and wild grape before mating and depositing their eggs in turf in July or August.

Tiny larvae (1/16-inch) hatch from eggs in August and begin feeding on turf roots. By September the larvae have grown from 1/2-inch to 1-inch long; and in heavy infestations cause root pruning damage to turf.

In October when soil temperatures begin to drop, the C-shaped larvae or white grubs move down deeper into the soil to overwinter. The following spring, March or April, they move back close to the surface and begin feeding again. Sometime in May or June the larvae quit feeding and pupate. They stay in a white pupal form for several weeks before emerging as adult beetles.

The adults are highly attracted to Japanese beetle traps. Traps are useful for determining if you have beetles in your area and when they are active, but they do not provide any control.

**Turf rolls back easily when extensive grub damage is prevalent.** Photo: David Smitley.

**EUROPEAN CHAFERS.** *Damage:* Larvae (white grubs) feed on turf roots in March to May and again in September and October. Damaged turf may turn brown in patches if it is not frequently watered. *Size:* White C-shaped larvae are 1/2- to 1-inch long by late September.

*Threshold:* 20 to 30 grubs per square foot on daily irrigated turf; 5 to 10 grubs per square foot for non-irrigated turf.

The European chafer beetles are active at dusk and do not feed as adults. However, European chafer grubs feed longer in the fall — until early November — and return to the surface earlier in the spring, with some grubs near the surface all winter.

The type of injury caused and damage thresholds are the same as for the Japanese beetle. Management strategies are similar, but

European chafer larvae are more difficult to control with insecticides.

In some tests, insect parasite nematode products have been as effective as insecticides for control of chafer grubs. In Michigan, the European chafer, in concert with fall drought stress, has been more devastating to home lawns than the Japanese beetle.

**MASKED CHAFERS.** (Northern and Southern.) *Damage:* Larvae (white grubs) feed on dead organic matter and turf roots from August through October. Damaged turf may turn brown in patches if it is not frequently watered.

*Size:* White C-shaped larvae are 1/2- to 1-inch long by late September.

*Threshold:* 20 to 30 grubs per square foot on daily irrigated turf; 5 to 10 grubs per square foot on non-irrigated turf.

In Kentucky, Northern masked chafer beetles begin to fly in mid-June with peak activity beginning in late June. Southern masked chafers emerge about one week later. They are both yellow-brown

beetles, 1/2-inch long, with dark brown to black heads. Masked chafer beetles are nocturnal and do not feed as adults. Eggs are deposited in turf in June and July. Small larvae begin feeding on turf roots in August. The greatest damage occurs in September and October.

**DIAGNOSIS/MANAGEMENT.** The grubs of all three beetles have similar behaviors and cause damage in the same way. For management purposes, however, it is helpful to identify which beetle is most active in any given area.

For example, European chafer larvae will continue feeding later in the fall and start earlier in the spring than Japanese beetles. In general, however, the diagnosis of grub problems and management strategies is very similar for Japanese beetles, European chafers and masked chafers.

Turf managers usually discover grubs in the months of August, September, April and May — peak times for grub feeding and resulting turf injury. This is also

peak feeding time for skunks and raccoons that tear up turf in search of grubs. In fact, skunk damage is often observed before the grubs are found. Check for grubs where skunks are active or where turf is damaged in late August or September. Dig several square-foot sections and count the number of grubs.

August and September are the preferred times to apply an insecticide. In general, Japanese beetles and masked chafers are easier to control than European chafers. The degree of control is highly variable from site to site and year to year, but insecticides usually provide 50 percent to 80 percent control.

Be sure to apply all products at the proper rate for grub control. All sprayable materials must be watered in immediately after application with 1/2-inch of irrigation.

Do not allow people on treated turf until after the irrigated turf is dry.

Early morning or evening is the preferred application time for sprayables. Be sure the water pH

is at a level compatible with the insecticide. Several insecticides such as trichlorfon and bendiocarb break down rapidly in high pH water (less than 7.8). Lawns without irrigation should be treated with a granular insecticide. Insecticides impregnated on granules remain stable in the presence of sun and hot weather. When the next rain comes, the insecticides will wash out of the granules and into the soil.

Three weeks after applying an insecticide return to where you took the original grub samples and collect another specimen set. This will tell you how effective the insecticide was.

**CONTROL TIPS.** Many insecticides are labeled for use on home lawns. All of them are effective (greater than 50 percent control) when used properly. However, do not expect miracles (90 percent control); and wait at least three weeks after the insecticide has been applied and watered in before evaluation results. (See chart on page 42.)

(continued on page 42)

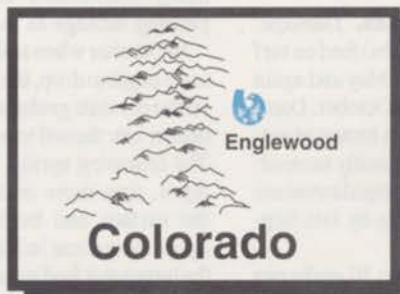
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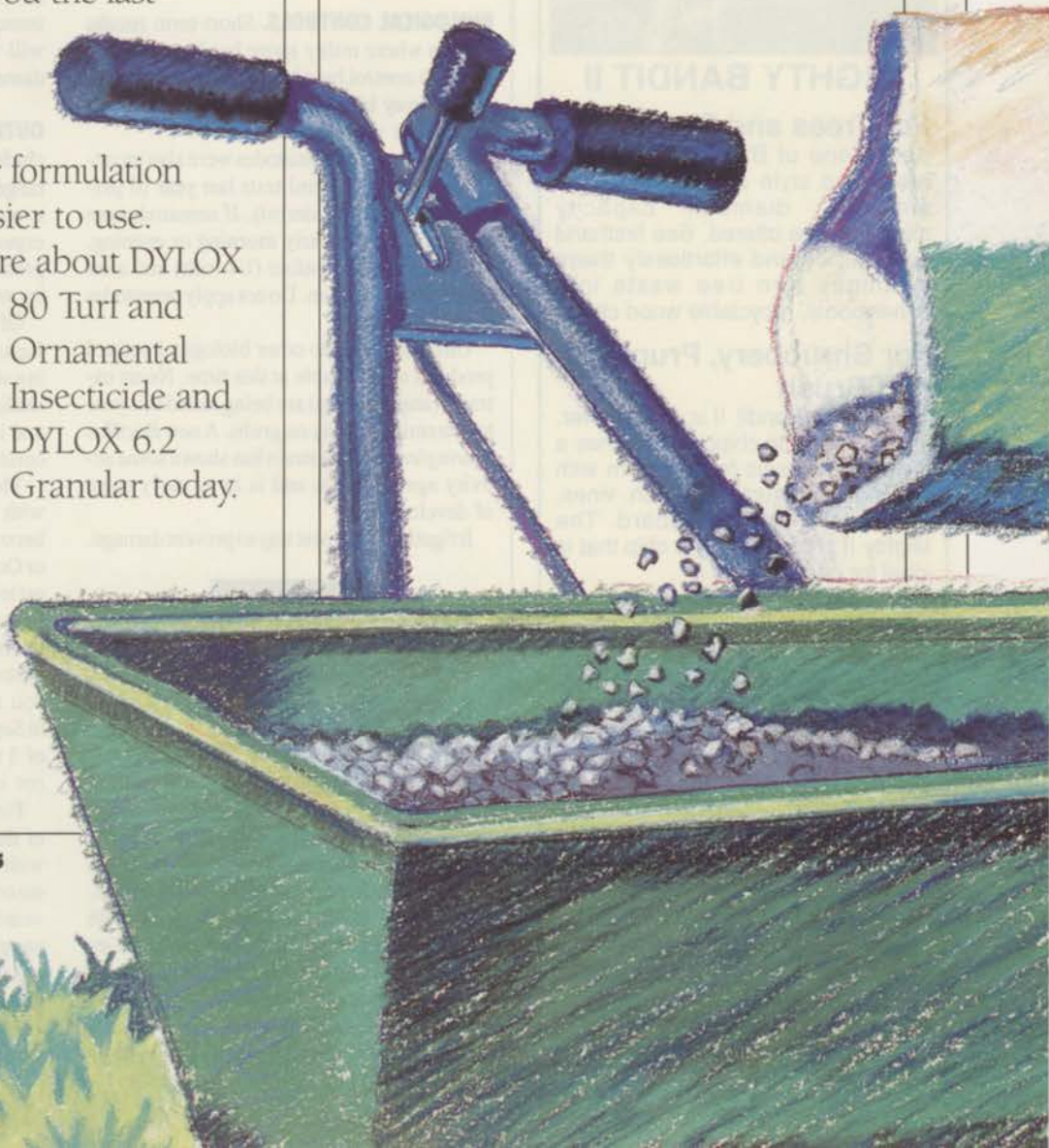
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USE READER SERVICE #30

Insecticide	Amount per:		Signal Word	Comments
	1,000 sq. ft.	acre		
*Triumph 4 E	1.5 oz.	2 qt.	Warning	May not be as effective for European chafer
Oftanol 5 G	0.9 lb.	40 lb.	Caution	Do not evaluate results for at least 3 weeks.
Oftanol 2 I	3 oz.	4 qt.	Warning	
Proxol 80 SP	3.7 oz.	10.2 lb.	Danger	
Dylox 6.2 G	3 lb.	129 lb.	Caution	
Crusade 5 G	1.8 lb.	80 lb.	Warning	
Mocap 10 G	2.3 lb.	100 lb.	Warning	Phytotoxic to bentgrass and ryegrass. Strong odor
Sevimol 40%	6 oz.	8 qt.	Caution	
Turcam 76 WP	2 oz.	5.6 lb.	Warning	
Turcam 2.5 G	3.7 lb.	160 lb.	Caution	
*Diazinon 4 E	4 oz.	5.5 qt.	Warning	Do not use on golf courses
*Diazinon 5 G	3 lb.	109 lb.	Caution	Do not use on golf courses

\*Do not use diazinon on golf courses or sod farms. Do not use Triumph on golf courses or sod farms.

#### Scouting for Grubs

(continued from page 40)

**BIOLOGICAL CONTROLS.** Short-term results of tests where milky spore has been applied for grub control have been inconsistent. This disease may take several years to have an effect on the grubs.

Insect parasitic nematodes were also inconsistent in grub control tests last year (0 percent to 70 percent control). If nematodes are applied, spray in early morning or evening. Water turf lightly before (1/4 inch) and after (1/4 inch) application. Do not apply nematodes to dry turf.

Unfortunately, no other biological control products are available at this time. Neem extracts (azadirachtin) are being tested this year to determine activity on grubs. A new *Bacillus thuringiensis* (B.t.) strain has shown some activity against grubs and is in an early stage of development.

Irrigation is the best way to prevent damage.

## The Japanese beetle and European chafer will continue to expand their range each year.

Lawns that are heavily infested with grubs are in high risk of dying from drought stress because they do not have many turf roots left. The best way to save an infested lawn is with daily irrigation. Daily irrigation with 0.10 inches of water is enough to prevent damage even when grubs number 20 to 30 per square foot.

In Michigan, a 10,000-square-foot home lawn can be irrigated with 1/10 inch per day for a

cost of 86 cents a day. The irrigation will probably be more effective for preventing damage than an insecticide application. Of course, an insecticide treatment and irrigation together will be the most effective way to prevent damage.

**OUTLOOK.** The Japanese beetle and European chafer will continue to slowly expand their range each year. Because the masked chafer is native to North America, its range is not expected to change as much. However, grub problems this fall will be determined mostly by weather conditions.

Of course, you don't need to worry about Japanese beetle or European chafer if you live in a state that is not yet infested. But the masked chafer is widespread in the East and Midwest, and it can also injure turf under dry weather conditions.

The greatest problems will occur in areas with active populations of grubs where turf becomes water stressed in August, September or October. Be prepared. Sample lawns in August to determine which areas are the most heavily infested. Base your management plan on the number of grubs found. Don't wait until customers call with problems. Assume that you will have a droughty period some time in September or October, and use the threshold of 5 to 10 grubs/sq. ft. for all lawns that are not irrigated daily.

Finally, inform customers about the status of their lawns. If a lawn is heavily infested with grubs, tell your customer that it will be susceptible to damage during periods of dry weather. Good communications builds trust and gives customers a feeling that you are working together.

*The author is an entomologist at Michigan State University, East Lansing, Mich.*



IRRIGATION  
TRAINING SERIES

# SCHEDULING FOR OPTIMUM PLANT GROWTH

*Tuning up your  
irrigation system can save  
water, time and money.*

*By Larry Keesen*

LAST MONTH, *Lawn & Landscape Maintenance* magazine initiated the industry's first irrigation training series. Lesson two follows this introduction.

The monthly training lessons will cover a range of topics from water management to irrigation installation to trouble-shooting irrigation systems. More than that, the intensive series will address and promote techniques that create water savings, save your customers money and enhance the image of the professional landscape industry.

Accompanying each lesson is a short quiz designed to test the knowledge of those studying these materials. Encourage your employees to take part in this unprecedented series, and test their skills both on paper and in the classroom before entering the field.

**I KNEW WE WERE** in trouble when I heard the squish, squish, squish of my own feet as I walked the boundaries through the wet turf at Sunbird Town Homes. During the late summer of 1988, I was asked to assess the high water bills and evaluate the irrigation system for the five-and-a-half acres of turf and landscaping surrounding 250 two-story town homes in Denver, Colo.

The purpose of an irrigation system evaluation is to conserve water, reduce water costs and promote healthier plant growth. A sprinkler system evaluation identifies system problems and recommends corrective measures necessary to improve performance. It's almost like having your automobile engine tuned up for better performance and emissions.

If any irrigation system is not performing correctly it may show up as an area of brown, dry grass, but in most cases the problem will not be apparent. Malfunctioning irrigation systems can overwater, leak, cause damage to structures and create exposure to injury.

When evaluating the system at Sunbird, I discovered one problem in the way the irrigation schedule was set. The amount of water being used at the site was 120 inches annually, whereas average ET rates for Denver turfgrass with a system efficiency of 80 percent should never be above 30 inches and can be as low as 12 inches or less with proper management.

When I scheduled the system correctly in 1989, Sunbird saved more than \$11,000 in water costs, and water use was reduced by 35 percent. That's enough water (75 million gallons) to supply 100 average families for more than 12 years.

This story is similar to too many landscaped sites across the United States. Overwatering occurs on most sites around the country that we have audited and



*Plant water use varies widely. Use current weather information or historical ET data to make this determination.*

**GETTING STARTED.** The first step in scheduling is to determine the application rate or the precipitation rate of the sprinkler heads for each zone throughout the irrigation system. This can be done using a variety of methods:

1. Use a formula that will calculate the theoretical precipitation rate for any sprinkler head. This is the most common method and is generally used when designing systems.

2. Place catchment devices in the landscape areas to measure the amount of water

evaluated. I shudder when I think of the huge waste of this precious resource and the potential environmental damage from irrigation system runoff, non-point pollution and damage to structures and pavement.

When contractors install a new irrigation system, the initial irrigation schedule is set for total saturation or the "rice paddy effect." Additionally, many contractors and designers fail to provide the owner with proper scheduling guidelines and techniques. This can be a huge liability for any designer, installation contractor and/or maintenance contractor, but much of this risk can be prevented by properly scheduling the irrigation system.

In the preceding issue of *Lawn & Landscape Maintenance* magazine, we learned about soils, plant water use and irrigation system performance. The purpose of this article is to learn proper irrigation scheduling techniques and the equipment required to attain this.

that is applied for a given time period in millimeters and/or inches. This rate of application can then be used to calculate accurate irrigation schedules and will be discussed in later issues.

3. Flow meters can be used to calculate application rates if the size of the area served by a zone is known.

4. Another method is to measure the operating water pressure and nozzle diameter at the head and determine the flow rate for the above formula.

The common formula for determining the application rate in inches per hour is:

$$\frac{96.3 \times \text{GPM}}{\text{SPACING} \times \text{SPACING (AREA)}} = \text{Application rate in inches per hour}$$

The formula for the constant 96.3 converts cubic inches of water to inches per square foot per hour as follows:

**One gallon** = 231 cubic inches  
**One square foot** = 144 square inches

$$\frac{231}{144} = 1.604 \text{ (in./sq. ft./gal./min.)} \times 60 \text{ min.} = 96.3$$

Using manufacturers' catalogs, you can determine the performance data for a pop-up spray head with a full circle nozzle, and see a 15-foot radius of coverage with a flow rate of 4.0 gallons per minute (GPM) at 30 pounds per square inch (psi) and a recommended square spacing of 15 feet. The formula would look like this:

$$\frac{96.3 \times 4.0 \text{ (GPM)} = 385.2}{15 \text{ ft.} \times 15 \text{ ft.} = 225} = 1.71 \text{ inches per hour}$$

If the spacing is triangular, the bottom of the formula would be the spacing (15 feet) multiplied by the distance between rows (or the height of the triangle). To determine the height of an equilateral triangle, take the base (15 feet) times 0.866.

$$\frac{96.3 \times 4.0 \text{ (GPM)} = 385.2}{15 \text{ ft.} \times (15 \text{ ft.} \times .866) = 194.85} = 1.71 \text{ inches per hour}$$

**INTAKE RATES.** Now that the application rate of the zone is known, refer to the information in the previous issue about soils and soil intake rates. Identifying the soil type and crop cover is required to determine the intake rate.

In a clayey soil with a bluegrass turf and no soil preparation the intake rate will be extremely low, approximately 0.05 to 0.10 inches per hour. If the sprinkler head application rate is 1.71 inches per hour and 0.50 inches needs to be applied, the runtime for the zone will be about 18 minutes (0.50 in./1.71 = .292 X 60 min. = 17.52 min.), but runoff or puddling will occur after eight to 10 minutes.

To avoid runoff and promote more efficient irrigation, the runtimes should be reduced to six minutes with three start times or repeat cycles. Rotor heads zones should also be set up the same way. To

be safe, always use short runtimes of five to seven minutes for pop-up spray heads and repeat cycles as needed.

The next step is to determine the size and holding capacity of the "water tank." This information allows the contractor to ascertain the frequency between irrigations. With a clayey soil, the chart in the previous article indicates a water-holding capacity of 0.167 inches of water per inch of soil.

Next, the depth of the active root zone needs to be determined using a soil probe. If it's 5 inches, multiply 5 inches times 0.167 which indicates a total water holding capacity of 0.835 inches of water.

Now determine the plant water use in order to know when the underground water tank needs to be refilled. Plant water use varies widely

through the seasons, and two ways to predict plant water requirements are to use current weather station information to calculate evapotranspiration (ET) or historical ET and crop co-efficient data.

Using the historical ET data from the "Irrigation Association Landscape Irrigation Auditor" training handbook, the ET rate for Cleveland, Ohio, is:

<b>JAN</b> 0.0	<b>FEB</b> 0.0	<b>MAR</b> 0.0	<b>APR</b> 1.0
<b>MAY</b> 2.0	<b>JUN</b> 4.0	<b>JUL</b> 6.0	<b>AUG</b> 5.0
<b>SEP</b> 3.0	<b>OCT</b> 1.0	<b>NOV</b> 0.0	<b>DEC</b> 0.0

With an ET rate of 5.0 and a crop co-efficient of 80 percent the plant water requirement for the month is 4.0 inches (5.0 X 0.80) of water.

After reviewing the management allowable depletion (MAD) formula, the monthly water requirement of 4.0 needs to be converted to a daily requirement by dividing 4.0 inches by 31 days which is a daily average plant water requirement of 0.13 inches.

To determine the frequency between irrigations, divide the MAD (which is 50 percent of 0.835, see above) or 0.42 inches of water that the plant can remove from the root zone without risk of wilting, by the adjusted daily ET rate of 0.13 which equals 3.23. Irrigation schedules will be every third day. The runtime can then be adjusted for an application of 0.39 inches per irrigation, which would be 14 minutes or three, five-minute cycles.

Irrigation scheduling must also take into consideration those days when watering may not be desirable, like high usage periods during the day or week; prior to mowing; daily periods of high wind; when water is available; special events; etc.

Take the daily ET and multiply by seven days to determine the weekly requirement (0.13 X 7 = 0.91 inches). Then divide the answer by three watering days (0.91/3 = 0.30 inches per irrigation). Runtime is determined by the irrigation water requirement divided by the application rate times 60 minutes (0.30/1.71 inches X 60 = 10.5 minutes). Two cycles at five or six minutes each would work well.

The best time of day for irrigation is between the hours of 10 p.m. and 6 a.m. for the following reasons:

1. It reduces potential compaction caused by foot traffic on wet grass.
2. The ET rate is much lower at night because it is usually cooler, there is less wind (especially in the early morning

*(continued on page 48)*

## EYE ON CONSERVATION

- If you can see your footprints in grass you have just walked on, you need water.
- Use short run times and several cycle starts per irrigation period and water as

infrequently as possible.

- Water between 10 p.m. and 6 a.m. to decrease water loss through evaporation.
- Pay attention to the seasons. Plants need

little or no irrigation water through winter and an increasing amount each month until the demand peaks in July, and begins to taper off each month as the season cools.

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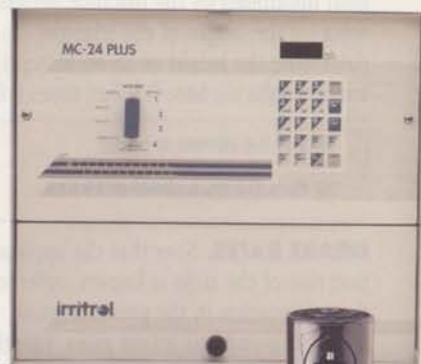
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(continued from page 45)

hours) and little solar radiation. This is why at least a 10 percent savings in water is achievable by watering at night.

3. Less water is wasted because of wind deflection.

4. Improves public opinion by reducing the visibility of water waste.

5. Avoid watering before 10 p.m. to avoid fungus problems.

**CONTROLLER FEATURES.** Now that we have determined the irrigation schedule, let's look at irrigation controller features and how they help conserve water, lower maintenance costs and provide for a beautiful landscape.

The people who are maintaining irrigation systems and the owners of landscaped projects are looking for ways



*It's important to make the system user friendly for the person who will run the unit.*

to save time, money and water. This is accomplished by evaluating irrigation system controllers to determine if they are dependable, water conserving and above all, user friendly.

First, a brief history of landscape irrigation controllers. The older controllers were generally composed of a day wheel, a 24-hour dial and a station dial. These were operated by a series of clock motors and micro switches and are referred to as mechanical controllers.

In the 1970s, Johns-Manville marketed the first solid-state electronic digital controller which had no moving parts except for a keyboard with which to enter data.

Since then, many companies have developed solid-state electronic and electro-mechanical controllers along with computer software to operate irrigation systems.

Electronic controllers are more dependable than ever and offer many new features not previously available. Some of the best features of the newer controllers are:

1. Timing accurate within seconds.
2. Three or more start times which allow repeat cycles to reduce runoff.
3. Selection of any combination of irrigation days, like a Monday, Wednesday, Friday schedule or every third day, every

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fifth day or even once per month.

4. Electrical surge protection to prevent damage and maintain backup programs for controller operations.

5. A water budget feature which allows quick changes in the water application rate to adjust for ET.

6. The ability to communicate with flow sensors, soil moisture sensors, rain and wind shutoff devices, weather stations and central control systems.

7. Two or more separate programs that allow for independent irrigation schedules to accommodate different plants.

8. Start times at any minute of the day instead of on the hour or every 15 minutes.

9. Cascading start times that automatically start the second cycle after the last valve of the first cycle shuts down.

10. Programmable cycles for testing the irrigation system.

11. Remote control compatibility.  
(See manufacturers product literature for complete information on controllers.)

Consider some other controller characteristics which can reduce irrigation and landscape maintenance costs:

Is the controller in good physical condition and free of rust? If the cabinet is damaged, water may enter the controller causing short circuits and corrosion.

Is your controller user friendly? If maintenance personnel have continual problems understanding and operating the controller, the landscape will suffer. Get some input about the controller from the person who is operating the system.

In the event of a power failure, a built-in standby or backup program is helpful (for solid-state electronic controllers) as it will operate the system if the custom program is erased. Most of the electro-mechanical controllers don't require a backup battery because the program is

set with a series of dials instead of programming a computer chip.

When buying a controller, make sure that it will meet the needs of your system(s) for at least 10 years. Those needs should include control features that promote water conservation and provide some degree of flexibility for future changes. Don't buy features that will never be used or that are non-essential to the irrigation system function.

The next two articles will deal with how we can fine-tune the irrigation schedule to apply less water, and how system uniformity affects application rates. ■

*The author is president of Keesen Water Management Inc., Denver, Colo.*

**IRRIGATION QUESTIONS**

1. When is the best time of day to water? \_\_\_\_\_
2. What is the application rate for a large rotor head with a flow rate of 15.0 GPM at 60 PSI and a triangular spacing of 55 feet? \_\_\_\_\_
3. What is the application rate of a zone that has a flow rate of 50 GPM and covers 12,000 square feet? \_\_\_\_\_
4. How many cubic inches are there in a gallon? \_\_\_\_\_
5. With a monthly ET rate of 4.0 inches, a crop co-efficient of 85 percent, square head spacing at 65 feet and a flow rate of 19.0, what is the total monthly irrigation runtime in minutes? \_\_\_\_\_
6. What is the irrigation frequency and runtime for the above scenario with a clay soil and a root zone depth of six inches? \_\_\_\_\_

Answers appear on page 60 of August LLM.

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- Nov. 7, 8.....Kansas City, MO

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# People

**HERMANN WERNER** is the new executive vice president of Miles Inc. and president of the agriculture division. Werner succeeds **Heinz Wehner**, who retired after more than 40 years of service.

**Kevin Connolly** joined the agriculture division of Miles as a sales representative for the division's line of specialty products used in the commercial lawn and pest control industries. His territory includes New York City, Long Island and northern New Jersey.

Hardie Irrigation named **Sherri Barnes** as product manager for mechanical products. She is responsible for mechanical and plastic products including valves, sprinklers and rotors.

Also at Hardie, **Bryan Mudrak** was promoted to contractor development manager for the Florida turf sales division. Mudrak works with contractors to develop awareness and understanding of Hardie products.

Yazoo Manufacturing Co. announced the following personnel changes: **Steve Moon**, territory manager of eastern Kentucky and eastern Tennessee; **Jimmy Kinison**, territory manager of Ohio; and **Jim**

**Forrester**, distributor territory manager.

**Peter Whurr** joined Ransomes America Corp. as director of sales and distribution for turf products.

Jacobsen, division of Textron appointed **John Busuttill** as field service specialist. He provides technical support and product training for distributors in the midwestern United States, as well as in Manitoba and Quebec, Canada.

**Tom Pape** and **Skip Lynch** have joined the staff of Seed Research of Oregon. Pape is the new general manager and Lynch is national sales manager.

Husqvarna Forest & Garden Co. named **Stephen Hughes** territory manager for Maryland, Delaware, New Jersey and sections of West Virginia and Virginia.

Husqvarna also appointed **Matt McNally** as territory manager for eastern New York.

**Ralph Rose** joined ISK Biotech Corp. as quality supervisor. Previously, he was market development representative for ICI Americas. In addition, **Alice Woods** was named manager, product development. Prior to the position, she was technical supervisor.



Werner



Whurr

ISK Biotech promoted **John Blair** to distributor/technical sales supervisor. He is responsible for marketing and sales activities in North Dakota, South Dakota, Nebraska, Minnesota, Wisconsin, Iowa, Kansas and Missouri. He also has national account responsibility for several key distributors.

Medalist America Turfgrass Seed announced the following additions to its staff: **Rick Myers** was named general manager; **Barry Larson**, turf specialist, Minnesota, western Wisconsin, North Dakota, South Dakota, Iowa, Nebraska and Kansas; and **Brandon Matthews**, turf specialist, Texas, New Mexico, Louisiana and Oklahoma. ■

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## Product Spotlight

NEW FROM **Briggs & Stratton** is a 14-h.p. I/C engine featuring overhead valve technology. The engine is designed to power riding mowers and tractors.

Features include cast iron cylinder sleeve, laminated blower housing, Cobalite™ exhaust valve, dual-clean air cleaner, powder-painted sheet metal components and synchro-balancing. The lubrication system and high oil fill automotive-type dipstick provide a gear-driven system that bathes internal parts.

**Circle 125 on reader service card**

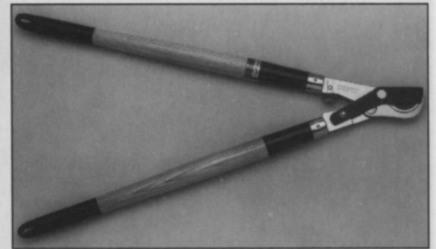
The 24-h.p. FZ2400 front mower from **Kubota** features zero diameter turn, a system that cuts power to the front wheels while simultaneously providing power to the rear wheels. The front wheels rotate freely during turns to minimize turf damage.

The mower also offers auto assist differential 4-wheel drive that allows the mower to switch automatically between 2- and 4-wheel drive.

The mower is equipped with a liquid-cooled diesel engine and hydrostatic transmission. Wider, round-shoulder turf tires are optional for increased stability, traction and less turf damage.

**Circle 126 on reader service card**

THE BY-PASS Clopper from **Wallace** is designed to allow clean trimming close to the main branch. Features include the



dual-pivot power lever for slicing through heavy growth, replaceable Teflon-S coated carbon steel blades, lightweight fiberglass handles and foam cushion grips.

**Circle 127 on reader service card**

19-3-19 NPK Turf Fertilizer Plus Minors is available from the **O.M. Scott & Sons Co.** The product incorporates Scotts® new Poly-S™ fertilizer coating technology.



The fertilizer delivers a high rate of sulfate-form potassium for a one-to-one, nitrogen-to-potash ratio. It supplies sufficient potash and sulfur to help build soil

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USE READER SERVICE #39

levels and a maintenance rate of phosphorus. Iron, manganese, molybdenum and zinc are also provided. The controlled-release Poly-S nitrogen encourages uniform growth with extended feeding.

The product can be used on all turf-grasses in fairways and other large turf areas. The dry, free-flowing, ready-to-use physical blend is designed for rotary spreader applications.

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Maintenance software from **Synoptic Systems** is designed to meet the needs of the landscape maintenance contractor. It offers routing and scheduling, user-definable reporting capabilities, complete billing



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tegrated estimating, purchasing and accounting system software) to form a complete business management tool. Lbase is IBM compatible.

**Circle 129 on reader service card**

**Boss Products** introduced a line of V-Box sand and salt spreaders. Available in a 7-foot length with a hopper capacity of 1.8

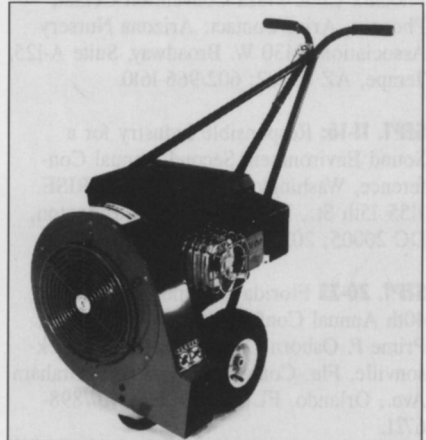


cu. yds., and an 8-foot length with hopper capacity of 2.0 cu. yds., the spreaders can be mounted and stored as a single unit; and can be installed and removed from the bed of a 3/4- or 1-ton pickup, flatbed or dump body truck.

All units provide uniform spread capability from 4 to 30 feet. Other features include an 8-h.p., 4-cycle gas engine with in-cab controls and electric start, electric clutch and manual throttle.

**Circle 130 on reader service card**

The Lo-Blo® Air-Broom® blower from **Atwater Strong** is powered by a 9-h.p. Briggs & Stratton Vanguard overhead-



valve engine. The engine features a cast-iron cylinder sleeve and a replaceable PTO ball bearing for high radial loads.

The blower is capable of a 175-m.p.h. air blast with a volume of 2,500 cu. ft. of air per minute. It has a 14-inch, 8-blade, cast magnesium impeller mounted on a tapered hub.

**Circle 131 on reader service card**

(continued on page 62)

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# Calendar

**SEPT. 11-12** Southwest Horticultural Trade Show, Phoenix Civic Plaza Convention Center, Phoenix, Ariz. Contact: Arizona Nursery Association, 1430 W. Broadway, Suite A-125, Tempe, AZ 85282; 602/966-1610.

**SEPT. 11-16:** Responsible Industry for a Sound Environment Second Annual Conference, Washington, D.C. Contact: RISE, 1155 15th St., NW, Suite 900, Washington, DC 20005; 202/872-3860.

**SEPT. 20-23** Florida Turfgrass Association, 40th Annual Conference and Trade Show, Prime F. Osborn Convention Center, Jacksonville, Fla. Contact: FTA, 302 S. Graham Ave., Orlando, FL 32803-6399; 407/898-6721.

**SEPT. 21-24** Northwest Turfgrass Conference & Exhibition, Sun River Lodge and Resort, Sun River, Ore. Contact: NTA, P.O. Box 1367, Olympia, WA 98507; 206/754-0825.

**SEPT. 24-28** Oregon Association of Nurserymen, Annual Convention, Shilo Inn, Lincoln City. Contact: OAN, 2780 S.E. Harrison, Suite 102, Milwaukie, OR 97222; 503/653-8733.

**OCT. 7-9** Interstate Professional Applicators Association Convention and Trade Show, Sheraton Hotel, Tacoma, Wash. Contact: IPAA, P.O. Box 1377, Milton, WA 98354.

**OCT. 22-23** Xeriscape '92 — San Diego Style, Annual Xeriscape Conference, co-sponsored by Cuyamaca College Botanical Society and the San Diego County Water Authority, San Diego Convention Center. Contact: Jan Tubiolo, Cuyamaca College Botanical Society, 2950 Jamacha Road, El Cajon, CA 92019-4304; 619/443-1756.

**OCT. 23-25** New Jersey Tree Expo, sponsored by the Arborists Association of New Jersey, Sheraton Poste Inn, Cherry Hill, N.J. Contact: Bill Porter, P.O. Box 231, Cook College, New Brunswick, NJ 08903; 908/246-3210.

**NOV. 1-2** Southwest Outdoor Power Equipment Show, sponsored by The Service Dealers Association, Arlington Convention Center, Arlington, Tex. Contact: TSDA, 1946 S. IH-35, Suite 100-A, Austin, TX 78704-3693; 512/443-7999.

**NOV. 1-4** The Irrigation Association's International Irrigation Exposition & Technical

Conference, New Orleans Convention Center. Contact: IA, 1911 North Fort Myer Dr., Suite 1009, Arlington, VA 22209-1630; 703/524-1200.

**NOV. 8-11** 22nd Annual Educational Conference and Show of the National Institute on Park and Grounds Management, Richmond, Va. Contact: National Institute, P.O. Box 1936, Appleton, WI 54913; 414/733-2301.

**NOV. 16-18** Green Industry Exposition, Indiana Convention Center, Indianapolis. Contact: GIE, 1000 Johnson Ferry Road, NE, Suite C-135, Marietta, GA 30068-2112; 404/973-2019.

**NOV. 19-21** TCI Expo '92, sponsored by the National Arborist Association and The International Society of Arboriculture, Baltimore Convention Center. Contact: TCI Expo, P.O. Box 1094, Amherst, NH 03031; 800/733-2622.

**DEC. 7-10** The Ohio Turfgrass Conference and Regional Show, Cincinnati Convention-Exposition Center, Cincinnati, Ohio. Contact: OTF, 2021 Coffey Road, Columbus, OH 43210; 614/292-2601. ■

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### Family Ties

(continued from page 24)

grassy hillsides.

Although this was one of the largest projects the company has completed for the client, it was by no means the most impressive. To date, Connelly Landscaping has designed and installed a sandstone and brick patio, herb garden, gazebo, arbor walkway, bi-level pond and western rock garden, among many other amenities. Last month, crews were hard at work preparing the grounds for a wedding reception.

"This client is a good example of how we work with someone from project to project," Dan said.

**DOWN THE ROAD.** Rags-to-riches stories are the norm in the landscape industry, and the history of Connelly Landscaping is no exception. Like most small-business owners, Ed Connelly opened his doors with little capital, few customers and a bare-bones staff.

But unlike many firms, Connelly Landscaping has managed to thrive in a competitive marketplace with little advertising and virtually no bid work.

Now, as Ed steps back and focuses on the nursery division, it's up to Dan to lead the design/build team into the 21st century.

He would do well to listen to some fatherly advice: Design/build "is like Disney," Ed said. "The only thing to stop you is your imagination."

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

### Turf Renovation

(continued from page 30)

"If we work together," he tells them, "I think we can salvage this lawn. And if you still want a total renovation, fall is the best time anyway."

Nine times out of 10, it's customer cultural practices that ruin the lawn, he said. A common turf butcher is the guy who thinks he's got a golf course in front of his house. "He's scalping the heck out of it."

What he doesn't have is irrigation three times a week, scientific aeration and other techniques a full-time grounds crew brings to the job.

Wierichs tells his (mostly high-end) residential customers what they should be after is the nicest looking lawn requiring the least amount of work to maintain.

Making the customer more aware of his or her own role in renovation follow-through is crucial, he added. "They have to water a couple times a day. I stress not deeply, just enough to keep that moisture — at least for 25 days. We explain they'll see their ryegrasses come in five to 10 days, fescues 10 to 20, bluegrasses 15 to 25. Too often they stop watering as soon as they see ryegrass."

The author is a free-lance writer based in Shaker Heights, Ohio.

## IRRIGATION TRAINING SERIES LESSON ONE

Answers to questions on page 45.

1. After 10 p.m. and before 6 a.m.
2. 0.55 inches per hour.
3. 0.40 inches per hour.
4. 231 cubic inches.
5. 471 minutes.
6. 63 minutes every fourth day.

# Classifieds

## RATES

All classified advertising is 75 cents per word. For box numbers, add \$1 plus six words. All classified ads must be received by the publisher before the first of the month preceding publication and be accompanied by cash or money order covering full payment. Submit ads to: Lawn & Landscape Maintenance magazine, 4012 Bridge Ave., Cleveland, OH 44113. Fax: 216/961-0364.

## BUSINESS FOR SALE

### LAWN CARE/LANDSCAPE BUSINESS

Established and rapidly growing lawn care and landscape business. 800+ established clients presently being serviced. Growth potential is unlimited. Southern Ohio/Northern Kentucky area. Write LLM, Box 359, 4012 Bridge Ave., Cleveland, OH 44113.

### TREE SERVICE

For sale: Central Pa. tree service. In business 12 years, client base of 3,500 plus — \$420K sales. Phone 717/272-1385 or write Aaron Martin Jr., 532 W. Penn Ave., Cleona, PA 17042.

## BUSINESS OPPORTUNITY

### GROWTH OPPORTUNITY

Exclusive franchise areas available for existing green industry operations. Come grow with the leader in organic-based lawn care. NATURALAWN OF AMERICA. Call Mike Catron, 800/989-5444.

## FOR SALE

### LAWN CARE EQUIPMENT

Hannay reels new in-the-box, E1526s, E1530s, \$359; lawn spray hose, 275 psi and 600 psi, all sizes; original Imler measuring wheels, \$54.95; glycerin-filled gauges, 0-60 psi to 0-1,000 psi, \$19.95; ChemLawn guns, \$81.95; lawn spray boots, \$16.95; lawn spray gloves, \$1.95/pair. Call **Hersch's Chemical Inc.** 800/843-LAWN — outside of Michigan 313/543-2200

### PIPE LOCATOR

INEXPENSIVE. Locates, traces underground drain, water pipelines of clay, PVC, ABS, steel and cement. Bloch, Box 18058, Cleveland, OH 44118; 216/371-0979.

### INTEGRATED SOFTWARE

An integrated business management system for \$495. A single dBASE, compiled EXE with A/P,

A/R, G/L, payroll, job costing, laser labels and much more. Ideal for Serv. Business. Demos available. Dealers wanted. New Serv, 1615 Gelhot Dr. #34, Fairfield, OH 45014; 513/829-1585.



### Raising Money & Having Fun (sort of)

#### A "How To" Book for Small Non-Profit Groups

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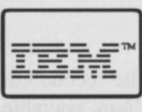
MAY DUGAN CENTER, 4115 Bridge, Cleveland, Ohio 44113  
Phone (216) 631-5800.

## FINANCING

LET THE GOVERNMENT FINANCE your small business. Grants/loans to \$500,000. Free recorded message: 707/448-0270. (NK8).

## COMPUTER SOFTWARE

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SuperScape Management System offers the landscape professional the following:

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- \* Reduced training costs
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SOFTWARE

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LOST CONTRACT MUST SELL: 4 Mitsubishi SU-27-F Trucksters, 3 340 Excel 72-inch high-deck mowers, 1 340 Excel Rangewing, 1 Chevy 1500 Extended Cab, 5 S-10 1989-90 Chevy Pickups and much more. Call 209/485-0311.



## SPRAYER REPLACEMENT PARTS

Sprayer Replacement Parts — FMC, Hypro, Spraying Systems, Raven Tanks, Hannay Reels, plus more. Also Canaan sprayers and hydro-seeders. **FREE CATALOG. CANAAN INDUSTRIES, 800/633-7560.**



## SPRAY EQUIPMENT

Walkover sprayers and sideline athletic field strippers — Innovative, precise ground-driven sprayers. **FREE CATALOG.** Dealers wanted. **CANAAN INDUSTRIES, 800/633-7560.**

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## SPRAY EQUIPMENT

### SPRAY EQUIPMENT

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806/546-2242

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NEW SURPLUS BUNTON 220 H Fairway Mowers. Excellent for fairways, ballfields, schools, cemeteries and any finished mowing application. 22-h.p. Kubota diesel engines, hydrostatic drive, hydraulic driven reels, weight transfer switch. Will sell for \$8,000 each, original cost over \$20,000 each. Please call: Turbos Industries/Nussbaums, 1719 West Main St., Louisville, KY 40203; 800/928-5865 or 502/582-3881.

## RANSOMES MOWERS

2 (1992) 74-inch NEW Ransomes riding mowers. Diesel units only 320 hours. Model XT-6010D-

WEN. Deck with large wheels and tires plus deluxe suspension. Mows 3½ acres per hour. \$10,250 each. Please call 708/634-9300.

### JACOBSEN MOWER

1 (1992) 12 ft. cut rotary Jacobsen HR-5111 50-h.p. direct injection Kubota diesel engine. Has 2 side wings that fold out. Mows 8 acres per hour. Only 300 hours. Four-wheel drive. Hydrostatic transmission. Asking \$39,500. \$15,000 down and take over payments. Available Aug. 1, 1992. Please call 708/634-9300.

### COMPUTER SOFTWARE

#### THE HYDRO SEED COST ESTIMATOR™

For estimating your Hydro Seeding jobs. IBM or compatibles only. Call 800/245-0551.

### MANAGEMENT SOFTWARE

# TRIMS

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### HELP WANTED

#### LANDSCAPE CONSTRUCTION

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#### LANDSCAPE FOREMEN

Landscape foremen needed for fast growing design, installation, maintenance firm. Must have minimum of 1 year experience and provide references from former employer. Contact: James W. Doyle, Trinity Landscape Co., 4513 Old Yale, Houston, TX 77018; 713/691-7373.

#### PRODUCTION MANAGER

Production manager needed for growing design, installation, maintenance firm. Must have 3 years experience and provide references. Contact: James W. Doyle, Trinity Landscape Co., 4513 Old Yale, Houston, TX 77018; 713/691-7373.

It pays to advertise in LLM classifieds.

Call 800/456-0707

to place a classified ad or for display advertising media information.

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\*Denotes regional advertising

### Products

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Basamid® granular soil fumigant from **BASF** is labeled for use in lawn renovation, ornamental seedbeds, horticultural nurseries, conifer seedbeds, potting soil and tobacco seedbeds. It is not a restricted-use product.

When worked into the soil, it controls

nematodes, diseases, insects and weeds. Limited quantities are available this fall and in full supply next January.

**Circle 132 on reader service card**

**Industrial Services Co.** offers the RD2 hose reel swivel. Molded from tough, glass-filled nylon and TFE-filled acetal, it operates freely up to 400 psi.

**Circle 133 on reader service card**

## FYI...

**Marketing tips.** The second edition of *Practical Marketing Techniques for the Landscape Co.* is now available. The 90-page manual details promotion techniques and incorporates ideas from landscape companies nationwide. It sells for \$19.95 plus \$3 shipping and handling. To order, call 800/359-6647 or write Landscape Horticulture Center for Personnel Development, 2509 E. Thousand Oaks Blvd. #109, Westlake Village, CA 91362.

**Circle 134 on reader service card**

**New England turf guide.** *Professional Turfgrass Management Guide for Massachusetts — 1992* is available from the University of Massachusetts Cooperative Extension. To order, send \$5.50 (shipped fourth class) or \$6 (first class) to Bulletin Center, Cottage A, Thatcher Way, University of Massachusetts, Amherst, MA 01003.

**Circle 135 on reader service card**

**Turf and grounds equipment.** Excel Industries offers a new full color brochure that details the complete line of commercial turf and grounds equipment. Featured are the Compact line, the Hustler line and the new UTR™ Ultimate Turning Radius line.


**Circle 136 on reader service card**


**Pest identification.** ICI Professional Products offers a free Crusade® turf insect poster. Detailed illustrations are provided for seven major turf insects, along with information and charts on the optimal time to scout and treat for each pest.

**Circle 137 on reader service card**

# Man's best friend— Glade, in sun or shade.



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## But our customers said it better.

During a recent survey, we asked our customers for new ways they could use the time- and cost-savings of lower-priced Roundup® herbicide. After 2,361 responses like these, we realized we couldn't say it better.

"Best product since the shovel. Creates a clean landscape and makes my good job look better."

- **Orin Tidyman**, Supervisor  
T & S Services, Germantown, WI

"We are going to expand a city-wide program to control vegetation growth on 75 miles of streets and sidewalks with Roundup."

- **H. Layton Paul**, Public Works Director  
Thomasville, NC

"After treating with Roundup one time, I eliminate the use of a weed-eater all season."

- **James Rhoden**, Superintendent,  
Deerfield Country Club, Weston, WV

"It eliminates trimming totally. No more hand weeding. Thanks."

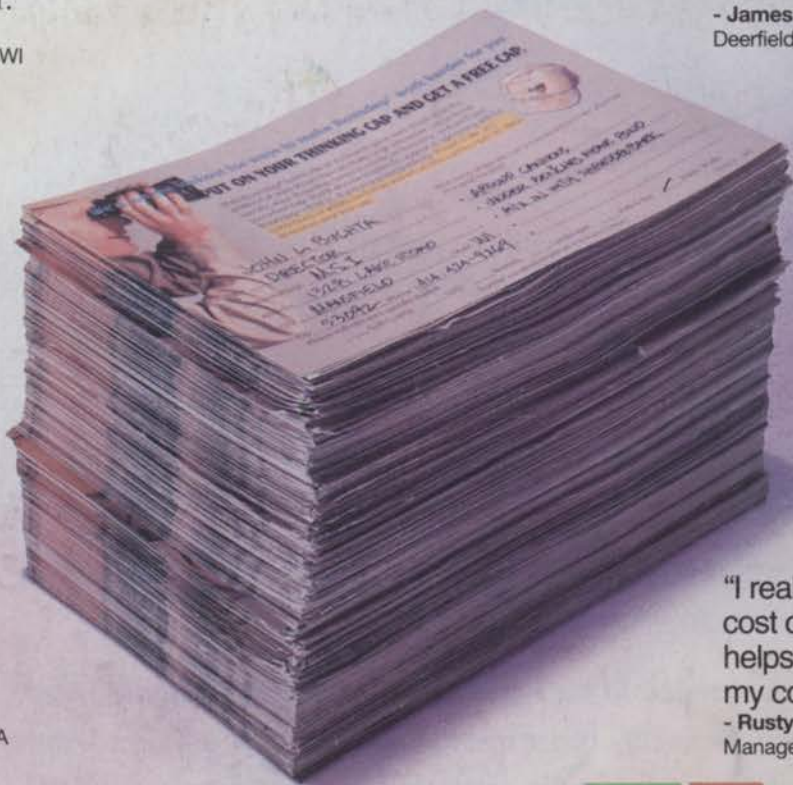
- **John A. Lucas**  
President, Lakes Region  
Landscaping, Inc.  
Laconia, NH

"My lawn mowing crews carry Roundup pre-mixed in a spray bottle, so they can treat grass and weeds in crack-n-crevice."

- **Mark Davis**, Owner, AAA  
Yard Care, Spokane, WA

"We use Roundup to trim around trees and prevent damage from line trimmers. This saves labor and money, not to mention trees."

- **Slade Strickland**, Director of Parks Recreation and  
Landscape Development, Addison, TX



"We just did a job for the airport and I didn't have to go back to see if it worked. Roundup always does."

- **Patricia Ann McCurry**  
Owner, The Lawn Dr  
Lawton, OK

"I really appreciate the lower cost of Roundup because it helps me hold the line on my contract jobs."

- **Rusty Holt**, Owner, Property  
Management Services, Greensboro, NC



USE READER SERVICE #12

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