

Liquid vs granular, an agronomic viewpoint

BY JOHN R. STREET, Ph.D.,

Some fallacies about nitrogen fertilizers just won't go away.

Highly reputable and professional lawn care companies and fertilizer manufacturers

sometimes tout incorrect and/or misleading information about fertilizers and fertilizer technology, apparently disregarding the laws of plant science as we've come to know it.

This confuses professionals, so imagine what it's doing

to the homeowner. It's also caused many LCOs to change their fertilizer delivery systems in an attempt to deal with the misconceptions of their customers.

Fertilizer delivery systems are primarily either dry/gran-

ular or liquid. Both have advantages and disadvantages. The agronomic differences among similar fertilizers, applied liquid versus granular, are usually small. Operational considerations are usually more important in selecting

one or the other.

Today, public preference—although not based on sound scientific information—is probably playing a bigger role in many

See **DRY** on page 34

LAWN CARE INDUSTRY

Serving the needs of the professional lawn care operator

NOVEMBER 1990

VOLUME 14 NUMBER 11

McClure: PLCAA will serve LCOs

ATLANTA, GA—Anne McClure leads the Professional Lawn Care Association into the 1990s.

She's only the second executive vice president PLCAA has ever had. She succeeds James A. Brooks who helped direct PLCAA for over seven years. This past summer Brooks announced he was concentrating on the Green Industry Expo and asked to be relieved of many of the administrative tasks of PLCAA. In August, Brooks said he was leaving PLCAA. He tells *Lawn Care Industry* magazine he's investigating several business opportunities.

On October 1, McClure, a tall graceful woman with an easy smile and warm blue eyes, exchanged an office in Arlington, VA, overlooking the Potomac River and Washington D.C. for one at PLCAA headquarters in Marietta, GA, an upscale and growing community about 30 minutes north of Atlanta. She came to PLCAA from the Irrigation Association (IA) where she was the second ranking manager. She was with IA for four years.

"As I looked at the two organizations (PLCAA and IA), I was surprised about how much they had in common," she told *Lawn Care Industry* in an exclusive interview just days after officially joining PLCAA. "Both associations have about the same size staff and a similar budget. Maybe the Irrigation Association has a little bit larger membership



Anne McClure became PLCAA's executive vp on Oct. 1 right now."

McClure's experience in association management began as the director of meetings and membership for the Associated Landscape Contractors of America (ALCA). She broadened her experience in the IA and also with a 40-week Association Manage-

See **LCOS** on page 28

Welcome!

PLCAA, Nashville receive lawn pros

NASHVILLE, TN—*Lawn Care Industry* magazine and its sister publication, *Landscape Management*, are sponsoring a reception

You're invited.

The magazines, in behalf of their November advertisers, are sponsoring the Green Industry Expo (GIE) Reception at the Nashville Convention Center at 6:30 p.m. on Monday, Nov. 12.

The hour-long affair gives GIE attendees an opportunity to meet with industry leaders and suppliers. There is no charge.

This is one of many highlights for this first-ever joint effort involving the Professional Lawn Care Association (PLCAA), the Professional Grounds Maintenance Society (PGMS) and the Association of Landscape Contractors of America (ALCA). They joined their annual shows for the largest trade show of its kind. Actually, says GIE coordinator James A. Brooks, the show should break two records—just over 53,000 square feet of floor space and as many as 2,500 qualified buyers. There could be as many as 250 exhibitors.

"I think we'll open on November 13 with a fullhouse and probably a waiting list," Brooks tells *LCI*.

A nine-person steering committee, representing industry and the three organizations, is overseeing the GIE in cooperation

See **GIE** on page 17

There's trouble in Iowa City

IOWA CITY, IOWA—Steve Moline, of the Iowa Attorney General's office, says it may take weeks to investigate a complaint of misleading advertising by several lawn care companies.

The Urban Pesticide Committee of Environmental Advocates, Inc., filed the com-

plaint and held a press conference at Market Square Park here in September where it targeted ChemLawn Services Corp., Spring Green Lawncare and All American Turf Beauty. The admittedly anti-pesticide group said these companies (and others which

See **IOWA** on page 17

PLCAA prez a workingman from a workingman's town

BY RON HALL
editor

It hasn't been many years since Neal DeAngelo cleaned the black dirt of Hazleton from under his fingernails each evening.

He's got some of the grit of this eastern Pennsylvania town in his soul—if not on his hands. Hazleton used to be a

coal-mining town. There's still coal here but industry is more diversified now. Even so, residents here like Neal's workingman style.

This month in Nashville, DeAngelo, 29, becomes the youngest ever president of the Professional Lawn Care Association of America (PLCAA).

"I didn't want to become

See **PREZ** on page 32



DeAngelo to lead PLCAA

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Graphics Manager

BUSINESS STAFF

Midwest Office:

JON MIDUCKI
(216) 826-2855
Publisher

ANNE LANGHENRY
(216) 891-2739
Regional Sales Manager

PAUL GARRIS
(216) 891-2729
Regional Sales Manager
7500 Old Oak Blvd.
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LAWN CARE INDUSTRY (ISSN 0160-6042) is published monthly by Edgell Communications, Inc. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising Offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130, 233 North Michigan Avenue, 24th Floor, Chicago, Illinois 60601 and 3475 Lenox Road, N.E. Suite 665 Atlanta, Georgia 30326. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: \$25 per year in the United States; \$50 per year in Canada. All other countries: \$100 per year. Current issue single copies (pre-paid only): \$2.50 in the U.S.; \$5.00 in Canada; elsewhere \$10.; add \$3.50 for shipping and handling per order. Back issues, if available \$10; add \$3.50 per order for shipping and handling (pre-paid orders only). Office of publication: Edgell Communications, Inc., 1 East First Street, Duluth, Minnesota 55802. Second class postage paid at Duluth, Minnesota 55806. Copyright © 1990 by Edgell Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

POSTMASTER: Send address changes to LAWN CARE INDUSTRY, P.O. Box 6200, Duluth, Minnesota 55806.

BPA

An "Environtron" is an enclosed structure for the study of turfgrass. One is planned on University of Florida property in Gainesville. The Florida Turfgrass Research Foundation is funding the 3,172-square-foot structure. It will cost about \$700,000, half of which the foundation hopes to raise by March 15, 1991.

Contributions to the Anne Seamen Memorial Fund to improve and beautify The International Peace Garden: PGMS, 10402 Ridgland Road, Suite 4, Cockeysville, MD 21030. Anne

Seamen, a longtime PGMS member and a horticulturist, was chairman of the Peace Garden Committee for years.

The Accrediting Council for Continuing Education and Training (ACCET) approved official accreditation for continuing education programs offered by the Golf Course Superintendents Association of America (GCSAA). ACCET is the official accrediting agency for non-collegiate continuing education.

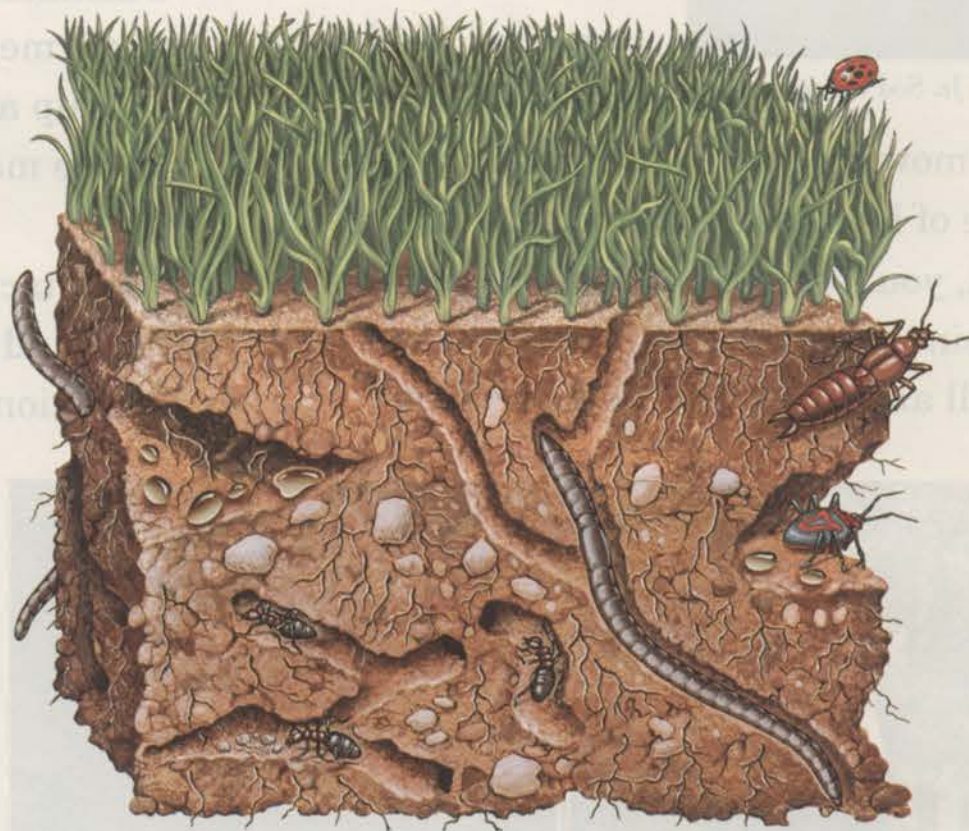
Dr. Pat McGinnity, vp of research

& development at Ringer Corp., Minneapolis, offers these definitions. *Natural organic*—must have plant or animal origins. *Synthetic organic*—material with organic (carbon) molecules that is not plant or animal.

Congratulations to Weed Man—20 years old this year, says Des Rice. The Canadian lawn care firm marks the anniversary by offering composters—"at a very attractive price"—to its customers.

Ohio Professional Lawncare Association organizes Jan. 9, Columbus. Sponsored by Lesco, Inc.

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Atlanta's role in turfgrass industry growing

With apologies to Nashville, host of the Green Industry Expo and a marvelous city in its own right, Atlanta is where it's at in the South, particularly in the turfgrass world.

This will become increasingly evident as 1996 rears. That summer Atlanta hosts the Olympic Games. The selection was somewhat

surprising. The odds-on favorite was Athens, Greece, site of the first modern Olympic Games almost 100 years ago.

Atlantans were understandably elated with the September announcement, though you'd search long and hard to find a native Atlantan. Businesses from across the United States

and, increasingly, the world see Atlanta as the key to Southern markets and



RON HALL

EDITOR

established offices there. Nevertheless the people of this metro area, whose suburbs and freeways already spread into 18 surrounding counties, displayed remarkable determination in convincing the International Olympic Committee to allow the games to return to the United States. This determination will accelerate

as Atlantans begin preparing the city for the thousands of athletes in 1996.

It's especially exciting for the turfgrass industry here. We'll certainly be asked to help because world-class athletes demand world-class facilities (although you can certainly argue that any athlete, young or old, deserves as safe and pleasant a playing area as possible). Also, television coverage will be worldwide.

Georgia turf experts, I'm convinced, will help Atlanta put on a remarkable show.

In an unrelated matter, the University of Georgia recently published the results of a survey of the lawn care industry in metropolitan Atlanta. Though data from the survey represents the 1987 calendar year, it shows a vibrant and growing lawn care market. Of the 271 known lawn care firms in that area, 68 responded.

Some of the findings reported by Tim R. Murphy in the *Georgia Turfgrass Association News*:

- lawn professionals took care of almost 27,000 acres in residential properties and another 27,000 in commercial;

- the top five turfgrass-related problems were weeds (82%), water restrictions (70%), labor (52%), soil problems (39%), disease and operating budgets (tied for fifth at 36%);

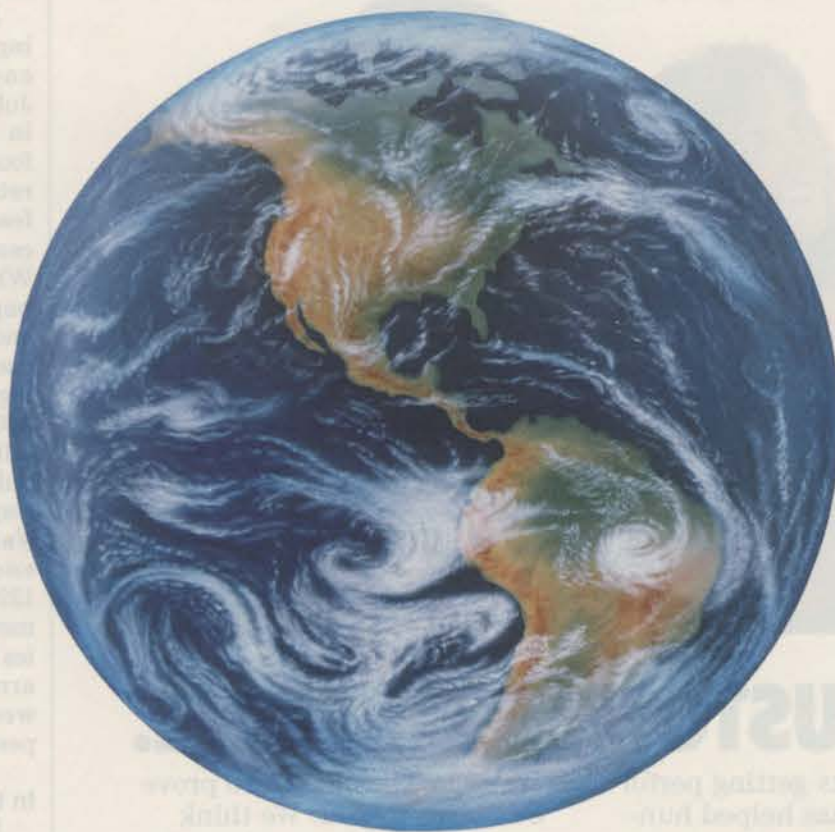
- tall fescue (52%), hybrid Bermudagrass, and common Bermudagrass (20%) were the top three turfgrasses maintained by lawn pros;

- services offered by lawn pros include fertilizing (96%), renovation/reseeding (93%), pre-emergence weed control (91%), post-emergence weed control (90%) and core aeration (85%)

The survey estimated gross revenues of the Atlanta-area LCOs at \$116 million. Lawn care counted 4,000 fulltime and 2,000 part-time employees here with a payroll of \$53 million.

It's likely these figures were even greater for this past application season. Atlanta's growth has continued at a faster clip than cities in the Northeast or Midwest. LCI

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Ron Hall

Here's how endophytes will help lawn care pros

BY STEVE POITRAS

More and more people see lawn chemicals as health or environmental dangers. Yet, many of these same people don't make the connection between turfgrass and a healthy, relaxing living environment. Do they realize how much different their lives would be without lawns or parks?

Even so, as concerns grow about the effects of chemicals

on our lives and our environment, it becomes harder to argue against the need to reduce the amount of chemicals we're using on lawnglass. This places the lawn care expert in a dilemma. The public wants pest-free, disease-free quality turf, yet the lawn pro is being forced to reduce the use of the very chemical tools that can deliver this result.

Help on way

But the picture isn't as bleak as it might seem. Other products and approaches are gaining in importance and helping the lawn professional serve customers, examples such as slow-release nitrogen that reduces the potential of nitrate leaching into the groundwater; biostimulants that help grass plants remain healthy at lower fertility rates; and turfgrasses with high endophyte levels.

Many lawn pros don't understand what endophytes are or what they do. But they should. Endophytes will help them grow and maintain healthier turf and use less chemicals too!

Helpful fungus

Endophytes are a type of fungus symbiotic with certain species of grass, and specific varieties within species. The endophytes get their food and protection by living inside the grass plant, but don't harm the plant. In fact, endophytes produce and release substances into the leaves of grass plants that make them resistant to insect pests such as billbugs,

chinch bugs, armyworms and sod webworms. To date, only certain varieties of tall fescue, perennial ryegrass and fine-leaf fescues contain endophytes.

The endophyte was discovered in the late 1800s, but little significance was attached to it until it became known that livestock grazing on pasture grasses containing high levels of the fungus weren't as robust or healthy as animals feeding on endophyte-free grasses. It wasn't until 1982 that their potential importance to turfgrass culture became evident.

The good guys

The main endophytic fungus that protects turfgrasses from insects are from the genera *Acremonium* with different endophyte species for different grasses. For example, *Acremonium loliae* infect perennial ryegrasses and *Acremonium coenophialum* tall fescues. The by-products produced by the endophyte include a wide range of chemicals including various alkaloids. These chemicals provide a natural insecticide in the plant.

Researchers are documenting the effectiveness of these endophytes. For example, Johnson, Cicalese and White, in a study earlier this year, found an 80 percent mortality rate of billbugs on infected tall fescue plants and only 42 percent on endophyte-free plants. When comparing chinch bug populations on endophytic and endophyte-free fine fescues it was found that varieties high in viable endophyte, SR 3000 hard fescue and Longfellow chewing fescue, had only 42.4 and 55.7 chinch bugs respectively per square meter. Varieties of fine fescue low in endophytes had 185.7 and 132.6 chinch bugs per square meter. There are similar studies dealing with sod webworm, armyworm, Argentine stem weevil and other turfgrass pests.

In the leaf

Distribution of the endophyte within the plant varies. The highest concentration occurs in the leaf sheath and seed, followed by the stem and crown regions of the plant. Recent studies indicate that the roots have the lowest concentration, probably explaining why endophyte-enhanced grasses are more resistant to surface feeding insects than subsurface feeders. There also appears to be seasonal variation of endophyte concentration within the plant. The highest concentration of infection occurs in the leaf tissue during the summer and fall.

Once turfgrass scientists and managers started to key in on endophytes they discovered other benefits. Evidence suggests that endophyte-infected plants are more vigorous, particularly

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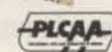
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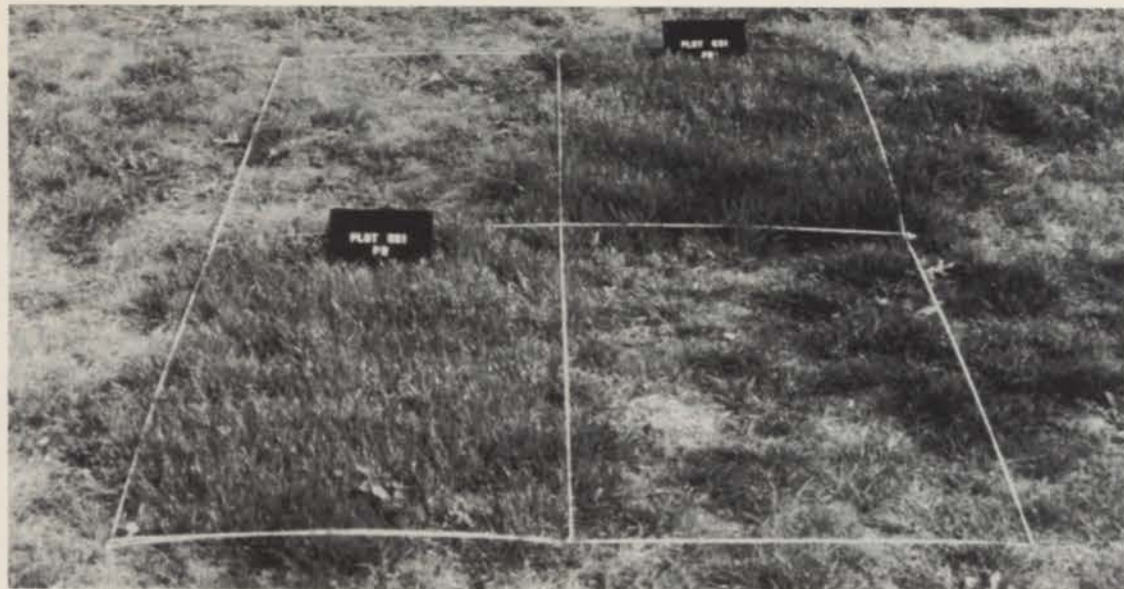
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The presence of endophytes can be dramatic. The plants in the lower left and upper right have them.

during periods of stress. In a fine-leaf fescue trial, scientists reported no significant difference in turf quality when the plots were maintained at high maintenance levels but, when irrigation and fertility were reduced, the fescues with endophytes had a significantly better quality than did non-infected varieties.

Also field experiments have documented better summer survival for plants containing high levels of endophytes, better fall recovery and reduced weed invasion.

Plants healthier

Heartening also, it appears that the percentage of plants containing endophytes increases while the endophyte-free plants die off. This phenomenon ensures that once you plant endophyte-infected turf it will remain infected and the benefits will be long lasting.

There is only one way to get the endophyte into your turf, you must start with seed that is already infected. Endophytes can not be "applied" to turf in any way. Be advised, also, that only certain varieties of tall fescue, perennial ryegrass and fine-leaf fescues contain high levels of viable endophyte.

This word *viable* is important. The amount of live endophyte in the seed will decline over time. This is especially true if the seed is not stored in cool dry conditions. Your only guarantee that the endophyte in your seed is still viable is to buy fresh seed. Seed that is over two years old will more than likely have less viable endophyte. Buy the freshest seed available.

The endophyte is not the total answer to the environmental issues facing LCOs, but it's likely their presence in the new species and varieties of turfseed coming on the market will significantly reduce the amount of pesticides needed to control insect pests while also providing the turf with more vigor. LCI

About the Author

Steve Poitras is marketing manager of Seed Research of Oregon, Inc., P.O. Box 1416, Corvallis, OR 97339.

Fuller, Packer offering buyers co-op for LCOs

LOUISVILLE, KY—Green Industry Cooperative (GIC) is a new buyers co-op for the green industry, say originators Dave Fuller and Mike Packer. Fuller is former owner of FullCare Inc., and a director for the Professional Lawn Care Association of America (PLCAA), and Packer is a former vice president of sales of the Bunton Company.

GIC's target is the medium to small lawn care or landscape company that traditionally doesn't benefit from volume discounts from manufacturers, says Fuller.

GIC members will purchase products locally at market prices, using their present dealers and distributors, then inform GIC of their selections for cash rebates from participating manufacturers.

"At this point the response from most manufacturers has been very positive," Packer tells *Lawn Care Industry* magazine. GIC, PO Box 6954, Louisville, KY 40206. 502/895-0222. LCI



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First general membership meeting of LCAP. (l. to r.) Christine King, Patricia Raffaele, Bill DeHaven, Mark Phipps, Jim Walters, Michael Kravitsky, Jamie Brueninger, Neal DeAngelo, and John Carson.

Pennsylvania LCOs get LCAP off to strong start

STATE COLLEGE, PA—The Lawn Care Association of Pennsylvania (LCAP) got off to a strong start at its first general membership meeting here August 30.

● Bill DeHaven, Government Affairs Committee, reported on LCAP's actions concerning the communities of Plum Creek Borough (Bucks County) and the city of Bethlehem where anti-pesticide regulations are being considered.

● Jamie Brueninger,

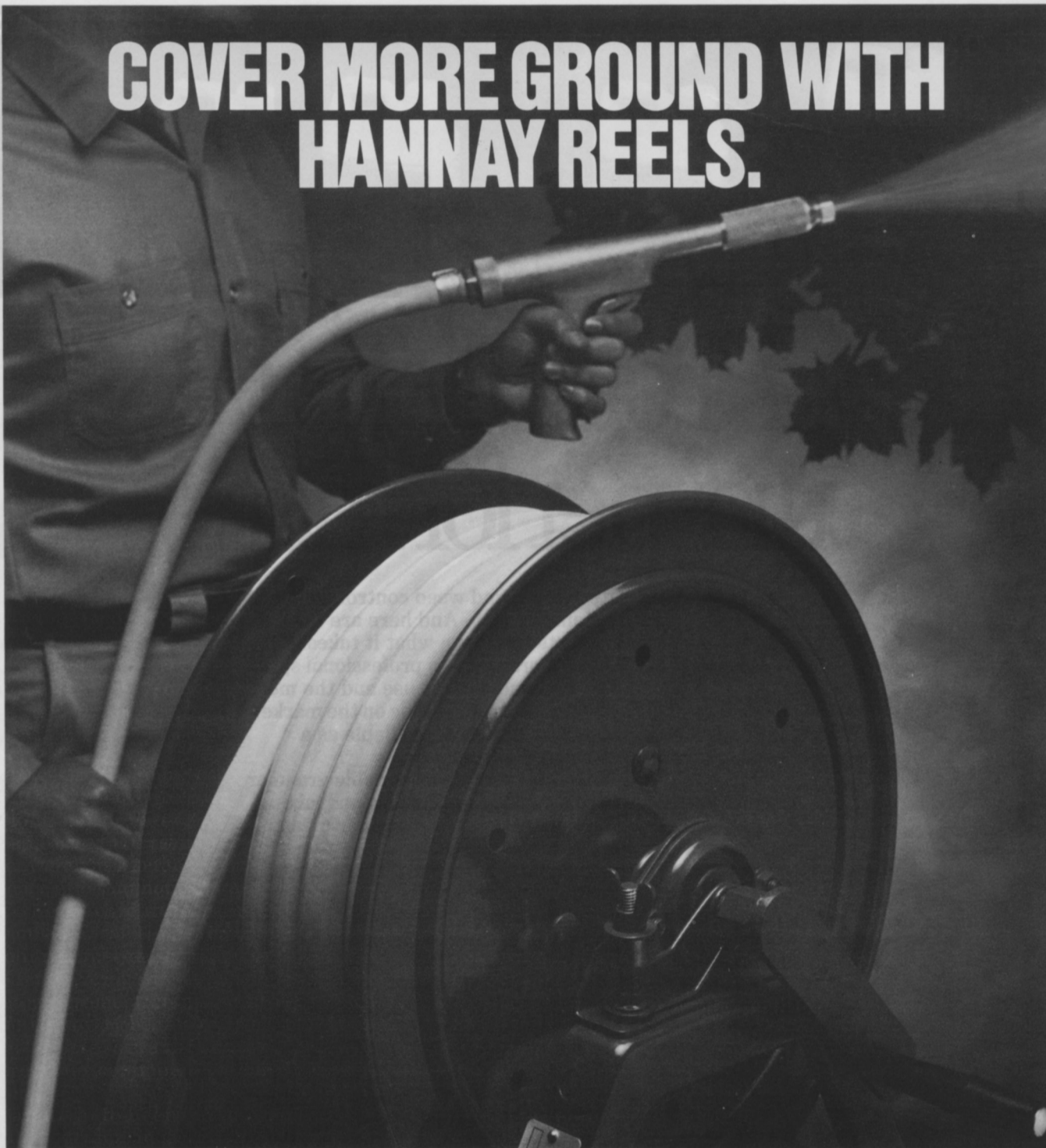
Training and Education Committee, said the first draft of a technician training manual has been completed. Penn State University personnel helped.

● Neal DeAngelo, LCAP president, reported on the development of LCAP position statements on such issues as prenotification and posting, integrated pest management, use of written contracts in lawn care, etc. Draft position statements are to be circulated to LCAP members for comment.

● Mike Kravitsky, Ethics and Standards Committee, said a code of ethics has been adopted by the Board of Directors and will be distributed to members.

Of the 80 member lawn care companies in LCAP, 45 were represented at the meeting, held in conjunction, with the 1990 Pennsylvania Turfgrass Field Days, reports John A. Carson, of J.C. Ehrlich and an officer in LCAP. LCI

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Siegfried started Oct. 1

Siegfried is new ChemLawn pres.

ST. PAUL, MN—David Siegfried became president of ChemLawn Services Corporation, a subsidiary of Ecolab Inc. on Oct. 1. He had served as executive vice president, strategic development with ChemLawn.

Siegfried will be reporting to Michael E. Shannon, Ecolab executive vice president and chief financial officer, who has overall responsibility for the company's residential services.

Siegfried joined ChemLawn in March 1990. Prior to that he was president of Burlington Airline Express, Irvine, CA. He received his B.S. in political science from Brown University, Providence, RI. LCI

When Tim Doppel moved up to TURFLON, his bottom line followed.



"The first year we used TURFLON, we realized a \$1,200 savings on service call costs."—

Tim Doppel, president
Atwood Lawn Care, Inc.
Sterling Heights, MI

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And using TURFLON has one more advantage, Tim adds. It's the reason he's been able to reduce callbacks and cancellations: "My customers are happier."

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Reynolds LC: a tight, bright operation

Owner feels LCOs must stress factors other than green and lush

BY RON HALL
editor

Franks Reynolds, slender and well-spoken, runs one of the brightest, tightest lawn care companies in New England.

Reynolds Lawn Care Inc. is, in some respects, a model chemical application company—from its neat, comfortable offices to its polished tank trucks (even the seven- and eight-year-old trucks look new) to its advanced pesticide storage/mixing/containment system.

"It's kind of like the saying, *take care of the pennies, and the dollars take care of themselves*," says Reynolds of his business philosophy. His comment takes on obvious meaning in the well-scrubbed appearance of his company, located in a small commercial complex of low-slung, modern metal buildings about a 20-minute drive out of New Haven, CT. It's a pleasant, rural area.

Reynolds began his professional lawn care career 20 years ago as one of the first franchisees for Lawn Medic. About eight years later he struck out on his own and targeted the growing number of business and affluent residential properties emerging along the I-95 corridor. His market area is concentrated in a radius of about 35 miles from his offices. But some of the economic bloom has faded from the area as it has in many parts of New England. Some of Reynolds' most steady customers, the high-income-earning business commuters, are looking to cut corners.

"My white collar routes are



Frank Reynolds, in the lawn care business 20 years, says it's time industry and activists opened a dialogue

soft," says Reynolds, "typically the \$500,000 to \$600,000 properties with the \$2500-a-month mortgage payment. This person is looking for ways to reduce expenses."

This change is driven by economics, says Frank, but the public's perception of LCOs—and the chemical products they use—is causing a more profound change in his business. This shift has caused Reynolds to focus more on the benefits of maintaining healthy turf and stressing such factors as safety, erosion control, dust reduction, etc., and not exclusively on the "lush, look good" approach.

"Don't show me a marketing piece that says that you should hire Reynolds Lawn Care because it's going to give you a greener, thicker lawn," says Frank. "Show me how I can provide a family with something it really needs like a safe place for its children to play."

And this safety issue, by definition almost, revolves around the pesticide issue,

particularly in New England. But, unlike some of its neighbor states, the "environmental" community and pesticide-using industries in Connecticut have been able to compromise.

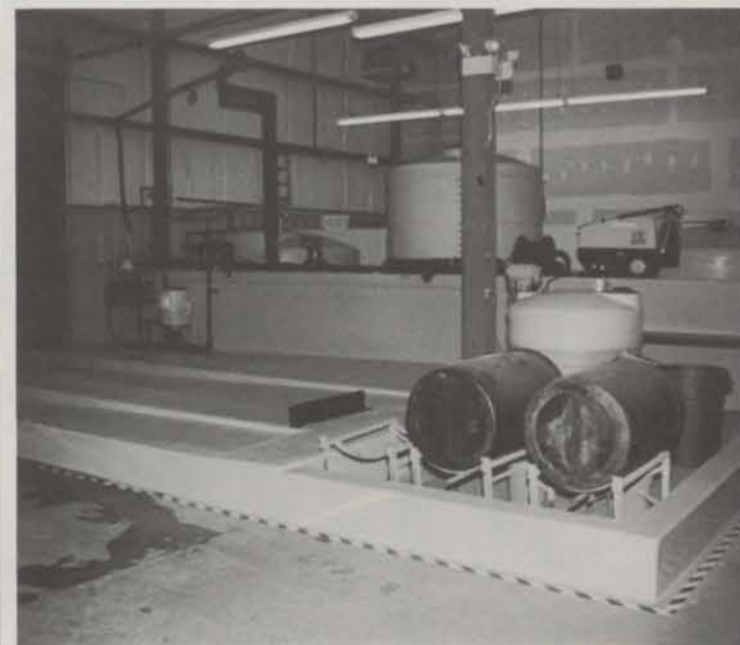
Reynolds has been a part of these compromises. He was one of three industry people who, representing 18 user groups in the Professional Pesticide Users of Connecticut (PPUC), met with three activists to hammer out the language of a state law outlining posting and pre-notification requirements for professional pesticide users (excluding agriculture). But industry and activists also agreed that homeowners should be required to post and notify abutting neighbors when they use pesticides. This is significant. It hasn't happened in any other state. (The Connecticut law passed Oct. 1, 1988, is expected to go into effect later this year.)

"We believe that pesticides can be applied safely by trained commercial applicators and, potentially, abused by the untrained user;

and we as a group insisted that if we were going to post then, by gosh, the homeowner was going to post too," says Reynolds.

In fact, training is probably at the heart of the pesticide issue, Reynolds feels, which includes both agronomic and public relations training. He says his supervisors are ex-

tremely capable in both diagnosing turf problems and dealing with property owners. "We're a quality-driven company. We want to prove that we can grow and manage quality turf. And if a client has questions, we're more than willing to sit down with them and discuss their property," says Reynolds. **LCI**



Connecticut firm has spotless product loading/mixing area.

NLA says 1989 was up and down

WASHINGTON, D.C.—Successes and slumps.

That's what the National Landscape Association (NLA) described the 1989 business year in its 14th annual Economic Survey of member firms.

The NLA also kept a close eye on The National Association of Home Builders which reported stagnant or falling prices in some former real estate hot spots on the east and

west coasts. Members of that group were somewhat pessimistic about future home sales, but this didn't totally dampen the NLA's outlook. It reasoned that if people stay in the same house longer, they'll be more apt to upgrade their landscaping.

The NLA survey according to region:

• **Northeast.** An economic slowdown. Total landscape sales for 1989, "by far" the

worst reported with an average 6 percent growth. Overall, sales, including maintenance, were up only 2.3 percent. New residential landscaping was down 0.3 percent, while new commercial projects were down 1.8 percent. Renovation barely fared better with residential work up just 5.5 percent.

The NLA pointed to several factors for the slowdown: Wall Street fluctuations that

caused many layoffs, continued high unemployment in some areas, early winter 1989 freezes.

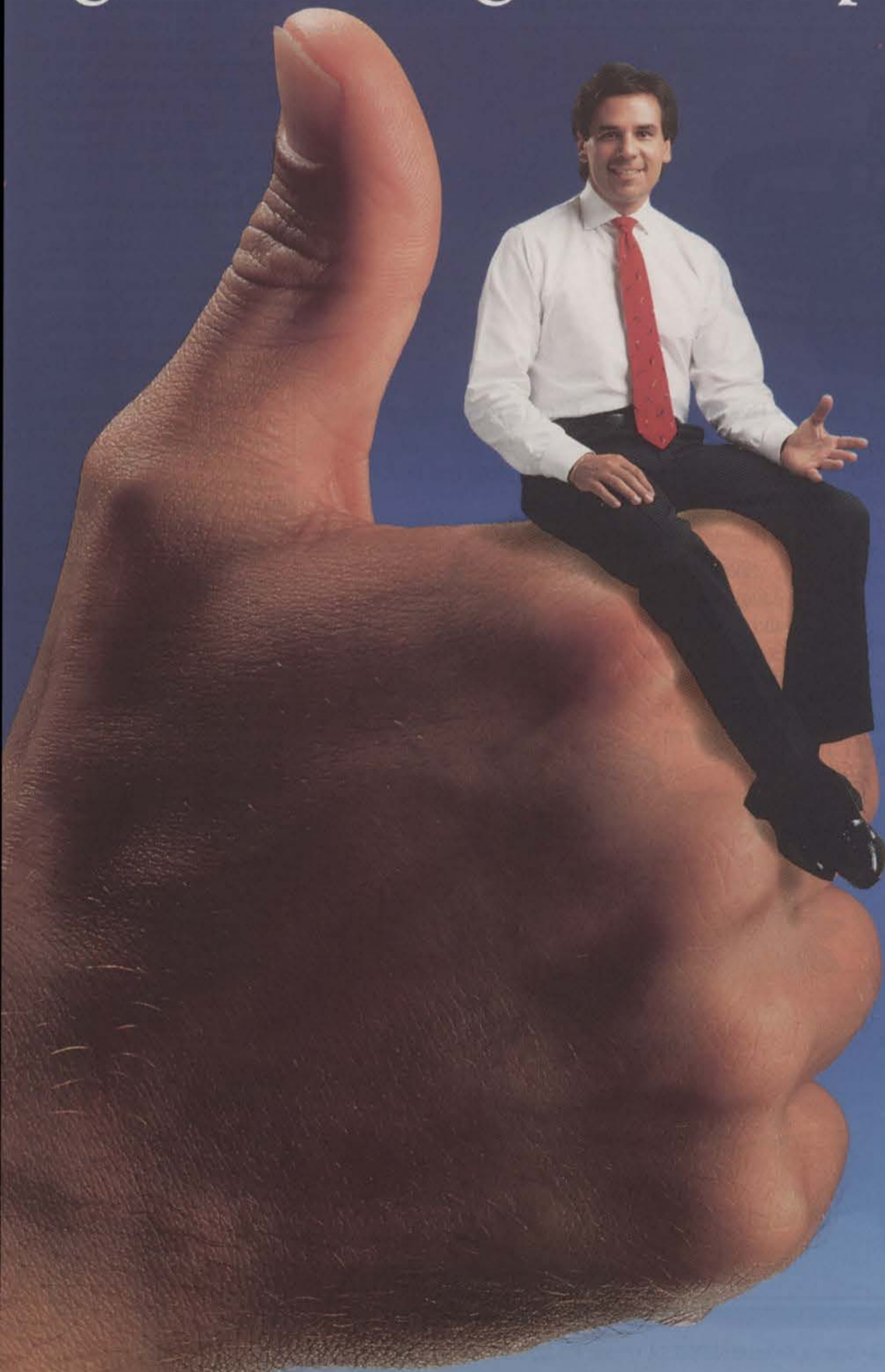
• **Southeast.** Slowing growth everywhere but Florida. NLA's survey reports an overall growth of 29.1 percent in total landscape sales for 1989. Overall, sales, including maintenance, were up 16.3 percent. New residential and commercial projects were the

See **NLA** on page 25



Doug Jensen, manager with excellent diagnostic ability

When Rick Steinau moved up
to the performance of
TURFLON, his customers
gave him a big thumbs-up.



"TURFLON* herbicides give us about 95% control of problem weeds. The standard three-way products give control in the 80-85% range."—

Rick Steinau, president
Greenlon Lawn Care Services
Cincinnati, OH

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Move up to TURFLON



*Trademark of The Dow Chemical Company

Circle No. 115 on Reader Inquiry Card

Prepare a business plan before implementing IPM

BY DWAYNE MOLL

Starting an integrated pest management (IPM) program may seem like quite an undertaking but it can be done if you do it a step at a time. Actually the agronomic techniques are fairly simple and easily understood, given that you have a working knowledge of horticulture. But, you must also have a business plan.

Elements of a business plan

should contain:

• **Proposed products and services**—Determine the precise services you will provide. Pruning? Aeration? Thatch reduction? You must also decide how these technical services will be delivered, and what control products you'll be using.

• **Program goals**—Don't make profits the only goal of your operation. Is your goal to keep up with the competition?

Do you want to simply add on another service upgrade (why)? Do you have some key employees that you would like to see develop professionally so they can become star assets for your business?

• **Opportunities**—What are the benefits of the program? Will it give you potential for growth? Although you're reading a lot about the nation's environmental concern, that doesn't mean your

region will automatically be a good market for IPM. Or maybe it is. Good market research may be necessary.

• **Competitive edge**—Is your operation more technically proficient than others in your market area? Maybe your customer servicing record outshines the competition. Identify your strengths. Capitalize on them.

• **Financial status/position**—Will your balance sheet and relationship with the bank allow the startup and financing needed to implement this new service?

• **Financial projections**—Determine your budget and pricing structure.

Pinpoint those areas of additional costs both for startup and for continued operation. Don't let your budget become your business plan.

• **Marketing plan**—Know where you're going and how you'll get there. Identify your target market. Package your message. Get the word out. Close the sale.

• **Management and staff**—Research what positions and systems will be needed to service the customer and provide support for the field personnel.

• **Equipment and support systems**—Will a computer be necessary? What will your IPM specialists be taking into the field with them?

• **Implementation schedule**—Determine which phases will be finalized when. You obviously don't want to be putting together your marketing plan in March, when the selling season is already slipping away.

• **Research and development**—Be able to evaluate new materials and techniques. This will help you improve your service and keep the competitive edge. This may also allow you to continue offering certain services if other materials are removed from the market.

• **Future plans**—What will your operation be like in five years and how can you prepare for it? Maybe you don't have a computer but are planning to purchase one in two years. It would be prudent to structure your IPM service so it can easily fold into a computer down the road.

• **Pitfalls**—We all like to brag a little from time to time about our strengths but we need to take an honest look at our operation to discover our weaknesses so that they can be minimized. Also, will the market change? How about employee turnover? Equipment longevity?

The business plan outlines the service, the marketing approach, how the servicing will be done and who will be involved in the company. This may sound like nothing more than Business 101. That's because it is. These are sound principles. Given that, it makes sense that the necessary time be spent fleshing out the business plan.

Plant your top-flight IPM program on a sound business footing, and chances for success increase. LCI

About the Author

Dwayne Moll is president of Horticulture Concepts, Aurora, CO, a landscape management consulting firm specializing in IPM, chemical use and evaluation and training for turf and ornamental management.



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Bob Kapp, President and CEO
Kapp's Green Lawn
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Its rewards.

"TURFLON did a much better job, particularly on our problem weeds like wild violets, ground ivy and spurge," Bob continues. "Since switching to TURFLON, we've reduced our weed related callbacks and service cancellations by 50% from a year ago." With performance like that, you'll be able to add some sweetness to your bottom line. Call us to find out more.

1-800-352-6776.

Move up to TURFLON



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Circle No. 114 on Reader Inquiry Card

Des Rice thinks the world is ready for lawn care

"Weed Man": LCOs will defeat slowdown

Take heart LCOs. Even if the economy worsens, the public will buy professional lawn care.

So says Des Rice and maybe he should know. He's been in the business 20 years and built and operates the highly successful Weed Man network in Canada (soon to be international, but more on that later in the story).

Rice says he won't describe the lawn care business as recession-proof, but his company has grown each time the economy sagged. "I hope it stays that way," he says.

"We're up about 20 percent this year," says the 42-year-old Rice, who founded Weed Man in 1970, and began selling franchises—he prefers calling them dealerships—in 1976. "That's not quite the sales increase we had forecast for this year, and it's a little below our average growth over the last few years, about 25 percent, but we're very pleased with our growth this year. It's a respectable increase, particularly under the current economic conditions."

Unlike many businesses, Rice says the lawn care business "has a definite tendency to improve when the economy gets a little tougher. Under the kind of economic conditions we're currently experiencing, people seem to travel less, which means that they spend more time at home. They want their homes to look better, and a good-looking lawn contributes a great deal to the overall appearance of a home."

"There's another reason for our current growth: most people don't like to do what we do. They also realize that we can do their lawn care work for what it costs them to do it themselves, and we'll probably do a much better job," says Rice, adding that the average

cost of the Weed Man's service is \$160-\$175 a year for five treatments.

He says Weed Man is forecasting another year of growth and expansion in 1991 despite concerns about the Canadian economy. "We're projecting a 20 percent increase in our dealer group, with another 20 joining us during 1991. There will be some new dealerships opened; in other cases, the bigger dealers will be splitting their territories into more manageable areas. We help them to do this," he explains, "because of our expertise in this businesses. We have several large dealers who have achieved their personal goals, and don't want to continue working as hard as they have, so a sub-dividing of their territories is the ideal solution to their situation."

Rice says his company's sales have continued to grow for several other reasons. "We provide Weed Man dealers with a great deal of training, both in technical areas and in management skills. We bring them (the dealers) together twice each year, and we work very hard at giving them the best training available. We bring in top speakers, like Stan Brown, who has written a great book on service excellence. When Stan spoke at our dealer seminar, we spent an additional \$2,000 to give everyone in attendance a copy of his book. We don't cut corners on dealer training, and the dealers seem to appreciate these seminars. We have a 75 percent attendance rate, which is one of the highest in the industry."

Rice says there's another important reason for the company's continued growth: the availability of new products for the dealer network. "Take our latest product. It's called Wizz-Away, and is a chemical product that was developed in the United States to heal lawn damaged caused by dogs and salt. We have the Canadian rights for this new product, which is comprised of non-toxic, natural organic ingredients that speed up the healing of grass damaged by dog urine and other salt substances. This product is available through our dealers, and is selling very well for its first year in the Canadian marketplace."

He says his goal is a "world-wide lawn care organization." Weed Man has already opened its first dealership in the United States. "We'd have more but the state laws on franchising and chemicals vary so much that we have to move slowly."



Des Rice says "the world" wants professional lawn care. He's hoping his familiar green and yellow trucks are there to provide it, particularly Europe and the Far East.

Rice also plans to expand into the United Kingdom, Europe and Australia over the next three or four years.

Recently he headed a Canadian trade mission organized by the Canadian Franchising Association, with support from the Canadian government. Rice and the other seven Canadian franchisers took part in a major franchise show in Melbourne, Australia under the auspices of the Australian Franchising Association. He wants to develop a master plan for Australia and

New Zealand.

Some of the European countries are also potential markets. "There's a little different mind-set in every country, and in every region, it takes time and experience to develop that local knowledge that you need to be successful in that marketplace," says Rice.

Rice admits that the success of Weed Man—which he started with a \$500 truck, a used pump, and a couple of oil drums to hold chemicals—has "exceeded even my most op-

timistic expectations." But he says he still has one complaint about the business: "Why is it that every successful franchise becomes known as something else—like an automobile dealer, or an associate store. You don't hear a McDonald's outlet called a franchise, but that's really what it is. It seems that franchise is more of a catch-word than anything else. Personally, I much prefer the word dealer. It's like I tell people: We're in the franchise business, but we sell dealerships." **LCI**

CPDA behind recycle push

WASHINGTON, D.C.—The Chemical Producers and Distributors Association says it's time to recycle all agricultural plastic pesticide containers. (Can a similar push for related industries be far behind?)

Warren Stickle, president of the CPDA, called for the creation of a national collection program for plastic con-

tainers (especially 1-, 2½- and 5-gallon containers) supported by an industry-funded program similar to Superfund. "Containers could be processed for recycling at a county or multi-county site, under state supervision and regulation, with equipment purchased through a federal grant system," he said. "The entire process could be supported by fees paid by pesticide registrants."

He proposed that those re-

turning the pesticide plastic containers be paid a fee for each returned. Stickle said the program would:

- establish a workable national plastic recycling program.
- help recycle as much as 40 million pounds of plastic per year.
- reduce the waste presently heading toward landfills.
- assist farmers and other users in finding safe and workable solutions to disposal. **LCI**

PGMS edition being offered

COCKEYSVILLE, MD—The Professional Grounds Maintenance Society's 6th edition of the *Grounds Maintenance Estimating Guidelines* is available. It includes charts to help

cost a job, including the "hidden costs" in projects.

Also available are the *Grounds Maintenance Management Guidelines* and the *Grounds Management Forms and Job Descriptions Guide*. Each manual costs \$12 if check is sent with order and \$15 if billed. They're free for PGMS

members.

The 1990 PGMS Membership Director is also available and can be obtained by non-members for \$30 (free to members).

PGMS, 10402 Ridgland Road, Suite 4, Cockeysville, Maryland 21030. Telephone: 301/667-1833. **LCI**

Lesco reports top 3rd quarter

ROCKY RIVER, OHIO—A sales increase of 18 percent over 1989 boosted Lesco, Inc., to its best third quarter ever.

James I. FitzGibbon, chairman and chief executive officer, reported Lesco's sales at \$32,765,100 in the third quarter ending August 31. He put the company's net income at \$1,162,200.

"Our second quarter this

year also established record sales and earnings," said FitzGibbon. "Taken together, the two periods reflect the benefits of capital investments which have broadened our product line and increased the capacity, productivity and

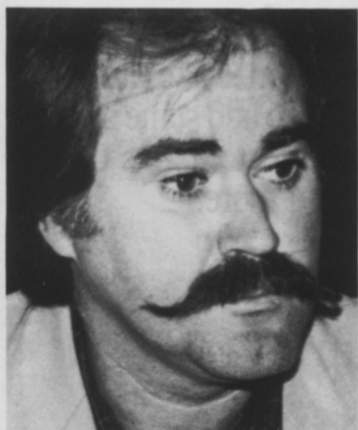
efficiency of our nationwide marketing and manufacturing activities."

FitzGibbon said Lesco is eyeing new service centers, in part because of the opening of a new fertilizer production plant in Martins Ferry, Ohio. **LCI**

Green industry video now ready

SUTTON, MA—The Green Industry Council says its video "Growing Futures" examines careers in the green industry.

\$49.95 per video, color poster and booklet. Contact: Green Industry Council, PO Box 171, Sutton, MA 01590. **LCI**



The lawn care business tends to improve when the economy slows—Des Rice, founder of Weed Man.

IOWA

from page 1

it didn't name) had mislead the public by claiming lawn pesticides are safe.

Contacted by *Lawn Care Industry* magazine in mid October, Moline said he had just begun gathering information from the three lawn care companies. "It will proceed from here like any other civil complaint," he said. "We will evaluate the complaint and break it down into its important points. Then it's likely we'll present what we've found to an expert.

"I think it's safe to say that a decision one way or the other isn't imminent."

The complaint itself reportedly runs about 500 pages, many of which are not central to the misrepresentation issue, added Moline.

Daryle Johnson of All-American told *Landscape Management* magazine that his company was apparently singled out because its literature says that, "These products selectively control weeds and insects. Once properly diluted and applied according to label directions, they pose no unreasonable health or safety risk to people, pets or the environment."

The complaint prompted news stories in the *Cedar Rapids Gazette*, *The Daily Iowan*, the *Iowa City Press-Citizen* and other local and state newspapers.

In one of the news stories, John Chaney, owner of the Corralville Spring Green franchise said he would supply the attorney general's office with every piece of advertising he has ever used.

Indeed, Moline said all the lawn care operators said they would cooperate.

"The lawn care industry has an unparalleled record of safety," All-American's Johnson was quoted in the *Cedar Rapids Gazette*. LCI

GIE

from page 1

with PLCAA, the designated show management organization.

Show schedule:

• Monday, Nov. 12, 6:30-8 p.m., Convention Center.

• Tuesday, Nov. 13, 10:30 a.m.-3:30 p.m., Convention Center.

• Wednesday, Nov. 14, 10-30 a.m.-3:30 p.m., Convention Center.

On Thursday, Nov. 15, there will be an Outdoor Equipment Demonstration at Centennial Park. LCI

Contamination risk small with intelligent applications

PLCAA guidelines to avoid runoff

MARIETTA, GA—The Professional Lawn Care Association of America says the risk of pesticide contamination in wells, streams and ponds is minimal when moderate amounts of fertilizer are applied to actively growing turf.

Pesticides should be sparingly and according to label instructions.

The PLCAA guidelines:

• Avoid heavy applications of nitrogen fertilizer, especially during seasons when turf is not actively growing.

• Use slow-release nitrogen sources as much as possible on and may not be capable of limiting runoff. For example, grass cultivated around new construction should not be heavily fertilized.

• Never apply lawn care materials within ten feet of a stream, brook or pond. Wider setbacks should be used if requested by the customer or required by state or local law.

• Always follow the rate directions listed on pesticide labels, and calibrate equipment

often.

• Avoid applications around wells with cracked casings and over shallow, gravel-packed wells.

Robert E. Bushouse, owner of Green King of Kalamazoo, Mich., says a few years ago he began offering phosphorus-free lawn fertilization to customers who lived near lakes.

"Because we mix our own fertilizers, we can avoid using phosphorus, which is not good for lakes," says Bushouse, who eventually stopped using

phosphorus altogether. To promote root growth, he mixes potash into his formulas instead. LCI

RM Turf Show

DENVER, CO—Rocky Mountain Turf Conference, Dec. 3-5, Holiday Inn at I-70. LCI

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Is attending the PLCAA confab tax deductible?

Although the rules covering deductions have been changed by recent tax laws you can still write off a lot of costs.

BY BESS RITTER MAY

You may be wondering whether you can afford to go to the Professional Lawn Care Association Conference. You can probably afford the trip and I'll tell you why—many of your expenses will be tax deductible.

That is, if you keep careful records to prove your deductions. And it's an important "if".

The IRS uses what it calls a primary purpose test to decide whether expenses for attending a convention are deductible. This test simply means that the primary purpose of the business trip must be business related. A good example is the cost of traveling to and from a convention site—plane, train, bus, auto or by any other suitable means. They're only deductible if the primary purpose of your trip is business. You can't write off the travel if it's to visit Uncle Joe and Aunt Minnie who live near the convention site.

Deductible expenses

Other expenses you can deduct if your trip is primarily for business purposes:

- taxi and bus fares for traveling between terminals and your hotel transportation from the hotel to the conven-

tion center;

- reasonable amounts for handling baggage, samples and display materials, other display expenses as the cost of sample rooms and convention hospitality suites;

- non-extravagant lodging;
- parking and registration fees;

- a portion of food and beverage costs;

- tips and telephone expenses incurred in connection with the business meeting or convention.

Some business entertainment expenses are also deductible. The IRS even considers evenings spent at the movies, sporting events and nights out on the town as associated entertainment costs, plus meetings with clients, customers and business associates if you have a general business reason for getting together. The rule also applies if you are a rep for regional product lines, own or represent a wholesale business or are a distributor.

Discuss business

Get-togethers may be held between convention events or in the evening at their conclusion. But none are allowable unless only business matters are actually discussed.



How about a short vacation to a nearby resort after attending the PLCAA show? Is that income tax deductible? Not if the main purpose of the trip is personal. The IRS determines whether any given trip is primarily for business or personal reasons by determining how much time is spent on personal activities compared to that directly relating to the convention, trade show, or business meeting. If you spend one week attending the PLCAA convention in an out-of-state location and the following five visiting a relative

who lives nearby, expect the IRS to view your trip as primarily personal.

But regardless of its primary purpose you may deduct any business expenses you incur while you're in the area. Example: Your business is in Philadelphia and you attend the Nashville convention. You stay there for six days and your total expense, including round-trip transportation, meals and lodging, is \$1,000. This may be deducted. If, on your way home, you spend three days in the Virginia to visit relatives and spend \$100

per day in travel and related costs your deduction is still limited to only the \$1,000 you spent getting to and from (and in) Nashville.

Be careful when claiming deductions if the convention is in a resort area because most attendees usually combine business with pleasure when listing deductions. The IRS is very well aware of this its agents really scrutinize claims concerning conventions in such sites, especially when the attendee is accompanied by a spouse and children.

Wife and kids?

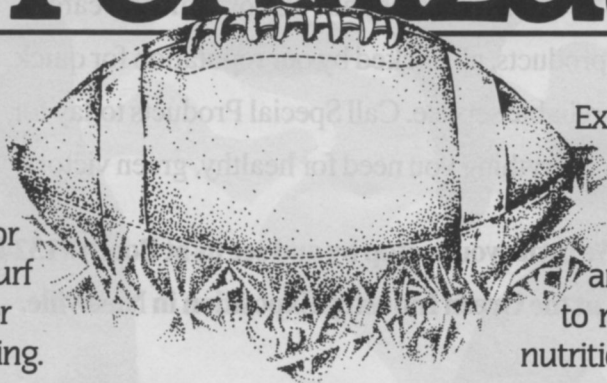
Concerning the wife and kids. Generally, their expenses aren't tax deductible. The exception, however, is when the wife is present for business reasons. But this is even "iffy".

Nevertheless, you can cut family-attending convention costs. When your spouse and other members of your family accompany you your bills will show costs for all, especially accommodations and transportation. These usually are less than twice the cost for a single person. So to determine what you may deduct don't divide the bill in half. Figure what it would have cost you to have gone alone since only the excess over your costs isn't deductible. You and your wife travel by car to a convention and her presence is social. You pay \$110 a day for a double room but a single room would cost you \$100. You may deduct \$100 a day for your room, but insist that the hotel note the single rate on your bill when you check out.

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operating your car to and from the convention is also allowable since it would be the same if you traveled alone. If you travel by plane or train or other means you may deduct only your own fare. Amounts for taxis, rental cars, bus fares, luggage handling and the like are fully deductible when your spouse and other members of your family travel with you if their presence doesn't significantly add to the total costs.

Expenses concerning making a stopover to a vacation site with the family aren't deductible but can be minimal if you drive since all auto expenses for everyone in the car (as above) are allowable. You might also schedule a business call or meeting in the area (in addition to the convention) to coincide with your sidetrip. Now, part of this pleasurable excursion will be deductible.

You must attend

Be aware of the term "closed video loophole". It means that convention expenses will not be tax deductible if incurred at educational events if you don't actually participate in seminars, discussions and workshops, but are simply given (or sold) video tapes of lectures on topics related to your business which can be viewed at your convenience. Now the trip is considered to be a vacation. But the expense is allowable if you personally attend a convention session in order to view such videos, and do so before they are presented to you.

How about employees?

What is tax deductible concerning my employees who attend conventions and trade shows for my lawn care business? The show or convention (as above) must be primarily for business purposes. Relevant factors for determining this include the amount of time devoted to business at the show, as compared with the time devoted to recreational and social activities, the location of the convention (i.e., whether it will be held at a resort hotel), whether the trip has been given to the employee as a bonus or award, and whether the trip is for training purposes.

If you are an employee or sales rep of a company, you cannot take tax deductions for travel expenses to attend a convention if the company reimburses you for such costs. When this is the case you must keep a diary to submit to your boss plus supporting paid vouchers and bills. Your company, in turn, should have them verified.

If your firm doesn't provide such a check, keep your records available for a possible IRS audit. If you won't be reimbursed for convention-attending expenses you can deduct everything allowable on your return as long as you

can prove what you spent, were not reimbursed for them by your boss and can prove you were away from home on business.

Obviously, the best way to claim all of the deductions you're entitled to is to keep careful records. You'll be very glad you did if your return is ever examined. At that time your deductions will depend on whether you can prove to an examining IRS agent that your trip, despite any vacationing, was made primarily for transacting lawn care business.

Keep a diary

One strategy is to keep a

small pocket diary to record all costs, ideally as soon as they're incurred. Set aside the same time every day to update your records because it's easier to make daily notes than to try to figure out what you did later. Paste an envelope inside the back cover for storing all receipts. Note when you arrive at the convention and when you leave.

Include all expenses concerning where you went, who you talked with, what you talked about and the date as well as the amounts you spent. Include the name, title and name of the company concerning people you discussed business matters with during

the convention. In other words, always record the five W's: *who* you were with, *what* you discussed, *when* the event took place, *where*, and *why* for each item you claim.

Carefully segregate expenses directly connected with your business dealings at the convention from those which relate to personal activity as sightseeing, social visiting and entertaining, because recreation costs are not deductible even though they're a part of your overall convention costs.

Example: You attend a business convention in a coastal resort city primarily for business reasons. During the

convention period you do some local sightseeing, social entertaining and visiting all unrelated to your business. You may deduct your travel expenses to and from the resort, your living expenses at the resort and other expenses as business entertaining. But don't deduct the cost of sightseeing, personal entertaining and social visiting.

Get a receipt for every bill you pay. Include tips. When discussing business matters with customers and friends at the convention keep good notes by writing down everything you discussed, or use a small tape recorder. Keep the stubs

See **TAX** on page 22



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You could call their editorial and marketing teams "roadies," because they spend 50% of their time traveling to shows, tracking stories and getting candid perspectives from suppliers. Listed here is just a portion of the shows they'll be attending this year. Frankly, it's the only way to stay on top of late-breaking news and keep both books fresh and on the cutting edge of their market segments. This dedication makes them the authoritative voices on industry problems and opportunities readers need to be aware of...and explains why their competitors look like warm-up acts.

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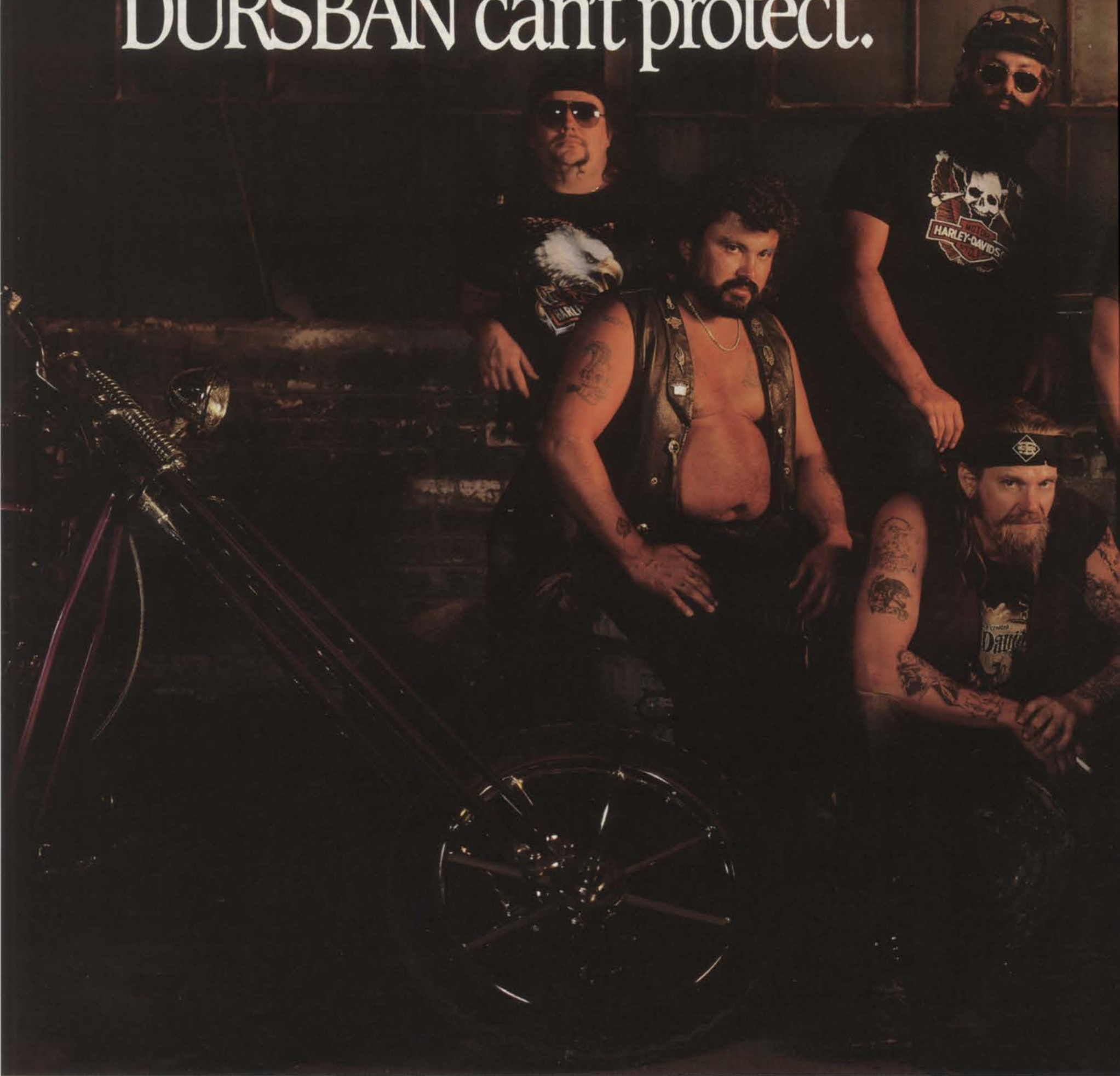
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"Organic" lawn care's goal to enhance soil biological action

BY DR. ELIOT C. ROBERTS

The value of organic processes is well understood in maintaining soil productivity. These processes are beneficial on grassland agriculture, that segment which includes turfgrass management. It's natural that we should use slow-release "organic" fertilizers so as to take greatest possible advantage of the biological system already functioning within the root

zone.

And what a system it is! There are some 900 billion bacteria, fungi, actinomyces and protozoa in each pound of soil. (There are close to 2 million pounds of soil in the root zone for each acre of turf.) This amounts to about 70 pounds of micro-organisms per 1000 square feet of turf grown on soil that would weigh close to 50,000 pounds.

That's not all. Large numbers of small animals enrich

the soil by decomposing organic matter. For example, earthworms increase fertility of the soil by producing casts often containing 40 percent more calcium, 200 percent more magnesium, 350 percent more nitrate, 650 percent more phosphorus and 1000 percent more potassium than surrounding soil.

Recognizing these realities, the new definition of "organic" turf management should meet the following

three criteria:

- "Organic" turf management is a **complete** maintenance program featuring the application of organic (containing carbon) products either natural or synthetic with slow-release and/or decomposition properties that promote lawngrass growth and also enhance natural soil macro- and micro-biological processes.

- "Organic" lawn care uses natural or synthetic inorganic products that break down slowly and have slow-release properties as long as natural soil macro- and micro-biological populations are enhanced.

- "Organic" lawn care may

require applications of inorganic plant nutrients in very small quantities necessary to sustain natural soil macro- and micro-organisms, and develop vigorous healthy turfgrass.

"Organic" is not new. Actually the advent of chemical agriculture is relatively new. Research 50 to 100 years ago had mostly to do with organic matter as of critical importance in soil fertility. LCI

About the Author

Dr. Eliot C. Roberts is executive director of The Lawn Institute, Pleasant Hill, TN.

TAX

from page 19

of all tickets purchased for social-business convention events to show where you went and what it cost.

If you drive, write down your beginning and ending odometer readings. Collect and keep credit card receipts for gas, oil and other automotive costs. Collect and keep all credit card receipts concerning all other convention-related purchases paid by credit card. Keep copies of all show and convention literature.

Keep a record of all business sessions attended. If the convention provides a sign-in book, be sure to sign it. Bear in mind that every receipted bill or voucher must show the amount of the expense, the date it was incurred, where it was incurred and its purpose.

A hotel bill must show the name, location, date and separate amounts for charges such as lodgings, meals and telephone calls. A restaurant bill must show the name and location of the restaurant, the date and amount of the expense and whether a charge was made for items other than meals or beverages, and, if so, details concerning it. Your records must also show the names of those you entertained, the business purpose served by the entertainment, the business relationship between you and your guests and the place of entertainment.

Keep your diary and supporting records of business related expenses for at least three years after the date for the return. For more information contact your local IRS office or your personal tax advisor. This article, because it must be general, can only touch on general points relating to tax deductible convention expenses. It does not substitute for the help of a professional tax advisor. LCI

About the Author

Bess Ritter May is a freelance writer living in Philadelphia. She specializes in business topics.

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Better packaging sought by manufacturers

BY LISA GITLIN

Research and development experts are aggressively examining new ways of packaging and delivering herbicides and pesticides to lawn care professionals.

"It's a given that these chemicals are only so safe," says Greg Gergen, Turf and Ornamental Product Manager at ICI Americas, Wilmington, DE. "That's the way nature made them. Any technology to render them safer can involve changes in three areas: the product itself, the formulation, and the packaging. Packaging is what the industry is concentrating on right now."

The market has made substantial progress in responding to LCO concerns about lawn chemical exposure. Although most chemicals are still delivered in plastic or metal drums that must be triple-rinsed and permit exposure through mixing, suppliers are rapidly taking measures to eliminate these problems.

Recently, Ciba-Geigy's Turf and Ornamental Department in Greensboro, NC, reported on a 1988 survey by the Golf Course Superintendents Association of America on packaging, formulation and delivery of turfgrass pesticides. Although only 10 out of 17 companies answered the survey, all respondents reported new product developments. The most frequently reported improvements included water-soluble packaging, easy-opening containers and closed mixing systems.

Researchers continue to pursue better ways to market herbicides and pesticides.

"We're devoting four to five times as much research to packaging as we did two years ago," Gergen continues. "There are so many factors to consider. For instance, we tested a water-soluble bag made from a material that actually rendered the pesticide less effective."

Although most suppliers now offer certain lawn chemicals in water-soluble, dose-

sized packages, LCOs still face the old problems with many products.

"We're still looking for ways to minimize worker exposure and disposal problems," says Deb Strohmaier, public relations manager at ChemLawn, Columbus, Ohio. "You know those tiny, vacuum-sealed plastic containers used mostly for tree-injection? That state says they have to be

triple-rinsed just like any other container."

Richard Deering, owner and president of Soft 'N Green, with offices in Columbus and Cleveland, praised the dose-sized, water-soluble packages of the insecticide Dursban that his company receives from Dow. "You can't get any better than that. If you need 10 pounds you just put four packages in and they dis-

solve. You don't have to worry about disposal or breathing the stuff in. Of course we'd like to see more of that kind of packaging."

Suppliers are examining ways to refine the whole system of product application. Monsanto, St. Louis, for example markets two of its products, a grass/weed herbicide and a broadleaf

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"It's all concentrated so there's no mixing," says Maureen O'Sullivan, marketing and communications manager. "You don't have to handle the product at all—that's the beauty of it. It even comes with a special cleaner that you can run through the system when you're done."

Many suppliers are in-

systems. "We're sort of at the beginning of delivery research for the (lawn care) market," Seckinger says. "To use the recyclable mini-bulk containers, you're going to require a lot of volume."

Recently DowElanco began experimentally distributing Turflon II Amine herbicide to LCOs in Ohio and Michigan in 200-gallon, mini-bulk portable tanks. The mini-bulk tank is placed on pallets 18 inches off the ground, allowing the herbicide to be discharged out of the bottom. After use, the containers are picked up by an authorized distributor. (See August issue of *LCI*.) LCOs report substantial satisfaction with the recycling system.

But until all lawn chemicals are distributed either in pre-mixed, dissolvable packets or closed delivery systems, LCOs will have to triple rinse containers. Jim Altemus, public relations manager at Monsanto's Industrial Greens department, says "it's only a matter of time" before Monsanto's triple-rinse siphoning system moves from the agriculture to the greens market. "It's very easy to operate," he says. "You don't even have to tip the container."

Other market developments include product coding to eliminate application errors, self-contained measuring, closed mixing systems, and turf diagnostic kits.

"We're looking at integrated pest management," says Jose Milan, marketing support manager for the Turf and Ornamental Department at Ciba-Geigy. "We not only sell chemicals, but we want to give users a chance to accurately diagnose their needs."

To assist the process, Ciba-Geigy furnishes a diagnostic kit containing such products as a "macroscope" which allows detection of turf diseases and

"You don't have to worry about disposal or breathing the stuff in,"
Richard Deering, president, Soft 'N Green, Cleveland

insects. Milan points out that proper product application reduces the risk of both turf damage and product over exposure.

"The time isn't too far away when nobody will have to touch pesticides," Gergen says. "The trends are going even beyond granular prod-

ucts to those that are more ready to use. Lesco (Rocky River, Ohio) now offers a product in capsulated form."

LCI

About the Author

Lisa Gitlin is a freelance writer living in Cleveland Heights, Ohio.



Isn't it time to deal with delinquent accounts?

BY THOMAS A. COOPER

How much economic change lies ahead? That's a key question for small business owners since they're neither as diversified nor as deep-pocketed as larger companies. Unexpected drops in revenue-producing sources can leave them trapped with few pleasant options to consider.

While the onset of an economic slowdown can't be controlled, its effect on individual businesses can be managed. A good place to begin is by aggressively pursuing delinquent accounts receivable.

In times of sustained growth, companies often fall into bad collection habits. For example, business owners are more prone to let collect time-tables slide when profits are high. But when times get tough, those uncollected bills squeeze profit margins and the cost of doing business. Without well-designed credit and collection safeguards, it's almost impossible to plug bad debt leaks under the added pressure of a recession.

You can take command of your accounts receivable situation. Start by analyzing the financial strengths and weaknesses of your existing customers. Then follow up by organizing and implementing a comprehensive credit and collection plan for all new business.

- Analyze and identify major customers. According to collection industry estimates, 80 percent of receivables are usually generated by 20 percent of customers. Business owners can use this "80-20" rule to identify major customers and separate them into a top priority category.

- Know their business. What do you really know about your major customers' billing cycles? What about their invoice cutoff dates? By keeping communications lines



open and asking appropriate business questions, you can often solve a collection problem quickly and amicably. It also makes sense to keep up to date on a customer's financial condition to anticipate cash flow problems and plan solutions before problems occur.

- Watch unsecured debts. In a sluggish economy, some businesses and individuals may be forced to seek bankruptcy protection. That's why it's a good idea to secure as many major debts as possible. Remember that a secured debtor is the first paid when a debtor enters bankruptcy protection.

- For all new business, organize a written credit policy. This is not as difficult as it may seem. In fact, the best credit policies are easily understood guides outlining requirements for extending credit, stating credit limits in time and dollars, and identifying the person in the business responsible for enforcing the policy.

A written credit policy clarifies when accounts are considered overdue. It also spells out how debtors will be contacted (by letter, phone or personally), at what point an account will be turned over for

third-party collection, and at what point and what size debt your company will consider litigation.

To go along with the policy, it's a good idea to create a standard credit application form, which would be completed by all new credit customers. There are legal requirements for this document, which should be read and approved by your company's attorney before implementation.

- Implement a collection calendar. When the credit policy identifies a customer's account as past due, a collection calendar becomes a useful tool for systematically pursuing delinquencies. A basic five-step approach for this device includes:

- 1 First billing at the time of service, or mailing to customers immediately thereafter. Process billings more than once a month, since collection industry surveys indicate that most people pay after receiving the first notice.

- 2 A second billing sent no more than 30 days later. This approach makes it easier for business and individual

See **AC** on page 49

"Water dissolvable packets in pre-measured doses almost eliminate worker exposure,"
Andy Seckinger, Rhone-Poulenc.

vestigating new formulations and delivery methods. Andy Seckinger, product manager at Rhone-Poulenc Ag Company, Research Triangle, NC, reports that in many cases powdered chemicals are being converted to water-soluble granules. "It dissolves in water similar to powder but it's much easier to handle," he says. "Powder generates dust."

Seckinger adds, however, that the most far-sighted solutions are emerging from packaging rather than formulation research. "Water dissolvable packets in pre-measured doses almost eliminate worker exposure," he says.

Suppliers report that the agricultural market is forging the way for changes in product delivery

Moisture sensors should help ease effects of water restrictions

Water restrictions are becoming more common in many communities, most notably in Southern California and South Florida. They could become an issue elsewhere.

Often among the first target of these restrictions is the watering of turf and landscaping. One answer may be an automatic irrigation system equipped with a soil moisture device or rain sensor.

"Many South Florida commercial and residential property owners are already aware of the benefits of sprinkler systems. Because of the quantities of water used, a sprinkler system represents an effective way to conserve water and dollars," says Paul Klinefelter, president of Glen-Hilton Products, a Virginia manufacturer of rain sensors and other controls for sprinkler systems.

Soil moisture systems and rain sensors permit automatic irrigation as required to maintain proper moisture levels. They can be a valuable addition to new or existing irrigations systems, particularly in areas with sporadic, intense rainfalls. These irrigation aids can be added to an irrigation system to shut it off when it rains and keep them off until the ground has dried out and needs water again.

It's wasteful for a sprinkler system, because it's set to come on automatically, to operate during a morning downpour or an

See **EASE** on page 49

Gibeault says soil temperature triggers Bermuda dormancy

RIVERSIDE, CA—What one environmental factor is most responsible for Bermudagrass going into dormancy? Soil temperature, says Dr. Victor A. Gibeault, University of California Cooperative Extension

Service.

"We found that soil temperature was the factor most closely associated with dormancy and solar radiation to be the least closely associated one," Gibeault reports. "Once soil temperatures dropped below 50 F for one to two weeks, all Bermudagrasses lost all of their color."

That was just one of the findings Gibeault and staff research associate Richard Autio uncovered in a three-year

field study of 32 commercially available and experimental Bermudagrasses for winter color. Bermudagrasses are popular in California and widely used in home lawns here because they're water efficient and can take heavy traffic during warm months. Their big drawback: they go into dormancy during winter.

Gibeault and Autio say the hybrid Bermudagrasses Santa Ana, Tifway II and Tifway had the least dormancy. LCI

NLA

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big winners with 21.9 and 19.1 percent growths respectively.

Renovation projects, however, fell 2.7 percent and commercial installations fell 0.8 percent.

Outlook: Hurricane Hugo devastated the Charleston, SC, area. Demand for landscaping there should be high but it will take years for the area to recover.

• **Midwest (Great Lakes).** A resurgence. Factories are making a comeback. The farmbelt got an economic boost with worldwide demand for U.S. grain up more than 35 percent last year. Total landscape sales reflect the brightening economic picture in this area—up 20.3 percent overall. Commercial growth of 14.6 percent was particularly encouraging.

• **Great Plains.** Total landscape sales up 18.6 percent with 11.7 percent overall growth (including maintenance). New projects didn't exactly catch fire last year though with just a 5 percent increase in commercial accounts and new housing projects rising just 3.5 percent. Residential renovation was the big winner, up 20 percent.

The NLA reports that not enough responses were received from the West and Southwest to provide accurate survey information, although scattered reports indicate that the California market is still strong in spite of a softening housing market. Some of the California sales are apparently heading north to the Northwest where housing prices are escalating rapidly.

1990 sales? The Northeast, on average, predicted growth of 9.7 percent, the Southeast 15 percent. LCI

EPA needs cash; will fees rise?

WASHINGTON, D.C.—The U.S. Environmental Protection Agency is \$160 million off its initial estimates for the costs of implementing FIFRA '88. EPA has asked Congress for authority to increase registration fees and remove the statutory cap on maintenance fees, reports *Executive News-watch* of the Chemical Specialties Manufacturers Association. LCI

Calif. geneticist is high on kikuyugrass for turf

RIVERSIDE, CA—"We believe that the outlook for improved varieties of kikuyugrass is quite promising," says geneticist Ruth G. Shaw.

She and Matthew K. Leonard, both of the University of California Riverside, are attempting to improve the species genetically for turf use. Kikuyugrass is considered a weed by many California turf professionals, but the species does have good drought tolerance and good color retention during winter months, prompting Shaw and Leonard's work.

"Our primary goal," said Shaw, "is to improve the texture of kikuyugrass by reducing the width of its leaf blade and the thickness of its stolons and by increasing its shoot density."

Kikuyugrass is a serious weed problem in turf along the coastal and intermountain valleys of California from San Francisco to San Diego. It invades both cool- and warm-season turfgrasses. The invasion is usually rapid and complete. LCI

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Improved hard fescue	Aurora
Improved Chewings fescue	Shadow
Improved Sheeps fescue	Bighorn
Improved creeping fescue	Flyer Fortress Shademaster
Improved tall fescue	Apache Bonanza Eldorado Monarch Murietta Olympic Silverado Triathalawn blend
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Creeping bentgrass blend	Pennway

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Company emphasizes safety, not punishment

Davey Tree feels its drug effort reducing mishaps

KENT, OHIO—Two years ago the Davey Tree Expert Company started a drug testing program to combat a rising employee accident rate. Company management didn't know how many accidents were caused by drug and alcohol use, but it was determined to reverse the trend.

"As a company, we can no longer bury our heads in the sand and hope that the problem will go away—it won't," R. Douglas Cowan, president and CEO, wrote in a letter to employees. "We care about our employees and our customers and it's time that we face the problem head-on and implement measures that will significantly reduce drug and alcohol abuse in the Davey Company."

Davey's program has three phases. The first involves employee education. "When it comes to drugs, our employees just don't know what they're dealing with," says Ron Cole, corporate risk manager. "Education is important."

Phase two, the company tests all prospective hires and anyone involved in a serious, preventable accident. Any job applicant who tests positive is not hired.

Phase three is the testing of employees "for cause," where there is a strong belief that drug or alcohol abuse is affecting safety and performance. Any employee who tests positive is removed from the job, placed on a medical leave of absence without pay and required to seek treatment for drug and alcohol abuse. A Davey employee assistance officer helps the worker find counseling. If the employee tests positive for drugs after four weeks, he or she is subject to discharge unless enrolled in a certified rehabilitation program. If the test is negative, he or she can return to work if fit for duty. If a subsequent test is positive, however, the employee is discharged.

Davey's drug policy has made hiring people more difficult because many applicants leave as soon as they find out about the pre-employment drug screen. Others participate in the drug screen but test positive. Ron Cole says the program is worth it, however.

"We're hiring a better group of people, with fewer accidents, and another important result of the program has been employees' positive response," says Cole. "The silent majority's fears have been quelled. I used to get calls where someone would say, 'I'm afraid. My foreman uses drugs, and I'm afraid he's going to hurt someone.'"

Cole stresses that the tests are designed to help employees. Anyone who tests positive is given a chance to receive treatment and go back to work. If employees recognize that they have a drug or alcohol problem before they take a drug test, they can come for-

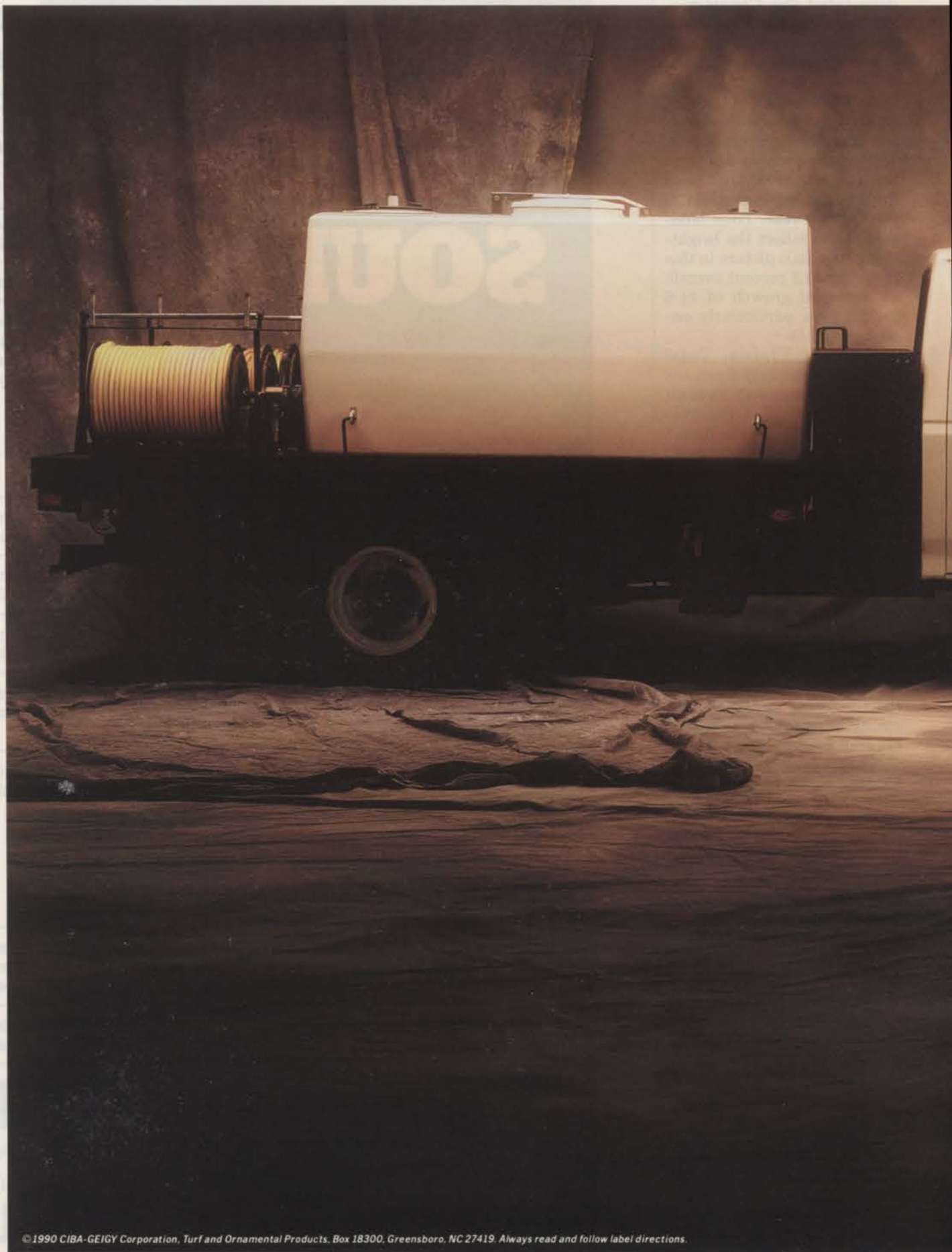
ward for help without worrying about losing their job.

"It is not the purpose of Davey to conduct a 'witch hunt' on this problem," says Cole. "We have a genuine concern for our employees and we wish to educate and assist any employee who has a problem in this area. Safety is our No. 1 concern."

"The whole purpose of the program is a safety issue." LCI



"We can no longer bury our heads in the sand," R. Douglas Cowan, CEO and president of Davey Tree.



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Here are some tips on how to make every call have value

BY NANCY J. FRIEDMAN
A person calling your office

forms an opinion about your company in the first four to six seconds. The person who

picks up the phone represents the company to the caller. Anyone who has a phone on

their desk can maximize the telephone's powerful potential. The following tips can help:

1 When making a call, be prepared for the called party not to be there. Have a concise message ready. *The Wall Street Journal* reports only 30 percent of all business calls get completed on the first try. Learn to get value out of every call.

2 Avoid "emotional leakage". That's getting mad at Peter and taking it out on Paul. Don't leak negative emotions from one situation

into another. The caller wasn't involved with your last conversation. If you're in a bad mood, take a deep breath and regain your professional composure before you pick up the phone.

3 Answer the phone with your name. Everyone likes to know who they're talking with. This holds true for internal as well as external calls. Use a friendly greeting before you say your name; it indicates a warm reception. ("Good morning, this is Bill Jones." Or, "Hi, this is Bill Jones.")

4 Don't be too busy to be nice. Being busy does not mean you can be rude. (The caller doesn't know you're on a tight deadline.) If it's an inopportune time, tell the caller just that and suggest a call back time (from you or caller) that's more convenient.

5 Return all phone calls or have them returned in your behalf. Not returning a call is rude. Someone can make that call for you and get the ball rolling.

6 Tell vendors you don't want to hear from again the truth. Sales people need direction, and a weak, "he's not interested now" from a secretary won't deter a good salesperson. They need to hear it from you. If delivered properly and in the right tone, it will only take about 30 seconds of your time and, in most cases, will take care of the situation once and for all.

7 We are customers to each other. Treat internal calls as well as you do external calls.

8 If your party isn't available, try stating the nature of your call. Three out of four people can normally assist you in most cases. They just need a chance. Again, get value out of every call.

9 Don't miss the message at your office when receiving calls. If your people are using, "Can I take a message," when you're not in, you're probably missing potential business opportunities. It's too easy to say no. Try this instead: "Mr. or Mrs. Jones is out of the building right now. Let me have your name and number and I'll see that they get your message." Remember, the job is to get the message, not swear in court they'll return the call. That's the called party's responsibility.

10 Smile. This applies to everyone from CEO to applicator. It can be heard. Smile before you answer the phone. **LCI**

About the Author
Nancy J. Friedman created the audio series on telephone skills and customer service, "How to Manage Your Telephone for Bigger Profits". For information, write to P.O. Box 777, St. Louis, MO 63044.

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COVER STORY

LCOS

from page 1

ment course which entitles her to use the designation C.A.E.—Certified Association Executive.

"There's an awful lot I can bring from my experiences in the other green industry associations to PLCAA. I realize we all have our unique concerns but we also share many concerns," says McClure. "Cooperation, I think, will grow among these associations. I think the three associations involved with the Green Industry Expo (PLCAA, ALCA, and the Pro-

fessional Grounds Management Society) are taking the lead in this effort."

McClure describes herself as a "generalist". As a student at Washington State University, Pullman, WA (she graduated from high school in Paris, France), she concentrated on social studies and journalism. She's worked as both a news editor and in radio.

She says her first task with PLCAA will be to learn as much as possible about PLCAA, its staff, and membership. "You need information gathering first," she says. "I'm trying to absorb as much as I can so that I can learn

what the staff anticipates, what the industry leaders are committed to, what our members need and want.

"Any association should be member driven and it must determine what it has to do to fulfill the needs of its members and the people in the industry also. If the industry changes, the association must perceive that. Industries aren't static and associations can't be static either."

McClure says she and her husband will live in the Atlanta area. They have two grown sons, one living in Virginia, the other in Texas. The family, she says, enjoys tennis. LCI



Anne McClure describes herself as a "generalist". She foresees more cooperation between green industry associations.

Great speakers, timely topics ready at PLCAA Nashville fete

NASHVILLE, TN—When you're described as the "most savvy salesman in America" you better be convincing.

Green Industry Expo (GIE) attendees will find out Monday, Nov. 12, at 1:30 p.m. when super salesman Michael LeBoeuf takes the stage at the Nashville Convention Center.

LeBoeuf, author of *How to Win Customers and Keep Them for Life* and *Working Smart*, keynotes the Professional Lawn Care Association's (PLCAA) 1990 Conference.

(Although the GIE is a joint affair with the Professional Grounds Maintenance Society and the Associated Landscape Contractors of America, each group will have its separate educational seminars.)

PLCAA's '90 Conference, entitled "Practical Business Solutions for the '90s," runs Monday-Thursday, Nov. 12-15. Sessions will include hands-on workshops, training sessions and roundtable discussions.

Sessions begin 8:30 a.m. Monday with three sets of "Early Bird Workshops"—Business featuring businessmen Ed Coaia, Ed Wandtke and Patrick Norton; Pesticide Training with experts Dr. Robert Sherman, Dr. A. J. Powell, Dr. Patricia Cobb, and Sheila Darr; and Landscape Issues with William Nelson, Dr. Gary Wade, Robert Baier, and Philip Christian III.

Rounding out Monday, of course, is keynote speaker Michael LeBoeuf at 1:30 p.m., and the Green Industry Expo Reception 6:30-7:30 p.m. sponsored by *Lawn Care Industry* magazine and its sister publication *Landscape Management*.

Tuesday, 8 a.m., concurrent sessions:

- **Chemical Lawn Care** with Richard Bare, Brent Flory, James Rogers.

- **Landscape & Mowing**, Robert Baier.

- **Full Service**, Robert Kapp.

Tuesday 3:30 p.m. workshops:

- **Customer Issues**, Dr. Larry Kokkelenberg.

- **Company Issues**, Richard Lehr, Esq.

- **Regulatory/Governmental**, Dr. Stuart Cohen.



Michael LeBoeuf, keynoter

Service workshops for the repair/maintenance of pumps, 2-cycle and 4-cycle engine begin at 11 a.m. Tuesday.

Tuesday 4:15 p.m. workshops:

- **Customer Issues**, Kokkelenberg.

- **Company Issues**, Voystock.

- **EPA Update**, Arty Williams.

Wednesday 8 a.m. Business Roundtables:

- **IPM**, Dr. James Wilkinson, Dr. David Shetler.

- **Grasscycling**, Dr. William Knoop, Sandy Marting.

- **Containment Systems**, Dr. Kirk Hurto.

- **Ethics & Business Advertising**, Dan Gardner, Richard Lehr.

Wednesday 3:30 p.m. Workshops:

- **Value of Service**, Kokkelenberg.

- **Reducing Service Calls**, Larry Blackburn.

- **Effective Training**, Robert Andrews.

Wednesday 4:15 p.m. Workshops:

- **Lawn Chemical Concerns**, Dr. Barry Troutman.

- **Risk Management**, Lloyd Benedict.

- **DOT and SARA Title Updates**, Sarah Bundschuh.

Special note for prospective PLCAA members: Be sure to attend the "Speakeasy" Reception Tuesday 5 p.m. at the Convention Center. Free refreshments. LCI

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Landscapes and turf extremely important to homeowners

AAN says watering bans aren't the answer

The American Association of Nurserymen (AAN) says less than one percent of our nation's daily water consumption goes to watering the landscape, and watering bans are not the solution to water shortages.

Imposing watering bans only causes a new problem—damage to our environment—while doing very little for the existing problem: a shortage of water, says the AAN.

Plants need water to survive. People need plants for the benefits they offer. For example, plants help purify the air, stabilize the soil, conserve energy, clean the water and reduce noise. Plants also contribute to our mental and emotional well being.

Killing landscape plants by withholding water would have a negative impact on the environment, the average property owner, and the nursery and landscape industry, says AAN.

In losing trees, grass and other vegetation, the environment loses more than beauty and color. It loses the cleansing role that vegetation plays in absorbing carbon dioxide and producing oxygen.

The nursery and landscape industry, which employs over half a million people and sells nearly \$17 billion annually in products and services, would stand to lose its economic viability. This would result in lost jobs, tax revenues and environmentally essential plants.

How would watering bans affect you as a homeowner? Most of the economic value in the average residential landscape has been invested in deciduous and evergreen trees and shrubs. One study published by the U.S.D.A. Forest Service shows the presence of trees and other living plants can increase a property's value by up to 30 percent.

Living plants in the landscape are a major financial investment for property owners, according to AAN. This investment is at risk of needless loss with watering bans.

As long as you use water wisely, you can engage in environmentally conscious living—and refrain from sacrificing the beauty of the

landscape. To save water when you're establishing a landscape:

- water slowly, deeply and infrequently;
- reduce steep slopes in the design;
- test your soil and fertilize or lime according to test results;
- install an irrigation system set to provide about one soaking per week (in most

areas);

- select drought-tolerant varieties of grass, trees, shrubs and groundcovers;
- use sod rather than seed when establishing a lawn;
- use a soil probe or screwdriver to test soil moisture—if the probe is easily inserted into the soil, you may not need to water;
- water in the early morning or evening;

● stop watering if runoff occurs;

- mow your lawn higher than normal with a sharp blade, as dull mower blades increase moisture loss from the plant;
- consider a less than "lush" lawn—many types of grass allowed to go dormant during droughts will "green up" when rains return;
- spot-water areas which

dry out more quickly;

- aerify grass to increase water penetration in the soil;
- match fertilizer to plant requirements;
- increase disease and insect control with care.

With planning and overall education, we can find a way to reduce our consumption of water without depriving the living landscape. LCI



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Exclusive *Lawn Care Industry* coverage of Turfgrass Paradise sessions

Focus on ground water in Florida

Florida professor tells industry to be more careful with containers, rinsate

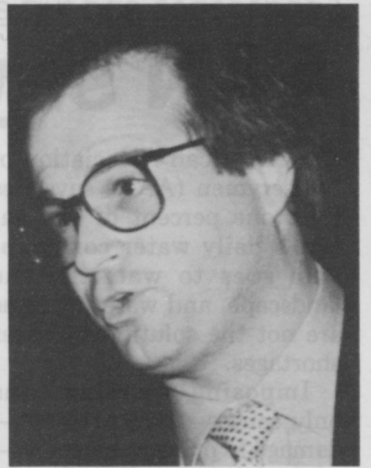
BY RON HALL
editor

ORLANDO, FL—Testing for the presence of pesticides, particularly in ground water, will accelerate during the 1990s. Applicators must become more sophisticated in the disposal of pesticide containers. "One of our big problems in

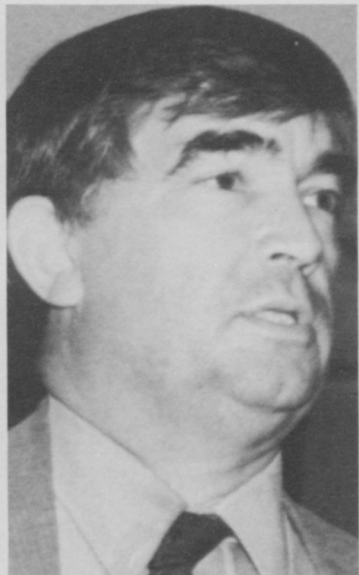
pesticide use is triple rinsing containers," Dr. Daniel L. Colvin, told turf managers at the Turfgrass Paradise Convention here this fall. Colvin, an assistant professor at the University of Florida, Gainesville, said regulators have the capability of detecting one part per trillion of some compounds.

"That's something pesticide users must think about," he says, adding that industry, as a whole, spends a lot of time discussing new compounds on the market, what they'll do, how they can be used, "but we spend very little time discussing the right way to get rid of the containers and the rinsate."

Another factor in the pesticide-use picture in Florida, Colvin added, is ground water. It's the source of almost all of Florida's drinking water and, for the most part, this ground water is no deeper than eight to 15 feet from the soil's surface. Also, most soils in Florida are either sandy or sandy/loam. Pesticides users



Dr. Daniel Colvin says ground water testing to accelerate.



Dr. Arthur Hornsby developing guides for applicators

"Guides" will help applicators avoid ground water problems

ORLANDO, FL—Turfgrass managers may soon have a "Growers Guide" to determine the potential for leaching or runoff for particular chemicals at particular job sites.

Dr. Arthur Hornsby, speaking at the Turfgrass Paradise Convention here, said guides are in the works for row crops and for turf. The guides outline the properties of pesticides, soils and management practices (irrigation, application rate and frequency), and how the three are inter-

related. The guides will allow an applicator "to select the chemicals that control a particular pest, using information about how they (pesticides) move in the soil, how persistent they are and what the properties of the soils are," said Hornsby, professor of soil physics and extension specialist at the University of Florida, Gainesville, FL.

Hornsby described the Growers Guides (several should be available by year's end) as "decision aids, a

straight-forward screening method."

This information will help turf managers avoid contaminating ground water with turf pesticides. For example, LCOs can check with their local Soil Conservation Service to determine the nature of the soil they're treating (sandy, clay, etc.), then they can check the "grower guide" to see just which pesticides are least likely to leach or be carried off by rain water, based on the products' sorptivity, its persistence, etc. This information helps generate *relative leaching* or *relative runoff potentials* for each pesticide on each soil type.

"Presently, pesticide users are expected not to cause any water quality problems, but they're not told just how to do this," Hornsby told *Lawn Care Industry*. "If you understand the processes that lead to leaching or runoff...then you can choose pesticides that are less likely to run off or less likely to leach," said Hornsby. "There is no way we can stop all leaching or all runoff. The alternative is no pesticides and I don't think that's acceptable."

Hornsby said the "Growers Guide" for turfgrass may be broken into separate guides for golf, sod production and lawn care.

Hornsby said the response he's received from the chemical industry has been positive. LCI

who mix chemical products at the same site year after year (particularly if it's near a well head or other water source) or dispose of excess product improperly can easily pollute ground water. Once a pesticide is in the ground water it breaks down very very slowly.

Trends? Colvin (his example focused on a compound used exclusively in agriculture) said pesticide suppliers may reduce the labeled rates of some products to keep them from posing a ground water contamination problem. Also, new pesticide delivery systems are on the way. They'll better pinpoint applications.

Colvin defined the term "pesticide stewardship" for the 75 turfgrass managers at his discussion: *managing pesticides and pesticide usage with proper regard to the rights of others.* LCI

Employees must learn of all hazards in work place, says right-to-know law

ORLANDO, FL—"My supervisor told me."

Burt McKee called those four words "golden words" and "dynamite words" and told turf managers at Turfgrass Paradise they may

save their jobs or businesses some day.

McKee, environmental manager for United Agri-Products/Florida, spoke about "right to know"—informing employees about hazards in

their work areas.

"Your employees aren't responsible to know what MSDS (Material Safety Data Sheets) are. You are," said McKee. "Your employees

See **WORK** on page 31

Toro explains loss in first quarter

MINNEAPOLIS, MN—Toro Co. said softness in the irrigation market and lower sales of its snow thrower machines contributed to a loss of 40 to 50 cents a share in its first quarter, ending Oct. 26.

Also, higher-than-anticipated expenses related to the new distribution strategy for its Lawn-Boy Inc. subsidiary contributed to the loss. Toro is emphasizing direct-to-dealer marketing for Lawn-Boy products.

Even so, reports the *Wall Street Journal*, Toro expects net to exceed \$2 a share in fiscal 1991, up from \$1.55 in 1990. LCI

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Amer. Cyanamid creates new three-person team

WAYNE, NJ—American Cyanamid Company consolidated business units and created a new ventures team to develop niche markets.

Targeted was AC's Vegetation and Pest Control (VPC) Department which now has three business groups—Turf and Ornamentals, Industrial Vegetation, and Public Health products. Previously Turf and Lawn & Garden were two separate groups.

In a related matter, the new three-person ventures team will be directed by Terrance L. Baker, formerly a herbicide products director with BASF. Its purpose is to create additional niche businesses, particularly in biopesticides, horticulture and public health products.

"The changes represent a long-term commitment to Cyanamid's development of new products," said Howard SL. Minigh, general manager of VPC.

Under the reorganization,

Randy G. Boomgaarden becomes manager of Industrial Vegetation Products; John Rabby manager of Turf and Ornamentals; and Charles Galley remains business manager Public Health products.

"We've moved people among departments to facilitate cross training and we've changed the organizational structure to better serve existing business," said Minigh. **LCI**

WORK

from page 30

must know what the hazards are."

In fact, employers are now required by law to inform employees of any potentially hazardous materials in the workplace, to develop a Hazard Communication Program.

"You can teach your people pesticide symptoms," said McKee. "You can teach them things like what to do if they get pesticides in their eyes or on their bodies. Under the Hazard Communication Act,

you must try to teach them."

McKee told employers and supervisors to build a photographic record of training sessions and have employees sign documents like pesticide labels etc., in case there's any dispute over who received what training.

And, should an OSHA inspector ever tour your business or facility, the best words you'll hear from your employees are "my supervisor told me. That shows that you took the time to train them," said McKee. "You must train them." **LCI**



Burt McKee: employers must inform employees of hazards

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Basagran T/O gets EPA reg

RALEIGH, NC—The Specialty Business Group of BASF Corporation says Basagran T/O herbicide is now registered by the Environmental Protection Agency and labeled for use on turf and ornamentals.

"By creating Basagran T/O, a product directed to the turf and ornamental markets, we can concentrate our research efforts and refine the product's label better than one that is also used in agricultural markets," says Terry Hanson, business manager for the BASF Specialty Group.

Basagran controls nutsedge and broadleaf weeds like thistles, mustards and purslane. The product can be applied to established bluegrass, fescue, bentgrass, Bermudagrass, bahiagrass, centipedegrass, zoysiagrass, ryegrass and St. Augustine grass, says the company which recommends that applicators avoid going over-the-top with the product on shrubs and ornamentals. Spraying near trees, shrubs and flowers is possible. **LCI**

FGNA show big

ORLANDO, FL—A record 273 landscape architects, contractors and maintenance firms attended the Florida Nursery and Allied Trades Show here in October.

During the Show, Katy Moss Warner of Walt Disney World presented 38 Florida Nurserymen and Growers Association Landscape Awards at the Stouffer Resort. **LCI**

COVER STORY

PREZ

from page 1

company person and I had no interest in continuing in school," says DeAngelo of his decision fresh out of the local catholic high school to work for nobody but himself. He borrowed money from his father and the bank to buy a pickup truck and mower in 1978. Today, he and his brother Paul, 25, are partners in a prosperous lawn care business in the Pocono Mountain area (Scranton/Wilkes-Barre/Hazleton) of Pennsylvania, Lawn Specialities.

In less than a decade they parlayed what they'd built from scratch, a 280-customer mowing/maintenance company into a 2,000-customer application company.

Neal credits equal doses of service-oriented philosophy, hard work and good timing. "We hit the lawn care industry and the fertiliz-

ing business in this area as it was taking off," he admits.

As the 1980s began he was driving a 2400-gallon oil delivery truck in winters. ChemLawn was just gaining attention in Hazleton. When the owner of the oil company suggested that DeAngelo modify the tank truck and use it a summer for lawn applications, DeAngelo thought *why not?*

"In the first year the guy in the spray truck came back with more receipts than a crew of three with maintenance," says DeAngelo. "When I analyzed the financial picture I saw that lawn care was the place to be."

It's *still* the place to be, and he's rededicating Lawn Specialities to the people responsible for its growth and success—his residential customers. DeAngelo is convinced the public continues to want lawn care. The market, if not expanding like it did in the early and mid 1980s, still

promises opportunity.

"Even if the economy turns bad there'll be a need for our services," he says. "Once people have a service, they want to keep it. People are used to manicured lawns and I don't see them going back to landscapes that are sparse and full of weeds."

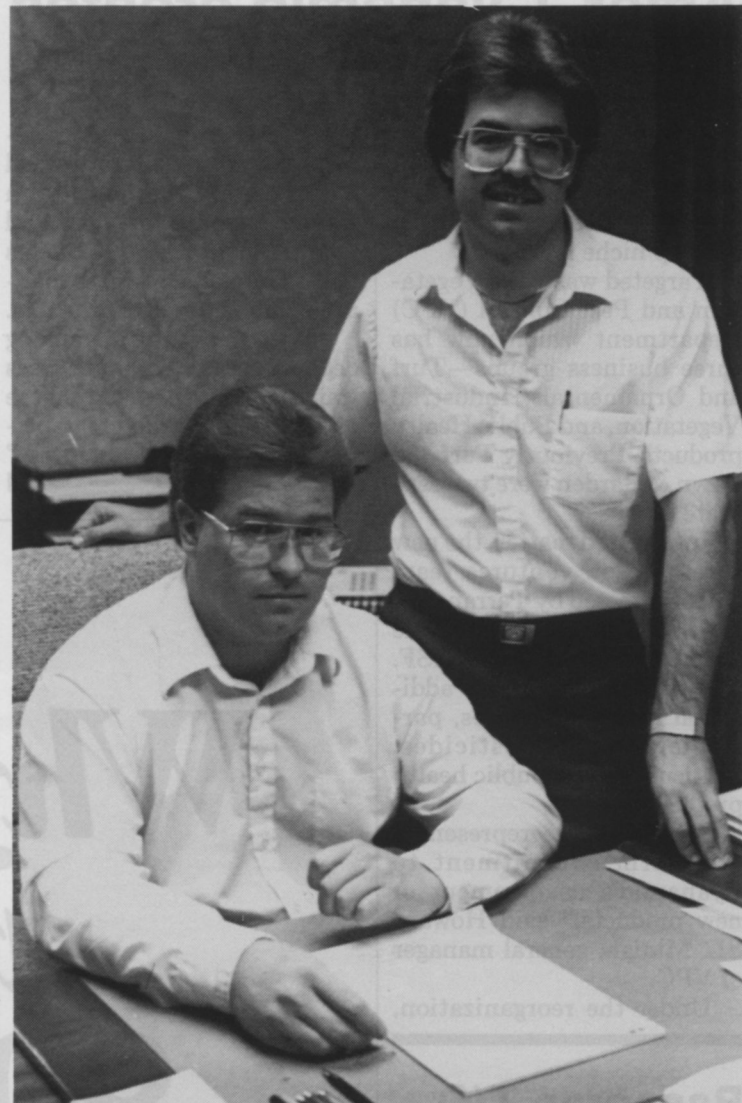
Residential service allows a lawn care business owner to build net worth, says DeAngelo. Commercial/industrial work, although potentially profitable—and a segment of the market the DeAngelo brothers have been particularly successful in—can give an LCO an inaccurate picture of his company's strength.

"Residential work is still our largest money maker and it's still what builds net worth. My goal is to build my net worth," says DeAngelo. "In the commercial/industrial market, it's low bid. Every account you have to resell almost every year just to get back to where you were. All a competitor has to do is beat your price and they get the work."

The two keys to a profitable base of residential clients, according to Lawn Specialities: deliver quality service and market, market, market.

"We have satisfied customers," says DeAngelo. "You can lowball and you can come in with a different program but we're confident in our marketing and our service and you couldn't take those customers."

DeAngelo says his company showed dramatic new customer growth in new customers until 1986. Since then he and his brother Paul have been increasing the services they're offering in addition to lawn applications. "By marketing these services heavily



Partners and brothers. Paul, left, and Neal DeAngelo.

we've been able to increase our receipts and our dollars per customer," he says.

DeAngelo believes LCOs, in general, will offer clients more services such as liming, tree and shrub care, renovation and reseeding, aeration, etc. Only in certain markets—perhaps where the season is particularly long, or the market area is particularly affluent, or there's a heavy concentration of industrial/commercial accounts—will LCOs marry chemical applications with mowing and maintenance.

"It's (mowing) an unregulated business," he says. "Pricewise you can't price where you need to make any money." Also, he says, if the U.S. economy slows more, there will be a fresh influx of "people back out there with pickup trucks and lawn mowers on weekends to supplement their incomes."

Another trend DeAngelo sees is more "dialogue" between application and mowing/maintenance firms. Lawn Specialities sub-contracts for three such businesses. "I think there's going to be more cooperation between lawn care companies and maintenance firms," he predicts.

As for his election as president of PLCAA, "I'm honored," he says. "There have only been a dozen or so presidents of PLCAA and now I'm going to be one. I see it as a helluva opportunity because I'm going to be surrounded by a lot of good people."

Neal's first order of business as president will be to sit down with lawn care industry leaders, brainstorm and determine just where the industry is, where it's going and what PLCAA's role should be.

"There are a lot of questions. Do we need 2,000 members? Do we want to represent just the chemical lawn care industry or do we also want to include the mowing/maintenance, irrigation firms, landscape firms?" asks DeAngelo. "We're going to try to develop a viable, overall, long-term strategic plan."

One exciting prospect that DeAngelo's already touched is



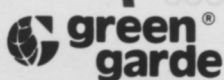
Lawn Specialities active in the Pocono Mountain area of eastern Pennsylvania. DeAngelo is refocusing it to residential markets.

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DeAngelo says customers should pay extra to get their lawns in shape

Neal DeAngelo says lawn care professionals (including himself) cheat themselves as much as 20 percent of their potential revenues. LCOs, he says, don't charge enough to solve customers' initial lawn problems.

"We provide real value with our application programs yet we haven't done a good job in creating a perceived value with our customers," he tells *Lawn Care Industry*. In this regard, he says, LCOs can learn from pest control.

For example, he says he recently hired a pest control specialist to rid his home of carpenter ants. The PCO advised him to sign up for a quarterly pest program at \$65 a visit. "I said, 'Fine, put me on the program,' but the pest control guy said, 'Whoa, first you have to pay me \$150 to get rid of the carpenter ants you already have.'

"Now, at the end of the year I ask my wife why we're spending \$260 a year for pest control. 'Let's cancel it,' I say. But my wife says we might get ants again, then we're going to have to pay another \$150 just get rid of them again," explains DeAngelo. "We might as well stay on the program and pay the \$260 and be done with it."

Most lawn care companies, however, instead of charging more to beautify and strengthen a sorry lawn—usually when product costs are greatest and callbacks most likely—offer services at "maintenance prices," the same prices they charge for when the lawn is vigorous and relatively easy to maintain. Worse yet, some LCOs discount or half-price initial applications.

This, claims DeAngelo, gives lawn care customers the wrong message: that once a problem lawn is brought up to par, they can skip applications. Or even forego applications for a season, save

the recent germination of state lawn care associations. Neal is president and a founding member of the Lawn Care Association of Pennsylvania.

"We're (PLCAA leadership) going to sit down with all the state presidents and ask what do the state organizations need from PLCAA? What will our relationship be? If it's not ever discussed or considered, every state is going to do its own thing and we want this opportunity to build a good relationship with the state associations."

PLCAA, a working person's association, has for its president in 1991, a young, energetic workingman. LCI

themselves \$250 or so and re-join at the same maintenance rate (perhaps, even at a discounted rate) later. Because they've been off a program, their lawn will need extra attention at that time.

DeAngelo says LCOs now have a good opportunity to sell the continued value of their services because of the public's concern over control products

and LCOs' shift to integrated pest management (IPM) techniques to reduce pesticide usage.

"Once a customer has been skipping applications or seasons, it limits what kind of IPM I can offer," he says. "If a customer stays with a program at the maintenance level, we can give them a good IPM program and limit chemical usage on their lawn."

"It'll take time, but if everybody is aware of the problem and starts working to build this market back up, a few years from today, we'll take the market that we've shrunk and start increasing it again," he says

LCI **Lawn Specialties manager Phil Voystock, helps success.**



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Dry or liquid, does it matter?

DRY

from page 1

LCOs' choice. There is more diversity in liquid-applied fertilizers, but many can be used by either delivery system.

Quick- or slow-release

Years ago, the main nitrogen fertilizers were granular. More recently, a variety of liquid nitrogen fertilizers have become commercially available. Some LCOs suggest in their advertisements and non-technical literature that liquid nitrogen fertilizers are quick-release and lack slow-release characteristics because of their dissolution or suspension in water.

In truth, however, liquid fertilizers can be slow release.

The majority of the liquid nitrogen fertilizers on the market today are UF (urea-formaldehyde)-type fertilizers formed by reacting urea with formaldehyde. In the reaction process, an organic (carbon) compound called monomethylol urea (MMU) is initially formed. As the reaction continues, short-chain methylene urea polymers—which are water soluble—are formed. Later in the reaction, long-chain methylene urea polymers—which are insoluble in water—are formed. The amount of water-soluble and water-insoluble products in the UF-reaction process can be changed by altering reaction variables. The final product is a mixture of urea, methylol urea and various chain-length methylene ureas with different solubilities.

The nitrogen release or availability characteristics of UF-type fertilizers are classified by the solubility of the products in water:

Fraction I. Cold water soluble nitrogen (CWSN)

* consists of free urea and short-chain methylene urea

* methylene diurea and dimethylene triurea

* soluble component of solutions and suspensions

* nitrogen release is rapid and similar to quickly-available sources

Fraction II. Cold water insoluble nitrogen (CWIN)

* consists of slowly-available nitrogen and intermediate length methylene urea polymers

* trimethylene tetraurea and tetramethylene urea polymers

* solid component of suspensions

* nitrogen release is slow and over a period of several weeks

Fraction III. Hot water insoluble nitrogen (HWIN)

* consists of slowly-available nitrogen and long-chain methylene urea polymers

* pentamethylene hexaurea and longer-chain polymers

* solid component of suspensions

* nitrogen release is very slow and over a period of several years

True or clear solution fertilizers (like Formolene, Resi-Grow 4340 and 4341, Nitro-26 and Morral NBN) do provide lower burn potential than urea. They all contain a fair percentage of free urea ranging from 25 to 50 percent. Turfgrass residual response from these solution fertilizers in field studies has usually not been found to be significantly different from urea.

N-Sure is a solution that differs from the previously-mentioned solutions; it contains nitrogen primarily in the form of triazines and free urea. Triazines are cyclic nitrogen compounds that form when the fertilizer is manufactured by reacting urea, formaldehyde and ammonia.

Fluf, Homogesol-27, U-Win, Slo-Release, Nutralene, and Resi-Grow 4318 are flowable urea-formaldehyde reaction products that contain both water-insoluble and water-soluble methylene ureas. Quick response is obtained with these materials from the soluble fraction, but

the intensity of response is not as great as with urea and solution fertilizers. These nitrogen suspension fertilizers have a significantly lower burn potential and a better residual than urea.

Yes, liquid fertilizers can be slow release!

Nitrogen leaching

Leaching is the process whereby nitrogen moves through the soil profile with water to lower soil depths. This nitrogen can become unavailable for turfgrass use once it leaves the plant rootzone and, also, can potentially increase nitrate levels in underground water.

Some lawn care companies have dwelled on these negatives in their advertisements, stating that liquid fertilizers leach nitrogen more readily than granular fertilizers since they are already dissolved in water.

Our industry wants the public and the press to believe that leaching of pesticides and nutrients in the turfgrass system is minimal. How can they expect credibility from the public when this type of erroneous information is being presented?

The soluble and insoluble nitrogen portions of liquid and granular fertilizers react similarly once they reach the soil surface. Leaching, therefore, will be no more or less with liquids compared to granules with similar fertilizer sources. So lawn care companies that claim otherwise are openly suggesting to the public that our industry is damaging the environment.

Liquid nitrogen fertilizers do not leach more readily than granular nitrogen fertilizers!

Turfgrass burn

High salt concentrations are potentially injurious to plant tissue. Nitrogen fertilizers can cause plant burn in two basic ways:



1 A high salt concentration in the soil solution surrounding the turfgrass roots is caused by dissolving fertilizer in the root vicinity. This causes a decrease in water availability, essentially placing the plant under water stress.

2 Soluble salts are deposited on the surface of turfgrass leaves and stems. A high concentration of salt particles in direct contact with the leaves and stems causes movement of water from the plant tissue to the salt particle. Desiccation and eventual death of the tissue adjacent to the salt particle thusly occurs.

Moderate burn usually results in whiter or bleached leaf blades and their tips. Severe burn usually results in a fairly rapid desiccation and browning of the entire plant. Plant burn from fertilizers normally occurs within several days following fertilizer application. Lower soil moisture and higher soil temperatures usually increase the potential for fertilizer burn.

The salt index is used to differentiate the relative burn potential. It is based on sodium nitrate being equal to 100. The higher the value, the greater the tendency for fertilizer burn.

Water soluble or quickly-available nitrogen sources, like urea and ammonium nitrate, have a high salt index, thus a high burn potential. Solutions containing methylol urea and short-chain methylene ureas have a lower burn potential. For example, Formolene (rating 1.5) exhibits a significantly

lower burn rating than liquid urea (rating 5.5).

Water insoluble or slowly-available nitrogen sources like intermediate- to long-chain methylene ureas and IBDU have a low water solubility, low salt index and low burn potential. In general, nitrogen sources applied as liquids have a higher burn potential than the same nitrogen sources applied in a granular or dry form.

The granular source has a greater tendency to fall from the plant surface to the thatch or soil, reducing the potential for direct foliar burn. Plant burn from granular sources will increase, however, on wet or moist foliage compared to dry foliage. In contrast, liquid fertilizer sources tend to coat the turf plant, increasing foliar burn potential.

Liquid urea has a greater tendency to burn than granular urea. In Ohio State University tests, granular urea was five to six times safer than liquid urea under conditions conducive to plant burn.

A lower application volume will increase the potential for plant burn with liquid sources. The lower volume simply results in a greater physical placement or entrapment of the fertilizer (salt) on the plant surfaces.

Many lawn care companies have considered lower application volumes to reduce the costs of liquid application. Economically, this is sound, but agronomically it increases the likelihood of turf burn. A reduction in application vol-

ume during cool weather would be safest.

Some liquid lawn care companies have changed to granular fertilizers during hot weather to lower the potential for turfgrass burn and injury.

Late-season fertilization

Late-season fertilization is a program used by lawn care companies on cool-season turfgrasses. Nitrogen is applied in the late fall when top-growth ceases but when turfgrass is still green and not dormant. Claimed advantages to late-season fertilization include better root growth, enhanced spring and fall color, less disease, improved heat and drought tolerance, and overall a physiologically healthier plant.

Nitrogen sources that are most efficient late-season fertilizers do not rely on temperature for nitrogen release, like urea, IBDU, nitrogen solutions and urea/short-chain methylene ureas.

There are more and better choices among the granular fertilizer group for late-season fertilization. In addition, lawn care firms find granular applications more acceptable to apply in the cold, late fall period.

Many lawn care companies have moved to the use of granular fertilizers in late-season fertilization for agronomic and operational reasons.

Liquid fertilization and nitrogen

Some non-technical literature has claimed that liquid turfgrass fertilization provides nutrients to the tops and not to the roots and other plant parts.

Fertilization with liquid nitrogen, specifically urea, does result in a significant absorption of nitrogen into the leaves. Nitrogen and many other elements are, however, quite mobile within the plant.

It is incorrect to assume that nitrogen absorbed by the leaves remains static in the leaf tissue. Nitrogen and several other elements have been shown to move from leaves to roots and back again several times. Nitrogen mobility can be considered to be just as dynamic in the plant as in the soil.

Liquid nitrogen fertilizers do not feed only the tops and not the roots.

Ammonia volatilization

Ammonia volatilization is up to 30 to 50 percent nitrogen loss as ammonia from nitrogen fertilizers. Most people consider liquid nitrogen sources to have a greater potential for volatilization than granular sources.

Several researchers have measured ammonia losses from granular and liquid urea:

● Torello reported quite low ammonia losses of 4.6 and 1.6 percent from liquid and

granular urea, respectively.

● Shearman et. al. found ammonia losses from liquid and granular urea to be similar.

● Titko and Street determined ammonia losses to be consistently greater from granular urea than liquid urea. At 70°F, ammonia losses from granular and liquid urea were 35.1 and 13.5 percent, respectively. Higher temperatures increased ammonia losses while irrigation following fertilizer application reduced losses.

The greater volatilization

Generally, the agronomic differences between granular and liquid nitrogen sources that have similar chemical characteristics are small—Dr. John Street, The Ohio State University.

losses from granular urea compared to liquid urea in Ohio State research were unexpected. They can, however, be easily explained by the tendency for the urea granule to be hygroscopic (absorb water) and maintain a high microen-

vironment pH (8.5 to 9.0) around the granule, favoring ammonia volatilization.

In contrast to granular applications, liquid urea applications dilute the urea concentration over the plant

See **DRY** on page 36



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DRY

from page 35

and thatch/soil surfaces, which minimizes the alkaline environment effect. Much of the applied liquid urea is absorbed by the turfgrass foliage, which may further attribute to a lower volatilization of liquid.

The use of granular nitrogen to reduce nitrogen volatilization losses in the summer is not supported by OSU research.

Physical placement and nitrogen loss

Nitrogen loss by clipping removal has been reported to be different between liquid and granular urea applications.

Much of the nitrogen applied with a liquid delivery system physically remains on the foliage. A single mowing shortly after a liquid nitrogen application (i.e. within 24 hours) has resulted in up to 47 percent loss of the applied nitrogen. Granular nitrogen, however, falls below the mowing height, resulting in a relatively small nitrogen loss during the first 24 hours after application.

During the second and third days after fertilizer application, nitrogen losses via clipping removal were reported to be high for both liquid and granular urea. This suggests that clipping return for two to three mowings following nitrogen fertilization would be desirable. Mowing within 24 hours of a liquid application would not be recommended unless clippings were returned.

Powder Blue applied through a liquid system was found to have a greater sticking tendency to foliage than urea, resulting in a greater nitrogen loss with clipping removal. Other UF-type suspensions most likely would adhere more to the foliage than urea.

Summary

Many choices of nitrogen fertilizers can be used in granular and liquid lawn care programs. Misleading information has usually unfairly portrayed liquid fertilization, resulting in some lawn care companies switching all or in part to the granular fertilization approach. In addition, rules and regulations regarding bulk storage, rinsing and recycling, and disposal of liquids have prompted many lawn care firms to make or consider an operational switch to granular programs.

Generally, the agronomic differences between granular and liquid nitrogen sources that have similar chemical characteristics are small. Liquid nitrogen fertilizers produce a faster initial color response lasting three to five days. There is, however, a real difference agronomically in the burn potential with liquids exhibiting higher burn.

The more positive image perceived by the public for

granular fertilizers, and their lower burn potential are the most dominant factors influencing a slight trend to granular fertilization in the lawn care industry. The bottom line, however, is that turfgrass quality from liquid versus granular fertilization usually shows few significant differences. More emphasis needs to be placed on the specific fertilizer selected and application timing for maximum efficiency. LCI

About the Author

Dr. John Street is a member of The Ohio State University Agronomy Department, Columbus, Ohio.

Nov.

■ **12-14 Penn State Golf Turf Conference.** Keller Conference Center, University Park, PA. Contact: Dr. Joseph Duich, Dept. of Agronomy, 16 Tyson Building, University Park, PA 16802. 814/865-9853 or Pennsylvania Turfgrass Council, Landscape Management Research Center, Orchard Road, University Park, PA 16802. 814/863-3475.

■ **12-15 Green Industry Expo (including the PLCAA Convention).** Nashville Convention Center. Contact: PLCAA, 1000

Johnson Ferry Road, NE Suite C135, Marietta, GA 30068. 800/458-3466.

■ **13-16 New York Turfgrass Association Turf & Grounds Expo.** Rochester Riverside Convention Center. Contact: NYSTA 800/873-8873.

■ **27-29 Turfgrass & Ornamental Chemical Seminar.** Purdue University, West Lafayette, IN. Contact: Jo Horn 317/494-8039.

Dec.

■ **4-5 Rocky Mountain Turf Conference.** Holiday Inn. I-70 & Chambers Road, Denver. Contact: Rocky

Mountain Regional Turfgrass Association, P.O. Box 903, Parker, CO 80134.

■ **7-9 Northeastern Weed Science Society Annual Meeting.** Stouffer Harborplace Hotel, Baltimore. Contact: Bradley A. Majek, 609/455-3100.

■ **4-6 Mid-America Green Industry Convention.** Kansas City (MO) Market Center and Park Place Hotel. Contact: Olivia Golden, PLCAMA, PO Box 35184, Kansas City, MO 64134. 816/765-7616.

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Start looking now for 1990 tax deductions

The fall is a good time to plan for spring—specifically, for April 15, 1991, when taxes will be due for this year.

That's because next April will probably be too late for most taxpayers to substantially reduce their 1990 taxes, said Frank J. O'Connell, national tax partner for Laventhol & Horwath.

"The typical taxpayer's tax strategy is to find as many deductions as possible when filling out the return," he said. "But sound planning now, before the end of the year, often

has a larger effect on income taxes than anything that can be done when a return is prepared."

Small business owners should maximize deductible business purchases such as office supplies. The end of the year is also a good time to buy major equipment, such as a computer, because they will be able to begin taking deductions for the expense.

Business owners can both depreciate the value of the equipment and take deductions over a number of years.

Business owners who buy less than \$200,000 worth of equipment a year can immediately write off up to \$10,000 of such a purchase.

Self-employed persons should also pay as much of their health insurance as possible this year because they can deduct 25 percent of their health insurance premiums.

Maximize tax-deductible retirement contributions, said O'Connell, who listed three primary options:

- Individual Retirement Accounts (IRAs).

- 401(k)s.
- Keogh plans.

Taxpayers not covered by a pension plan at work can make a tax-deductible contribution of as much as \$2,000 into an Individual Retirement Account—plus another \$250 for a non-working spouse.

Taxpayers who don't qualify for a tax-deductible IRA should ask their employer about a 401(k) plans. In 1990, as much as \$7,979 of pre-tax income can be shifted into such a plan.

Establish a Keogh plan if

you're self-employed, said O'Connell. Doing so before the end of the year allows the self-employed taxpayer to contribute as much as 20 percent of his income—as much as \$30,000—into a defined-contribution Keogh.

"Taxpayers can contribute to some retirement plans next year and still get a deduction this year," said O'Connell. "But they have to plan now so that they can afford to use this strategy."

Laventhol & Horwath is a national accounting and business consulting firm headquartered in Philadelphia. LCI

Cyanamid buying a biological firm

WAYNE, NJ—American Cyanamid Company is buying a biological control research company, IGB Products, Ltd, San Leandro, CA.

"We acquired the IGB Products business to strengthen our ongoing commitment to biotechnology and to continue our work towards introducing species-specific biological insect control products," said Howard L. Minigh, general manager of Cyanamid's Vegetation and Pest Control Ventures Department. "Some of the advances IGB has demonstrated, especially in the area of gypsy moth control, make us optimistic about the company's ultimate potential."

Cyanamid will maintain the IGB business under its current name and at its current location. LCI

PGMS edition being offered

COCKEYSVILLE, MD—The Professional Grounds Maintenance Society's 6th edition of the *Grounds Maintenance Estimating Guidelines* is available. It includes charts to help cost a job, including the "hidden costs" in projects.

Also available are the *Grounds Maintenance Management Guidelines* and the *Grounds Management Forms and Job Descriptions Guide*. Each manual costs \$12 if check is sent with order and \$15 if billed. They're free for PGMS members.

The 1990 PGMS Membership Director is also available and can be obtained by non-members for \$30 (free to members).

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Deicers

A review of the four most commonly used and how they compare against each other in snow and ice removal.

Almost any material can be used as a deicer if it's soluble in water and can lower the freezing point of water. There are, however, only four chemicals in widespread use today: calcium chloride (CaCl₂), sodium chloride (rock salt, NaCl), potassium chloride (KCl) and urea.

Calcium chloride (CaCl₂) and sodium chloride (NaCl) are the most widely used.

All deicers work in about the same manner. They must first attract or come into contact with sufficient moisture to form a liquid brine. Since these brines have lower freezing temperatures than water, they cause ice and snow to melt on contact. The solution formed by urea is not technically a brine, but its function is essentially the same.

Spread onto icy surfaces, deicers begin the melting process by penetrating downward to the pavement. Here, the accumulation of brine spreads out under the ice, "undercuts" the ice, and breaks the bond between the ice and pavement. After sufficient loosening, the ice or snow can be easily removed by shoveling or plowing.

Deicers should only be used to make the job of removing ice and snow easier, not to completely melt a given area. The lower the temperature, the harder it is to break the bond between ice and pavement.

In situations where the temperature is near freezing (30 to 32 F) and snow is falling lightly, deicing agents should be used sparingly. When ice adheres to concrete or asphalt surfaces, the task of removing the ice and snow becomes extremely difficult—regardless of the temperature. This is when effective deicing agents are needed most.

Use right amount

The best procedure is to spread the deicing chemical according to the manufacturer's instructions, wait for the actual melting to take place, and then remove the disbonded ice and snow mechanically. This procedure reduces the amount of deicer required for safe removal of ice and snow and makes the job of plowing and shoveling easier and faster.

Deicer performance is determined by factors like temperature, traffic conditions, the time it takes for a deicer to form a brine, the shape of the individual deicer particles, and the duration of the deicer's melting action.

The chemical behavior of the four deicers is very dif-

ferent. There are significant disparities in how quickly they dissolve and how they behave while dissolving. These differences affect their performance at varying temperatures. When deicing performance is compared at 15 F (see Figure 1), it's apparent that calcium chloride pellets melt the most ice. This performance difference becomes even more dramatic as the temperature drops to 5 F.

Why does calcium chloride perform better than other materials, especially at lower temperatures? It has a greater capacity to attract moisture from its surroundings, which enables it to dissolve faster and begin to melt ice faster.

Another reason is that CaCl₂ actually releases heat as it melts—an exothermic reaction. The other three chemicals—either alone or in blends—absorb heat as they melt—an endothermic reaction. One pound of CaCl₂ liber-

ates 290 BTUs as it dissolves. A pound of rock salt, on the other hand, draws 39 BTUs from the environment as it dissolves. Similarly, potassium chloride draws 170 BTUs and urea absorbs 106 BTUs while dissolving.

Works at lower temps

What do these differences mean to ice and snow control operations? Generally, rock salt, potassium chloride, and urea begin to lose their deicing effectiveness at temperatures below 25 F. On the other hand, Calcium chloride retains its effectiveness to temperatures as low as -25 F. This difference is most important when a cold front moves in, often after a snowstorm, causing the temperature to drop quickly and solidly freeze the accumulated moisture.

Heat generated by the friction of moving traffic on roadways (especially interstates) can make rock salt effec-

temperatures below 25 F, but this effect is less pronounced in a parking lot and is absent on sidewalks and store front entrances. Therefore, in these areas it's important to use a deicer that's effective at lower temperatures.

Many deicer manufacturers' claims of low temperature effectiveness are based on the lowest theoretical temperature at which the deicer can depress the freezing point of water. This theoretical (eutectic) temperature can only be achieved at the ideal percent concentration of the material in water under ideal conditions. All other concentrations have higher freezing points.

Since all deicers become increasingly diluted as they melt more ice and snow, they only very briefly attain and remain at their ideal concentration for ice melting. Claims that rock salt, potassium chloride, and urea are effective at temperatures well below freezing are based on theoretical temperature, which has little bearing on actual outside deicing conditions.

A more realistic measure of low temperature performance is the "practical temperature limit," the lowest temperature

at which sufficient deicing action is evident within a reasonable period of time with a reasonable amount of deicer applied to the surface. Figure 2 compares the theoretical and practical low temperature limits of the various deicing chemicals. Note that calcium chloride is the only one that remains "practically" effective below 20 F.

Round is better?

In 1986, an independent laboratory demonstrated that the shape of deicing particles affects the speed of their penetration through ice. Subsequent independent research in 1989 demonstrated that pen-

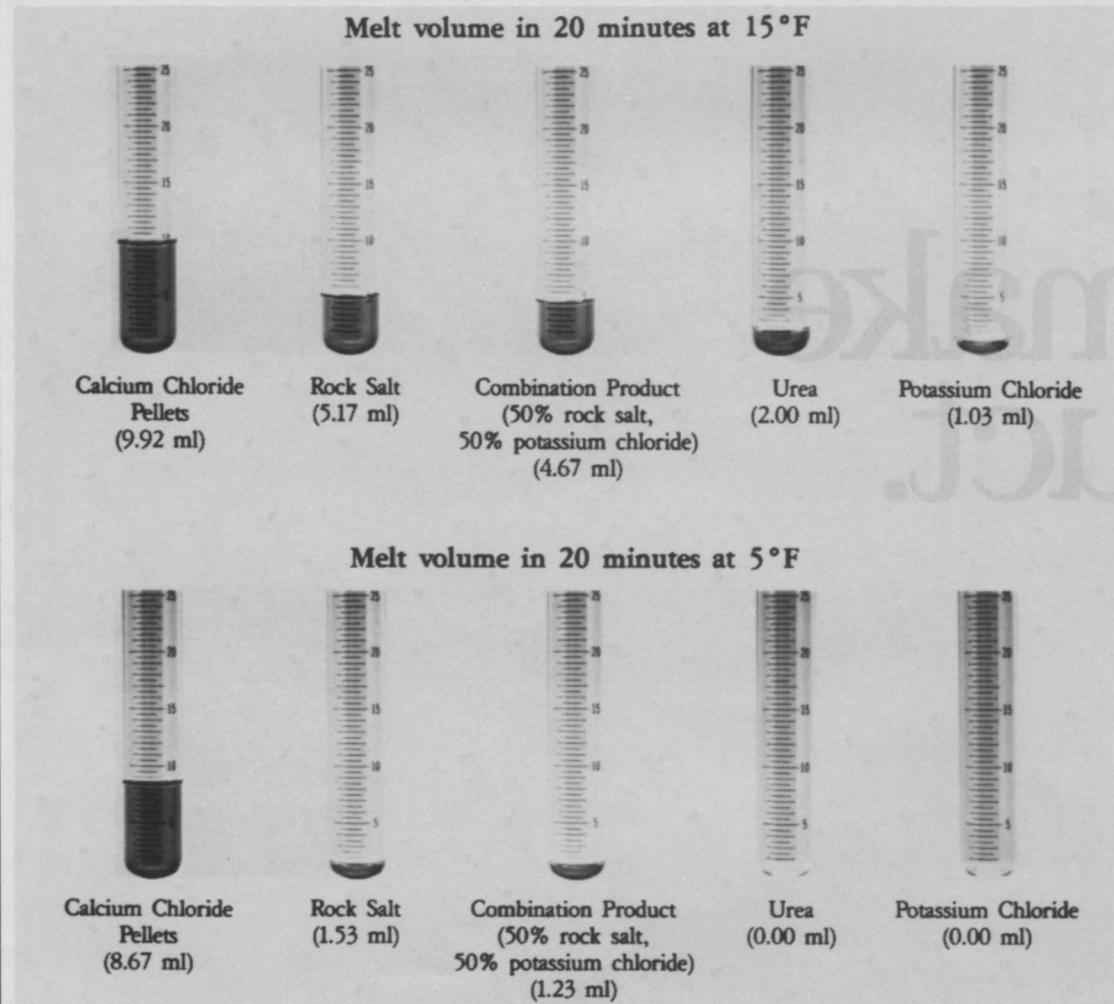


Figure 1. How well do various deicing chemicals really work at 15 F and 5 F?

Material	Ideal Concentration	Theoretical Low Temp.	Practical Low Temp.
Calcium Chloride pellets	29.6%	-59°F	-25°F
Sodium Chloride (rock salt)	23.3%	-6°F	+20°F to +25°F
Potassium Chloride	19.8%	+12°F	+20°F to +25°F
Urea	NA	+11°F	+20°F to +25°F
Combination Product (sodium chloride, potassium chloride, urea)	approx. 20%	+0.5°F	+20°F to +25°F

Figure 2. Theoretical vs. practical temperature limits of deicers.

- AL Tieco, Inc.
(205) 942-4800 Birmingham
(205) 834-3705 Montgomery
- AR Agra Turf
(501) 268-7036 Searcy
Quail Valley Farm
(501) 221-0432 Little Rock
- AZ Snyder Turf Supply, Inc.
(602) 948-9107 Scottsdale
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- CA Target Specialty Products
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- CT East Haven Landscape Products
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Southeastern Turf Grass Supply
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(305) 970-0535 Pompano
- GA Ramar Laboratories Inc.
(803) 651-1451 Murrells Inlet
Shemin Nurseries Inc.
(404) 934-5210 Norcross
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- KY Tieco
(502) 499-9300 Louisville
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- LA Chembro Inc.
(504) 340-3930 Marrero
- MA Shemin Nurseries, Inc.
(508) 562-6988 Hudson
Tom Irwin Company
(617) 273-0143 Burlington
Tuckahoe Turf Farms, Inc.
(617) 828-0800 Canton
Valley Green Center, Inc.
(413) 533-0726 Chicopee
- MD Lea's Green Meadows, Inc.
(301) 899-3535 Temple Hills
- MI J. Mollema & Son
(616) 940-1441 Grand Rapids
Shemin Nurseries
(313) 291-1200 Taylor
Turfgrass, Inc.
(313) 437-1427 South Lyon
- MN Turf Supply Company
(612) 454-3106 Eagan
Wilbur-Ellis Company
(800) 553-0554
- MO Professional Turf Specialties
(314) 997-6640 St. Louis
(816) 228-6999 Sugar Creek
Wilbur-Ellis Company
(800) 553-0554
- NE Greenskeeper Company, Inc.
(402) 592-4800 Omaha

etration efficiency in turn affects a deicer's undercutting and disbondment performance. Faster, vertical melting and penetration action provides greater quantities of brine for undercutting the ice and breaking the bond between ice and pavement.

The research also demonstrated that uniformly shaped spherical pellets of about 1/16" to 3/16" penetrate ice faster and more efficiently than other shapes, since they dissolve evenly and vertically. Irregularly shaped crystal materials have a tendency to produce thin tentacles of melting, causing the deicer to skew in all directions. Flake particles

are the worst performers; they spend as much time melting horizontally as they do vertically. By the time the flake particles reach the pavement, they're often too diluted to effectively undercut and disbond the ice.

After 30 minutes at 20 F, CaCl₂ and rock salt work well in penetrating ice, but CaCl₂ pellets undercut 95 percent of the ice, compared with 88 percent for rock salt, the next best performer. When the temperature is lowered to 5 F, only calcium chloride pellets continue to be effective in penetrating and undercutting ice. In addition, calcium chloride pellets, on the average, allow

users to remove eight percent more ice than sodium chloride, and require nearly 45 percent less force to do so.

The effects of deicing chemicals on concrete are often misunderstood. None of the common deicers chemically attack the concrete. However, by depressing the freezing point of water, all deicers can affect the number of freeze/thaw cycles on a concrete surface. It's the expansion pressure caused by the freezing of water that causes concrete to spall.

For example, if the temperature is hovering between 25 F and 35 F, plain water on a concrete surface will freeze

when the temperature crosses the 32 F mark, and it will again thaw when the temperature rises, exposing the concrete to one freeze/thaw cycle.

Freeze/thaw cycles

On the other hand, if the temperature varies between 15 F and 25 F, plain water will remain frozen, while a salt brine with a freezing point of 20 F will go through a freeze/thaw cycle each time the temperature rises and falls. Each of the various deicing chemicals affects the freeze/thaw cycle, and therefore the concrete, in a different way.

Independent laboratory tests performed in accordance

with the "Standard Test for Scaling Resistance of Concrete Surfaces Exposed to Chemical Deicers," established by the American Society for Testing Materials (ASTM Standard C-672) indicate that calcium chloride pellets pose the least threat of damage to concrete of any chemical deicer tested.

In addition, research conducted by the Portland Cement Association indicates that good quality, air-entrained concrete that is properly cured is much more resistant to freeze/thaw scaling than improperly cured and/or non-air-entrained concrete. Manufacturer's recommendations should always be followed to prevent over-application of deicers, and once the ice bond is broken, the slush and residual deicer should be removed to prevent refreezing. These cautions assist in allowing the cement to remain in good service condition.

Calcium chloride, sodium chloride, potassium chloride and urea all have the potential for damaging plant life if their concentration in the soil is unusually high. It's the chloride ion from any of the first three chemicals that causes the most damage. Sodium from rock salt can also be harmful, while calcium and potassium are actually beneficial to soil. Urea, since it's also used as a fertilizer, can be beneficial, although excessive fertilizer can also damage plant life.

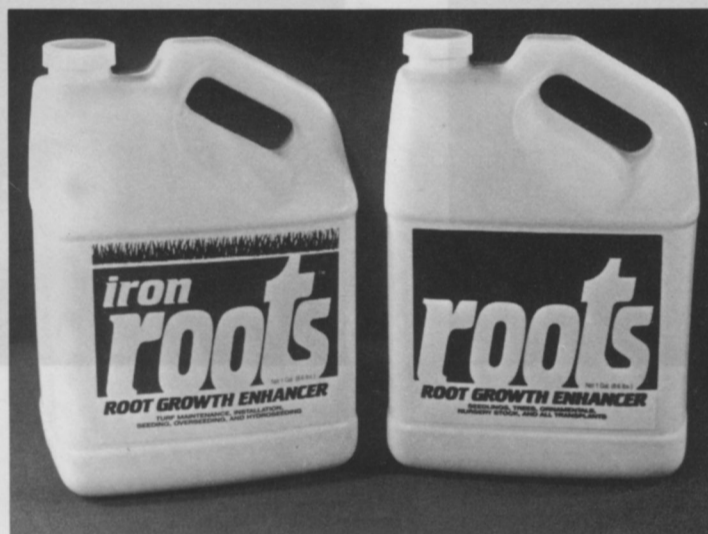
However, when chemical deicers are used in recommended amounts for sidewalks, parking lot, or entrance drive deicing, there is little chance of damage to grass, trees, and shrubs by residual deicer accumulations. This is especially true if the chemical is used sparingly—only to undercut ice and snow—and the slush is not plowed or shoveled onto planted areas.

Why corrosion?

The corrosive effects of deicers on metals have also been the subject of considerable attention and research. The conclusions are that deicers in the salt family (sodium chloride, calcium chloride, and potassium chloride) can accelerate corrosion of unpainted iron and unprotected steel by holding moisture against exposed metal surfaces. There is no significant difference among salts in their effect on corrosion. Ordinarily, if the surface paint, chrome or undercoating is not damaged or broken, corrosion will not occur under saline conditions.

Another concern of many businesses is the visible deicer residue that gets tracked into shops and buildings. The biggest culprits are urea, rock salt, and potassium chloride. These materials dry to form a white powdery residue which is unsightly and can cause complaints.

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SURVIVAL OF THE FITTEST

Increasing root growth is the best way to make sure your plantings survive. ROOTS*, the Root Growth Enhancer, stimulates new root growth in transplants, new seedlings and sod installations.

1. **TRANSPLANTS**—ROOTS promotes fast root regrowth in transplanted trees, shrubs and ground cover plants so that loss and dieback are minimized.

Dilute 50 to 1 in water (2 oz. ROOTS per gallon). Water into root zone after planting.

Trees/Shrubs—Apply 2 oz. ROOTS per inch caliper. For bare root planting, use a 20 to 1 diluted solution as a root dip before planting.

2. **SOD INSTALLATIONS**—ROOTS quickly knits down newly installed sod so it doesn't have to be replaced.

Dilute 50 to 1 in water 2 oz./gal.) and spray 6 oz. ROOTS per 1,000 sq. ft. on the sod after installation. In stressed conditions apply again 2-4 weeks later.

3. **NEW SEEDINGS**—ROOTS stimulates initial root growth for fast, aggressive establishment.

Dilute 50 to 1 in water and apply 6 oz. per 1,000 sq. ft. after germination.
Hydroseeding—Apply 2 gallons per acre to the tank mix before seeding.

Call us on our toll-free line 1-800-342-6173 for any technical information you may need. We have national distribution and will provide detailed application instructions on projects.

*ROOTS and ironROOTS are trademarks of Soilizer Corporation.

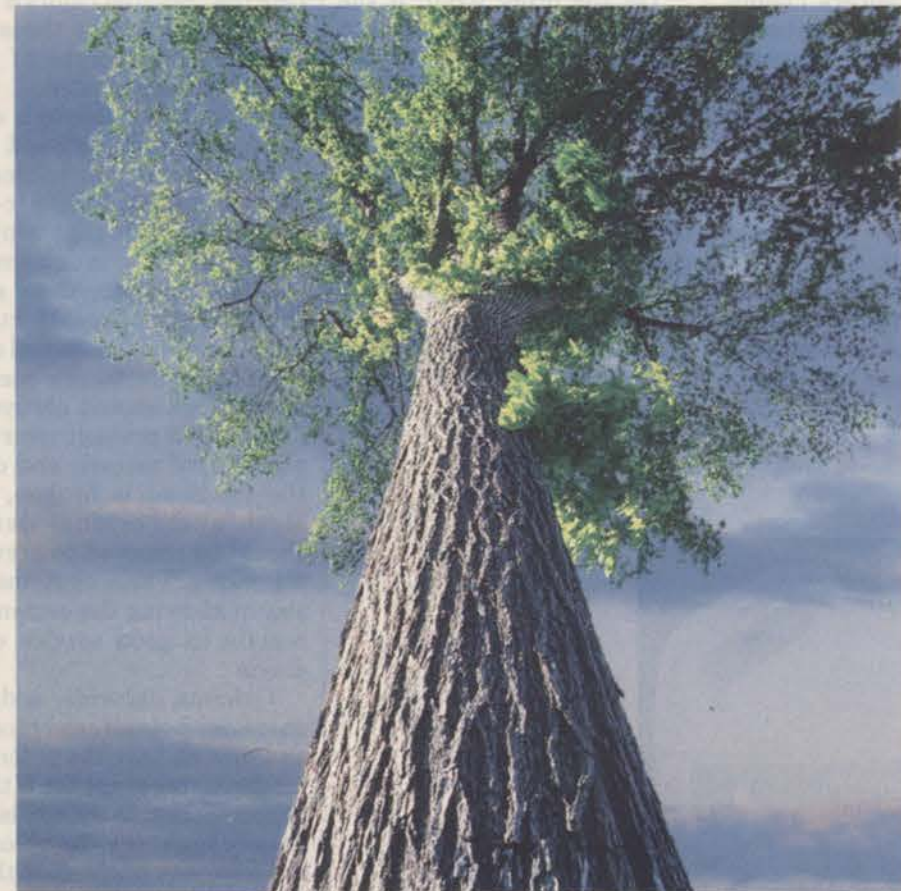
roots inc.

25 Science Park, New Haven, CT

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Tall ones. Short ones.



SURVIVAL OF THE FITTEST

Increasing root growth is the best way to make sure your plants survive. ROOTS™, the Root Growth Enhancer, stimulates new root growth in transplants, new seedlings and sod installations.

1. TRANSPLANTS—ROOTS promotes fast root growth in transplanted trees, shrubs and ground cover plants so that loss and setback are minimized.

Dilute 20 to 1 in water (2 oz. ROOTS per gallon). Water into root zone after planting.

Transplants—Apply 2 oz. ROOTS per inch caliper. For bare root planting, use a 20 to 1 diluted solution as a root dip before planting.

2. SOD INSTALLATIONS—ROOTS quickly kills down newly installed sod so it doesn't have to be replaced.

Dilute 20 to 1 in water (2 oz. ROOTS) and spray 6 oz. ROOTS per 1,000 sq. ft. on the sod after installation. In wettest conditions apply again 3-4 weeks later.

3. NEW SEEDINGS—ROOTS stimulates lateral root growth for fast, aggressive establishment.

Dilute 20 to 1 in water and apply 6 oz. per 1,000 sq. ft. after germination. Hydroseeding—Apply 2 gallons per acre to the tank mix before seeding.

Call us on our toll-free line 1-800-343-6173 for any technical information you may need. We have national distributors and will provide detailed application instructions on request.



when the temperature cools... the 85°F mark... and it will... when the temperature cools... the 85°F mark... and it will... when the temperature cools... the 85°F mark... and it will...

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Thin ones.



Fat ones.



All shapes and sizes qualify for our PAGEANT.

Nothing's worse than slimy worms crawling on your shrubs, ugly beetles munching on your pines and nasty borers blemishing your birches. That's why you need new PAGEANT* DF in your tank.

Any other insecticide has to settle for first runner-up. PAGEANT DF is the only tree and shrub insecticide that gives you the active ingredient chlorpyrifos in a dry, flowable formulation. Its long residual keeps protecting the beauty of trees and shrubs long after other insecticides have left the scene. And studies show that chlorpyrifos is gentle to both applicator and environment.

What's even more attractive is its broad spectrum of control. You can control everything from beetles to borers to worms—all with a single insecticide.

Since it's a dry, flowable formulation, PAGEANT DF also has minimal odor and less chance of phytotoxicity. Plus, it goes into solution beautifully—no more

clogged nozzles, or undissolved clumps. Your applicators can mix without dust. And without the splashing caused by liquid insecticides.

So much talent in such a beautiful package. Almost seems unfair. PAGEANT DF not only works better than the competition, it also looks better. But that cube-shaped container offers more than good looks—it's specially designed for easier handling and disposal.

Each container holds five full pounds of insecticide. At a mixing ratio of 1-2 pounds per 100 gallons of water, PAGEANT DF is ideally packaged for larger spray tanks.

Why not judge for yourself how well PAGEANT DF protects the beauty of trees and shrubs? Then send a clear message to the insecticide you're presently using: hand over the crown. To find out more, call

1-800-352-6776.



*Trademark of The Dow Chemical Company.

Mulch, more than a soil cover

Mulching beneath ornamental plants is an established practice in today's landscapes. It's even used as an ornamental feature by itself without the addition of plants. In that situation there are few, if any, guidelines necessary for the application and use of mulch. But there are specific rules to follow when mulching plants to maximize their growth and health.

Mulching around ornamental plants involves covering a portion or all of the root zone with shredded hardwood bark, bark nuggets, wood chips, or other materials. Select a material that features:

- consistent color and texture,
- compaction resistance,
- wind and water erosion resistance,
- fire resistance,
- slow rate of decomposition,
- ability to reduce weed growth.

17,000 expected

LAS VEGAS, NV—Attendance may top 17,000 at the 62nd International Golf Course Conference and Trade Show, Feb. 5-12, 1991, here. The show is hosted by the GCSAA. LCI

The mulch that you select has to do more than just cover up bare soil.

From the plant's standpoint, mulch must allow for an exchange of gases (oxygen into the soil, carbon dioxide out of the soil) and the penetration and the slow evaporation of water. If mulch slows or stops these processes, plants will decline and eventually die, says David Whitworth, horticulturist at the Davey Human and Technical Resources Center.

Conserves water

The most important benefit of mulching plants is the conservation of soil moisture. When mulching is done correctly, soil water evaporates slowly and provides plants with a consistent source of water. Over a few years, as organic mulches decompose, the underlying soil's ability to hold water may be improved. In most cases, mulched trees and shrubs survived the drought of 1988 better than those that did not have mulch.

Mulch can actually improve water infiltration into the soil. Raindrops falling on bare soil not only cause erosion but also cause soil surface compaction. Mulch reduces or eliminates erosion and cushions the im-

pact of raindrops. Water can then penetrate to a greater depth, as well as can plant roots.

Don't mound mulch

Two common mistakes in using mulch are applying it too deeply and mounding it up against tree and shrub trunks. Most mulches should be only two to four inches deep; use the low range for heavy, clay soils and the high range for lighter, sandy soils. It is not unusual to find landscapes with mulches that are six to eight inches deep or more. Air and water exchange are dramatically reduced and the soil becomes an inhospitable environment for roots. Mulch that buries the base of a trunk encourages the development of decay fungi.

The annual re-application of mulch to a planting bed certainly improves the initial appearance of the landscape, but it can also lead to unattractive, sick plants. Annual mulching causes a build-up that exceeds the maximum recommended depth. One to two inches of mulch applied every two to three years is adequate to maintain the beneficial aspects of the mulch. New mulch should not be applied until the existing mulch is nearly de-



composed and has been lightly incorporated into the soil. To renew the appearance of mulch in the intervening years, consider using one of the new mulch colorant sprays. Simply raking the existing mulch can be a dramatic improvement.

Mulches will not eliminate the headaches of weed competition, but can reduce the density of undesirable grasses and broadleaf weeds. Maximum weed control can be achieved by applying a pre-emergent

herbicide and/or landscape fabric (not sheet plastic!) before spreading the mulch.

Mulches are an integral part of landscaping. Use them the wrong way and expensive plants will die. Use them correctly and your plants will reward you with years of beauty.

The Davey Tree Expert Company is America's oldest and largest tree care company. Davey is an employee-owned company with 4,500 employees coast to coast and in Canada. LCI

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Sandoz's Hargett says chemicals will be needed in ag for years to come

Dr. Lou Hargett, of Sandoz Crop Protection Corp., said chemicals will remain important for agriculture for many years to come. "While I'm a firm believer in biologicals, I am equally realistic about the continuing need for environmentally sound, highly effective chemical or biochemical products," Hargett told attendees at the National Sustainable Agriculture and Natural Resources Conference in Lincoln, NB, in August.

Hargett said he doesn't see biological tools replacing modern agri-

chemicals. (Sandoz is a leader in biological agricultural research.)

Richard E. Fedigan becomes manager of Purchasing/Customer Service for Lebanon Turf Products, Lebanon, PA. Fedigan was previously Crop Protection Manager for Lebanon



Fedigan

which he joined in June 1989. Prior to that he worked for Monsanto Agricultural Company.

Dr. Donna Fitzpatrick became the leader of the environmental chemistry group of Agri-Diagnostics Associ-

ates, Cinnaminson, NJ. **Dr. Bharat Kikani** is the group's newest research scientist. The company promoted **Dr. Sally A. Miller** to senior manager of plant pathology research and development. **Dr. James H. Rittenburg** became manager of environmental chemistry.

Robert Yarborough is Lesco's new vice president, control products. Yarborough joined Lesco in 1984 and served initially as a project leader for research and development of special products.



Yarborough

Carl R. Meermans was promoted to vice president, operations for Lesco, Inc. He joined the company in 1987 as a systems analyst and was promoted to operations manager in 1988.

The Andersons Lawn Fertilizer Division named **Paul Jacquemin** as sales rep in central and southern Ohio, Kentucky, Tennessee, West Virginia, Arkansas and Mississippi. Previously he's worked with Morral Chemical, ChemLawn and O.M. Scott and Sons Co.



Jacquemin

ChemLawn Services Corporation

Wis. studies atrazine regs

MADISON, WI—Recent tests by the Wisconsin Agriculture Department indicate the weed killer atrazine might be present in 20 percent of the state's rural drinking water.

The *Milwaukee Sentinel* reported this fall that state officials tested water from 2,200 wells, and that atrazine was detected in 40 percent or more of the rural well samples from 18 counties, and over 20 percent in 22 more counties.

Atrazine has been widely used by corn farmers over the past 20 years to kill quack grass and other problem weeds.

Public hearings on proposed regulations to limit atrazine began in seven Wisconsin cities in October.

LCI

Dyanap finally taken to Texas

PORT CLINTON, OHIO—Four years after it arrived, over a million gallons of the herbicide Dyanap began to be removed from a warehouse here.

The presence of 1.7 million gallons of the herbicide, banned since 1986 by the U.S. Environmental Protection Agency, had become a sore spot between government officials and the Uniroyal Chemical Co. in this small northwestern Ohio community.

The Dyanap had been stored in steel drums in a warehouse. In late September the first truck containing 3,300 gallons of the material left for a two-day trip to Port Arthur, TX, where the Dyanap will be burned. Company officials said removal of all the herbicide will require 500 trips and take almost two years.

LCI

The first turf fertilizers so specialized, they make the competition see red.

D. O. T. S.

Distributor's Own Turf Supplies™

It's understandable, because no other distributor offers what we do. Some suppliers may pass their pre-packaged fertilizers off as custom blends, but when it comes right down to it, their products simply aren't formulated to meet your specific needs. As a result, your expertise and input are ignored which turns into frustration for you.

At DOTS (Distributor's Own Turf Supplies), we do things differently.

Our fertilizer/pesticide products are

designed so you can develop your program professionally with specialized formulas for your specific needs. With a DOTS distributor, you're treated individually—not clumped together with others and sold "off-the-shelf" blends.

We test the soil before we make the formula.

We realize that the markets you serve have different turf, climate, and soil conditions. You tell us your specialized needs and problems, we'll provide soil testing when

needed, and then work with you to prepare an individual solution. It's easy on your part, thorough on ours.

All DOTS products are designed to meet the highest industry standards in uniformity and performance. In-house quality control means that each order delivered to you complies with our rigid specifications, assuring you the quality you expect.

Just look for the red dot to know you're getting the best... from the best distributor. For more information, call 1-800-345-DOTS.

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NEWSMAKERS

named:

• **David Siegfried** Executive Vice President—Strategic Development. He's a graduate of Brown University.

• **Tom Murrill** Vice President—Human Resources. Formerly he had a law practice in Tustin, CA.

• **Kirk A. Hurto, Ph. D.**, as Director of Technical Services. He was the company's senior research scientist. He joined ChemLawn in 1981.

The International Society of Arboriculture installs four new officers: **Dr. Donald Ham**, president; **Roger Garrigue**, president elect; **John Moran**, vice president; and **Dr. Michael Walterscheidt**, immediate past president.

Terry Ward joined Milorganite as

manager of advertising, promotion and training.

Northrup King hired **Fred Bosch** as turf specialist, Med-alist Turf Division. He will be selling in Michigan, Ohio, western New York and western Pennsylvania. A former golf course superintendent, Bosch was recently a rep for W.A. Cleary Chemical Corp.



Bosch

Cecil Collings, Green Valey Turf Farms, Inc., Canfield, Ohio, becomes the American Sod Producers Association's 20th president. Also elected to

the 1990-91 ASPA board of trustees: **Darwin McKay**, Turfco, Meridian, ID; **Mike Holmes**, Warren's Turf, Crystal Lake, IL; **Tim Boyer**, Southern Turf, Norcross, GA; **Doug Barberry**, Aldino Sod Farms, Churchville, MD; **Bill Huber**, Huber Ranch Sod Nursery, Schneider, IN.

James Shearer became vp of operations for Rain Bird Sprinkler Mfg. Corp., Glendora, CA. He most recently served as vp of engineering for Lynton Engineering, Inc, consultants to RB.



Shearer

Also, **Kenneth Mills Jr.** was promoted to vp of the new Commercial Division to target landscape architects and irrigation consultants. Mills has been with Rain Bird Glendora, CA, since 1964. **Michael Baron** is RB's new director of the Contractor Division. He's been with Rain Bird since 1980. **Tom Thompson** was promoted to director of sales for Rain Bird National Sales Corporation. He joined the company in 1983. He lives in Corona del Mar, CA. **Don Parker**, a 25-year employee of Rain Bird died in August. He was the company's first Golf Product Application Engineer.

Clifford D. Feldmann, new vice president of marketing for Feldmann Engineering & Manufacturing Co., Sheboygan Falls, WI. **LCI**

NEW PRODUCTS



B&S engine features overhead valve setup

Briggs & Stratton Corp. offers an 18-hp, 570-cc model to its Vanguard engine line. The overhead valve construction allows the engine to run cooler, cleaner and more efficiently. It also permits less carbon build up, longer valve life and improved fuel economy.

Full-pressure lubrication provides a controlled flow of oil to all moving parts for less wear. A spin-on automotive-like oil filter keeps oil clean and extends time between oil changes.

Circle No. 150 on service card.

True Temper spreader now more user friendly

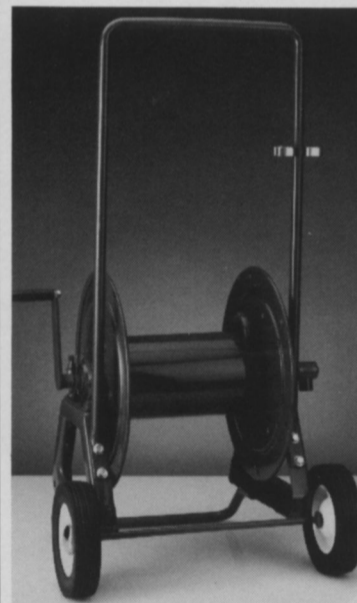
True Temper's Cyclone® Commercial Broadcast Spreader, model CB5000, has a 100-lb. capacity, heavy-duty poly hopper with an adjustable feed gate for even spreading. A semi-permanent, clear-acrylic hopper cover allows the user to fill the hopper without removing the cover. The axle, impeller shaft, fasteners, agitator, ground prop feet and control rod are all made of stainless steel. An adjustable handle allows the user to customize the spreader to the desired handle height and the ground props adjust for varying terrain or user preference.

Circle No. 151 on service card.



standard backpack sprayer. Each tablet treats one or two gallons of spray solution. The tablets are made from food-grade material. Decorative fountain and pond water may also be colored and beautified with these tablets, says the company.

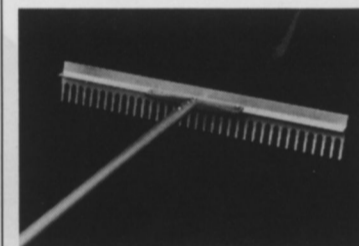
Circle No. 152 on service card.



Hannay reel now comes with detachable handle
Hannay Reels makes a com-

pact, portable hose reel with a detachable handle. This makes reel storage more compact and also results in significant shipping savings to the user because the reel is now UPS-shippable. Hannay describes the reel as rugged and durable.

Circle No. 153 on service card.



New Kraft rake built for heavy-duty work

The Kraft Tool Company says its Landscape Rake and Asphalt Leveler is built for heavy-duty use. It has a 36-inch aluminum head with a 66-inch magnesium handle. The teeth are 2½-inch long with ball point tips to ensure the tool's long life.

Circle No. 154 on service card.

Koos fertilizer is an all-natural product

Koos Inc. says its two all-natural organic fertilizers are composed of all-natural organic nitrogen, phosphoric acid and potash. The lawn fertilizer is a 10-1-4 mixture and the garden mix is a 5-5-5 combination. Both products contain 80 percent water insoluble nitrogen that slowly releases nutrients into the soil. Be-

cause of the slow-release process, the granulated fertilizers are non-burning and do not need to be watered in. The lawn fertilizer nutrients come from bone phosphate, sunflower seed hull ash and natural animal organic ammoniates.

Circle No. 155 on service card.

Extend your reach with E-Z Reacher tool

No more stopping your riding mower to pick up debris that could damage the mower blades. Arcoa Industries offers the E-Z Reacher pick up tool. It grabs and holds everything up to 4 pounds and 4½" wide. It's lightweight and rustproof and available in three lengths.

Circle No. 156 on service card.



Yard Stick

An All Purpose Lawn and Garden Posting Marker.

Yard Stick is the lawn marker you will be proud to present to your customers for their future use in the garden and around the home. Meets all state regulations. Sturdy and extremely functional. Includes a state approved message card with your company name, telephone number, and an entry line for time and date of application.

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Quick foot step for "planting".

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Customized 4" x 5" message board.

Handy at-a-glance rain gauge.

Note holder area for extra message.

Built-in grass height gauge.

Turf spray indicator now comes in tablets

Turf Mark, a blue spray pattern indicator, is now available in tablet form. The Becker-Underwood, Inc., product can be used with any

Soluble Kelp Extract

- A natural source of micronutrients and properties enhancing root and turf development, vigor, and resistance.
- An all-natural base for foliar nutrition formulations.



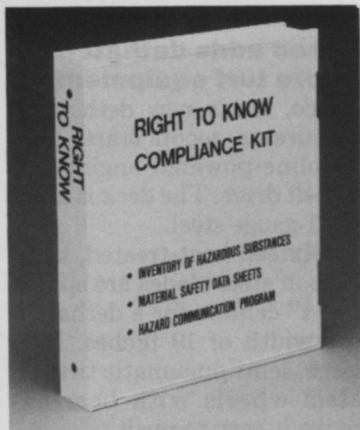
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Circle No. 122 on Reader Inquiry Card

NEW PRODUCTS

**Right-To-Know Kit****helps employers comply**

The Right To Know Compliance Kit is useful for employers who buy, sell or use hazardous substances in their businesses. It contains the OSHA 1910.1200 ruling which is required to be made available to employees. It also provides a special index form for listing up to 40 hazardous substances and work areas in which they are located, and includes a form letter for requesting Material Safety Data Sheets (MSDS) to be filed in the binder.

Circle No. 160 on service card.

**Lesco wetting agent eliminates dry spots**

Lesco-Wet non-ionic turf wetting agent comes in 4-ounce tablets. Lesco-Wet increases the ability of water to penetrate compacted soil or dense thatch. Use it to eliminate localized dry spots, help drain standing water, enhance pesticide penetration and encourage deeper plant rooting. Spray directly on turf without burning fine turfgrass.

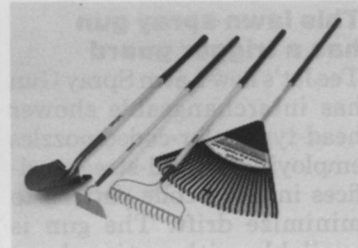
Circle No. 161 on service card.

**New update kit keeps Lawnaire IV operating**

Ryan Lawnaire IV aerators now have a new "update kit" with a new axle, complete with needle bearings, seals and thrust washers. It can be used to rebuild all Lawnaire IV aerators built through 1990. Bob Brophy, lawn care product manager for Cushman,

said heavily used Lawnaire IV aerators and those used in abrasive soils may benefit from this maintenance. When replacing axle assemblies, owners should also replace the felt washers. Part number for the kit is 547855.

Circle No. 162 on service card.

**Foam grips make tools easier on your hands**

UnionTools offers long-wearing, high-density foam grips on four popular tools: a heavy-duty round-point shovel, a 14-tooth bow rake, a garden hoe, and a 27-inch poly leaf rake. These Cushion Grip tools are easier on the hands.

Circle No. 163 on service card.

Attachments can make Hustler more versatile

Excel Industries, Inc. offers a wide array of attachments for its out-front rotary mower: dozer blade, snow thrower, rotary broom and cab heater. Ac-

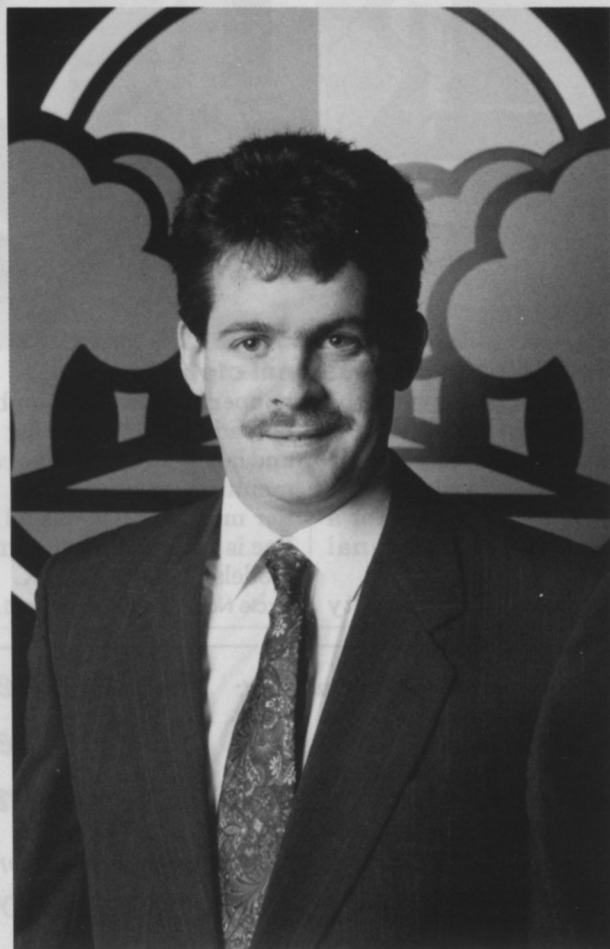


cessories such as tire chains, wheel weights and rear weight kits are also available. Attachments allow owners to take full

advantage of their investment making the Hustler an outstanding cost-effective choice. Circle No. 164 on service card.

QUALITY...

It's a Way of Life at Tyler.



Mr. Bob Dore, President, Green Scene Lawn Care.

"The quality of Tyler's materials and service is the best in the industry".

"I started with Tyler in 1984 and the quality of their products and service has never varied," says Mr. Bob Dore, President of Green Scene Lawn Care of Carol Stream, Illinois.

"Knowing that we always have a good product, benefits our company and reflects on our reputation with our customers. Because we are only as good as the products we have."

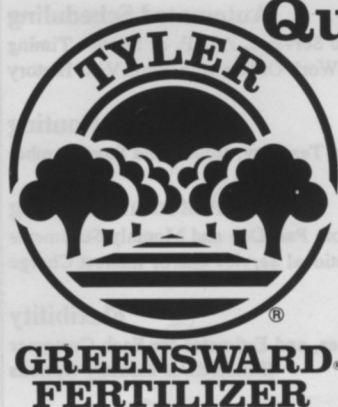
"When I need it, the product is always here and the orders are always correct as placed. Tyler is always competitive with their pricing, but I will spend a little more for the assurance of a quality product."

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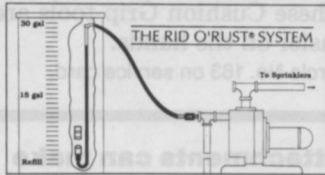
NEW PRODUCTS



Classen's spreader can fit in tightest corners
Classen says its RS-30 Riding Fertilizer Spreader takes the work out of fertilizing lawns. It's designed to get into and

around even small and heavily landscaped areas (a 12.5-inch turning radius), and fits easily through a 30-inch gate. The high-impact, rust-free hopper can be used with most fertil-

izers and has a cover to protect the contents. The RS-30 is powered by an 8-hp Briggs & Stratton engine and has two speeds forward and one reverse.
Circle No. 165 on service card.



Here's how to keep rust from spinklers
For areas plagued by rust stains on buildings, driveways and shrubbery caused by sprinklers, American Hydro Systems offers Rid O'Rust to install on these systems. It consists of a chemical feed tank, a metering assembly and Formula 115 which prevents the iron in the water from becoming "rust". The system is easy to maintain, inexpensive, extends pump and sprinkler life and is non-toxic.
Circle No. 166 on service card.



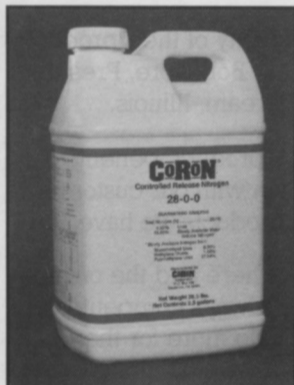
This lawn spray gun has a trigger guard
TeeJet's new Lawn Spray Gun has interchangeable shower head-type color-coded nozzles employing 48 solid-stream orifices in a full-cone pattern to minimize drift. The gun is available with optional accessories including a low volume adapter and extension wand for spot spraying and touch-up work. An inlet swivel offers free swivelling action at the hose connection to eliminate twisting and knotting of the hose. The TeeJet Lawn Spray Gun also comes with a trigger guard.
Circle No. 169 on service card.

Lesco adds dethatcher to pro turf equipment
Lesco, Inc.'s new dethatcher features a recoil start, 5-hp gasoline-powered engine and V-belt drive. The deck is made of 11-gauge steel.
Sixteen heat-treated, high-carbon steel blades are spaced on 1/2" centers for a dethatching width of 19 inches. Four large, semi-pneumatic tires on steel wheels with bearings make it easy to push.
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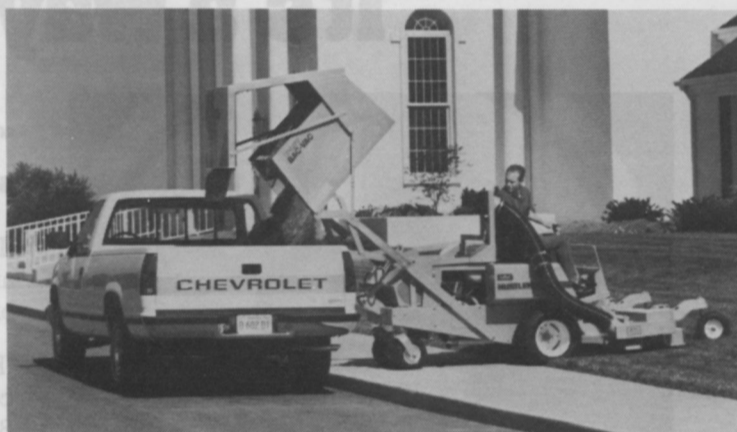


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Bac-Vac helps in professional cleanup jobs

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The 15-bushel capacity

hopper reduces the number of unloading stops, saving time and labor. The Bac-Vac can be mounted on any of five Hustler models. An 8-bushel Bac-Pac is available for the smaller models 251K and 260K.
Circle No. 172 on service card.



New Max Sprayer made for chemical products

D.B. Smith & Co.'s Max Sprayer has an extra-thick poly tank, chemically resistant Viton "O" rings, chemically resistant braided hose, a pressure relief valve, and a deluxe brass adjustable nozzle plus a flat fan nozzle.
Circle No. 167 on service card.



Feldmann hitch adapter makes transport easier

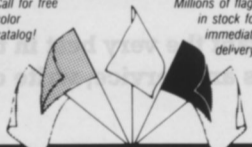
Feldmann says its three-point hitch adapter can be used with models 2340-32 and 2340-48 core plug pull-behind aerators. The hitch adapter enables use of the tractor's hydraulic power to lower and raise the aerator tines for coring or for over-the-road transport. Adapter sized for category "0"/"1". The steel adapter is fastened with four bolts to the aerator frame.
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AC

from page 24

debtors to prioritize accounts payable in your favor.

3 Inquire and trace by phone if you haven't received payment 45 to 60 days after the bill is past due. Ask why the bill hasn't been paid, and ask for payment in full. If that's impossible to arrange, be prepared to negotiate an installment payment schedule.

4 Follow up with additional phone calls if necessary. At this stage, don't rely on debtors who keep promising to pay at a future date. Realize that debtors often use delay as a tactic to discourage creditors.

5 If the debtor still hasn't

paid a delinquent bill in about 90 days, written credit policy should provide a clear set of options, including professional collection, legal action, or writing off the debt. Write-offs are a last resort. Every dollar a business loses from bad debt requires many times that amount in new business to replace. **LCI**

About the Author

Thomas A. Cooper is vp of I.C. System, Inc., a national collection management company based in St. Paul, MN.

NK offers new tall fescue trio

MINNEAPOLIS, MN—Amigo and Arriba are two new, improved tall fescue varieties from the Medalist Turf Products Division of Northrup King Lawn & Garden Co. They're being blended with Arid tall fescue and being offered to the market as "The A-Team."

Company researcher Dr. Eric Nelson claims the fescues have excellent drought and heat tolerance, fine texture,



and pleasing color. Amigo and Arriba are both dwarf cultivars, and Arid is a semi-dwarf fescue. Ample supplies of all three varieties and "The A-Team" are available this fall, says the company. **LCI**

AEC: PC license need for tick jobs

WANYE, NJ—The Alliance for Environmental Concerns reports that certification categories are based upon the pest for which applicators have been licensed to control. Not the area treated.

It says fleas and ticks are covered under structural pest control in the state of New Jersey and require a 7A certification.

So says NJ DEP, says AEC. **LCI**

EASE

from page 24

evening drenching. Avoiding one unnecessary irrigation cycle can save up to 2,500 gallons of water on a half-acre of turf.

The new water conservation regulations are rightly causing some turf managers to fine-tune their irrigation practices.

"People realize an irrigation system is the way to go, instead of wrestling with hoses and trying to deal with the climate," says Dallas Heckman, branch manager of Florida Irrigation Supply, Inc., Fort Meyers. "Now with the new regulations, they also have to contend with hours of usage. It makes life a whole lot easier with a system that cuts on and off when it needs to."

Heckman says the water saved with a rain sensor varies depending upon the locale, but "in a temperate climate, with average rainfall, savings are usually substantial."

To determine the need for a rain sensor, a turf manager should consider such factors as:

- How often does it rain?
- How much water is applied by the sprinkler system per cycle?
- How much is the cost of the water?

Answers to those questions allow a turf manager to calculate the amount of water and money being saved when a rain sensor shuts off a cycle because of rain, says Heckman.

For more information about rain sensors:

● *Forestry Suppliers Inc.*, 205 W. Rankin St., P.O. Box 8397, Jackson, MS 39284.

● *Glen-Hilton Products*, P.O. Box 31614, Richmond, VA 23294.

● *Rain Bird Sprinkler Mfg.*, 145 N. Grand Ave., Glendora, CA 91740.

● *Spectrum Technologies, Inc.*, 12010 S. Aero Drive, Plainfield, IL 60544.

● *Toro Co. Irrigation Division*, 5825 Jasmine St., Riverside, CA 92504. **LCI**

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the door on weeds for up to 20 weeks.

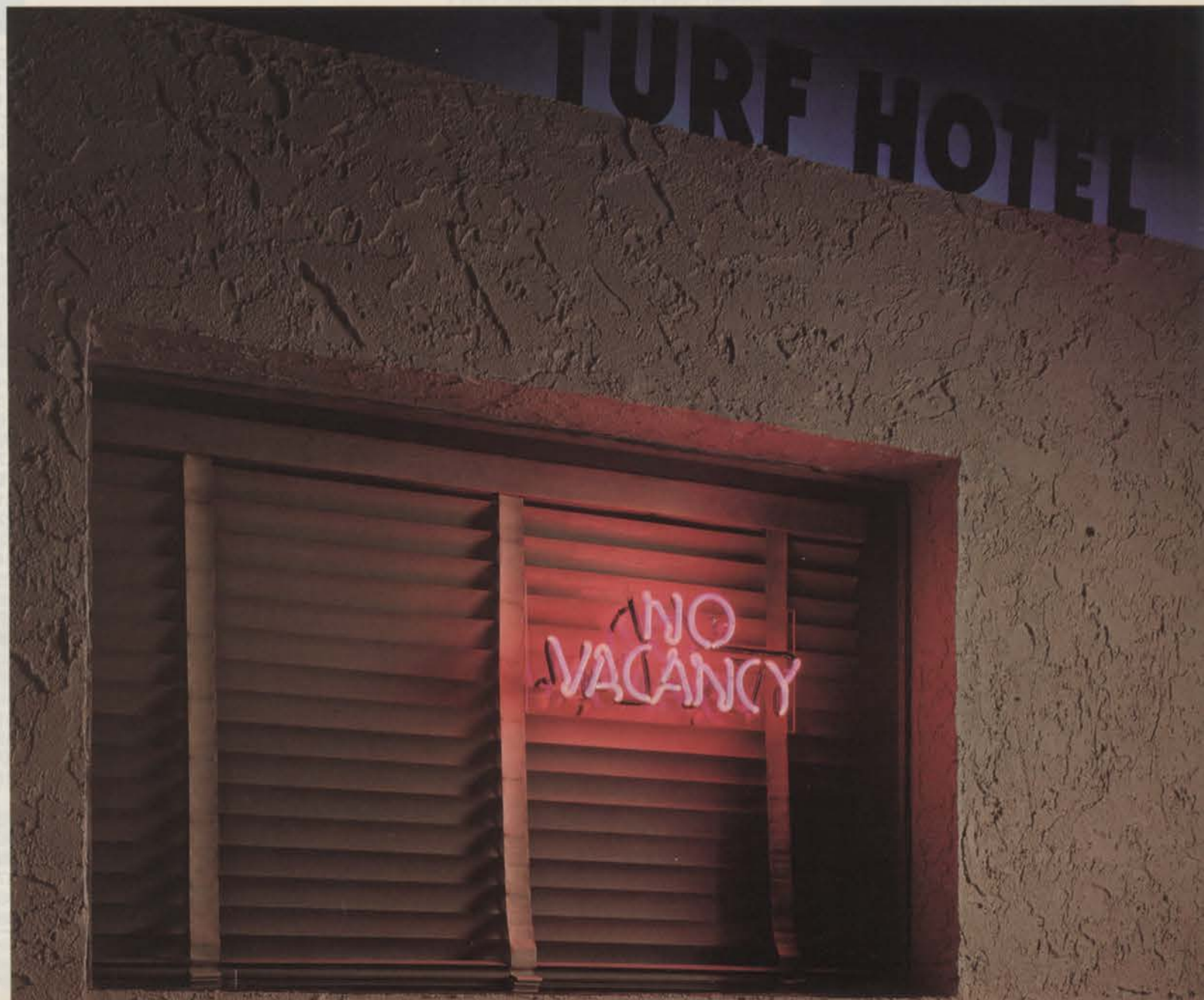
Team is widely available on dry fertilizer from leading formulators, and in granular form from your distributor.

So if weeds are planning to visit your turf this season, tell them sorry. You've booked Team for the season. See your Elanco distributor. Or call toll-free: **1-800-352-6776**.

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FOR SALE: 1986 Ford F350 Diesel with 200, 400 split and dry storage. Hydracell pumps, Venturi fill. 78,000 miles. \$9,000. Call (206)391-6488. 11/90

1985 ISUZU GMC CABOVER: Excellent condition. Two compartment. Completely stainless tank and bed. Hydro-cell 25 G.P.M. 2 hose reels with guns. Also holds 1000 lbs. of dry fertilizer. Ready to do production. Regular cost over \$30,000 new. Asking 14,500. 201-891-6035. 11/90

FOR SALE: (4) TREE/LAWN SPRAYING TRUCKS. (2) 1990 GMC 5,000's (ISUZU WR 5's). 4 months old, 5 speed, diesel, 14 ft. flatbed, power steering, 2 year unlimited mileage manufacturers warranty. IPM set-up, 4 tanks (2-300 gal./1-200 gal./1-100 gal.). Dual hose reels-large Hannay reel 300 ft. 3/4" hose, John Bean 785 spray gun, small Hannay reel 300 ft. 1/2" hose/JD-9 spray gun, dual spray systems, 30HP Wisconsin engine, hydro pump Model D50-12.7 gpm. 18,000 lbs. GVW. Cost new \$41,000 each, sell \$31,000 each. **ALSO (2) 1990 DODGE 350's**, 7 year 70,000 mile warranty, 4 speed, V-8 engine, power steering, 12 ft. flatbed, 3 tanks (2-300 gal./1-100 gal.). Dual hose reels-large Hannay reel 300 ft. 3/4" hose/Bean 785 gun, small Hannay reel 300 ft. 1/2" hose/JD-9 spray gun, dual spray systems, 30HP Wisconsin engine/hydro pump-D1504-39.6 gpm, Briggs & Stratton engine/hydro pump-D50-12.7 gpm. Cost new \$32,000 each, sell \$21,500 each. Contact owner for details. 201-633-8398 days/516-331-4713 eves. Photos available for all trucks. 11/90

One Lawn Truck - Mercedes Benz Diesel. Excellent condition-1981. 1,200 gallon 2 compartment stainless steel tank. Also holds 1,000 lbs. of dry fertilizer. Hydro-cell 25 gallons per minute pump. 2 hose reels with guns. \$11,500. 201-891-6035. 11/90

For Sale - 1977 Ford F-600 Spray Truck w/1200 gal. tank split axle-bean pump - Twin Hannay reels w/hose, PTO Cab just repainted. Excellent condition. \$5,000. Jerry Rowe (313)292-7110. 11/90



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HELP WANTED

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Tree and Shrub Man: Driving, dedicated self-starter to develop tree and shrub program. Must be people and detail oriented. Experience preferred; plant identification, disease identification, spraying, deep root feeding, pruning knowledge helpful, life experience, tenacity, stability and natural inclination most important. Write to Rick Fronk, Nitro Green, 316 West California, #337, Reno, NV 89509. Or call (702)322-2882. 11/90

LANDSCAPE DIVISION MANAGER: well established, rapidly growing company seeks individual to take over for retiring manager. Individual must be able to run both a maintenance and a planting division simultaneously. Requires exceptional organizational/management skills as well as complete command of plant materials and maintenance techniques. For consideration contact David Gorter, 855 Skokie Highway, Lake Bluff, IL 60044. 708-615-0800. 11/90

MANAGER Are you ready for a challenge? Michigan based lawn care company is looking for that right individual to be its manager. Salary commensurate with experience, bonus and benefits. Please reply to LCI Box 231 with resume and salary requirements. All replies held in strictest confidence. 12/90

"Consider all of your employment options in the irrigation and landscape industries. Call **Florapersonnel**, the international employee search firm for the ornamental horticulture industry. Completely confidential. Employer pays fee. **Florapersonnel, Inc.**, P.O. Box 1732, 1450 S. Woodland Blvd., Suite 201, DeLand, FL 32721-1732. (904)738-5151. Jeff Brower, Joe Dalton, Bob Zahra, CPC." TF

WELL ESTABLISHED MAJOR COMPANY expanding in Midwest cities desires ambitious branch sales manager and a regional sales manager. Must have successful telemarketing experience in lawn care and be able to motivate. We care about our employees and offer high salaries and good benefits. Send resume to LCI Box 229. TF

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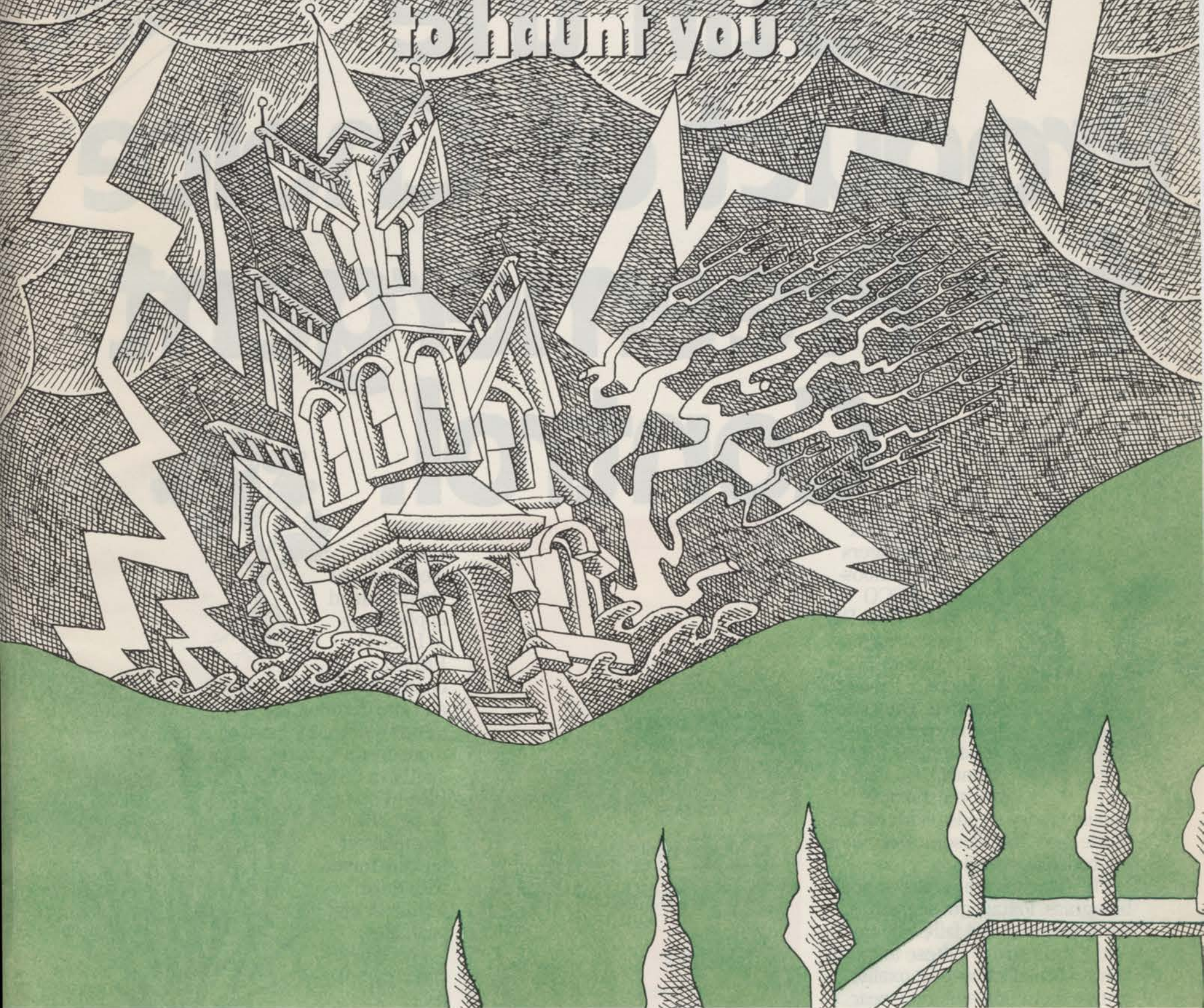
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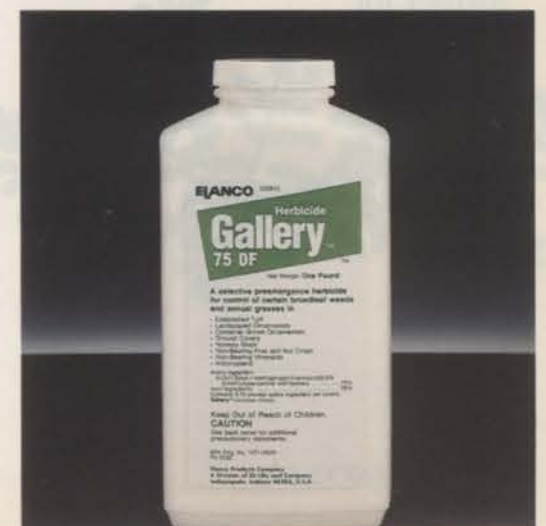
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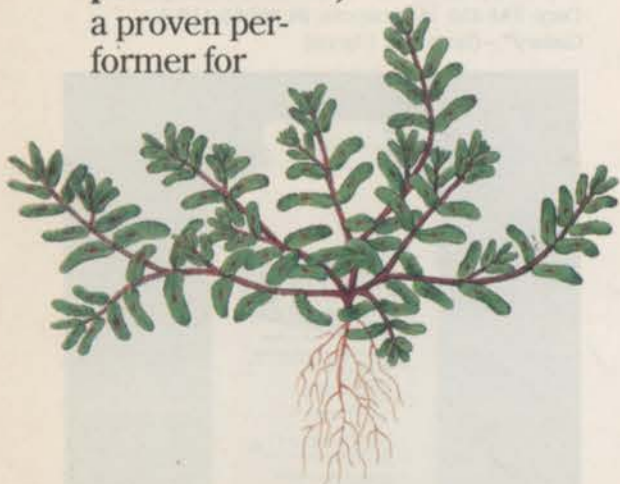


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