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Inside:

- Maximum Mower Productivity
- New Insect Controls
- Irrigation Trends
- Inside the
- Commercial Market
- Pesticide Application
- Equipment

Creative Nature

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Cover Photo



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LAWN@LANDSCAPE(USPS 657-470

ISSN 1046-154X) is published 12 times

per year, Copyright 1996 G.I.E., Inc. Pub-

lishers, 4012 Bridge Ave., Cleveland, Ohio

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ted by any means without written permission from the publisher. One year subscription

rates, \$30 in the United States, \$35 in

Canada and \$98 in other foreign countries. One year foreign airmail rate: \$218. Two

year subscription rate: \$42. Subscriptions and classified advertising should be addressed

to the Cleveland office. Second class postage paid at Cleveland, Ohio, and additional

mailing offices. Postmaster send address

changes to LAWN & LANDSCAPE, 4012 Bridge Ave., Cleveland, Ohio 44113. Classifieds

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Publisher's Focus

Cover Story

So Creative Nature

Exotic plant material, bioclimate creation and "wowing" customers have made Ecosystems Imagery an elite landscape firm in Southern California.



Features

The New Insecticides: Rethinking Pest Management

With a variety of new and more targeted insecticides available on the market, landscape managers may have to rethink their traditional applications and timing.

6 Commercial Market Gets Lean, Mean and Green

Stiff competition and property managers with a taste for low budgets are changing the commercial market into a more professional arena.

Mower Productivity By the Numbers

Guessing is one way to estimate your equipment's productivity, but the most profitable method is to measure the real costs of labor and equipment.

Conservation, Costs Drive Irrigation Improvements

As water costs continue to rise, commercial and residential property owners are searching



p. 7

for precision in irrigation system design and operation.

4 Injecting New Technology into Spraying

Constant attention to the bottom line and environmental concerns are directing the development of new spraying equipment.

Substance Abuse: Can You Afford Not to Test?

Why are so many companies instituting drug and alcohol testing programs and policies while so many others are choosing not to?

Cindy Code Publisher



o I'm finally making e-mail on the Internet a consistent part of my daily routine. This isn't an extraordinary revelation in and of itself, but it's significant in my drive to lessen the droves of paper that find their way into my office.

Group

I now come into the office, push aside the clutter, boot up my PC, grab a cup of coffee and sit down in front of my screen to see what kind of tidings await me. Messages often start with "While I normally wouldn't put my thoughts down in writing," or "I've never done this before..." or "Just thought I'd try your e-mail to see if it really works."

This new — not so new to some — trend has caught the country by storm. People, whether it be for business or personal reasons, have taken to communicating via the Internet like butter sticks to popcorn. It doesn't matter if they've never picked up a phone to call in an article suggestion or penned a letter to communicate their feelings on a subject. This is different. It's computers. It's games. It's cool. People genuinely like to stay in touch via the Internet.

First it was the fax machine and "Fed Ex" we could not do without, now it's sending communications, articles, news releases and research information via e-mail.

It's amazing what you'll find in your mailbox. People complimenting a redesign or offering their opinion on one subject or another that appeared in the previous month's issue. Questions about running a business, relocating a business or selling a business. Truthfully, some very tough business questions.

But what I see most often are questions about green industry related Web sites, Internet pathways, chat rooms, bulletin boards, etc. In general, communicating with peers.

Funny, I've gone to a lot of industry meetings and trade shows over the years and one of the primary benefits attendees always talk about is how conferences enable them to share, learn and grow with their peers. Now, I know the Internet will never take the place of in-person communications, but it is an easy way to grab some advice or share your thoughts from the comfort of your office or home.

A number of associations and suppliers have established home pages on the Internet, and a bundle of information can be found by typing in key words like grass or landscape. It can be fun and frustrating at the same time.

So what kind of information have you found surfing the net? E-mail us with your Internet experiences - both successes and failures. We'd like to share your do's and don'ts with all our readers so we can all make the most of our on-line time. — Cindy Code, ccode@cerfnet.com

Lawn&Lands(

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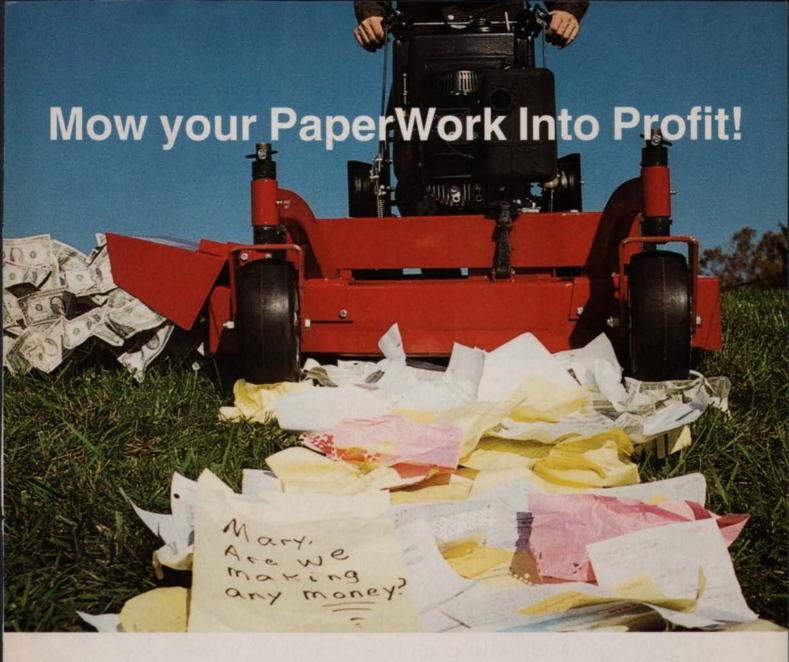
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L&L is a member of: The Professional Lawn Care Association of America The Associated Landscape Contractors of America The Professional Grounds Management Society The Irrigation Association

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MARKET TRENDS

WHERE CONTRACTORS GATHER

THE GREEN INDUSTRY EXPO attracts more owners and company presidents than other job functions, said Eleanor Ellison, trade show manager. An analysis of attendees at the 1995 show in Fort Worth, Texas, showed that approximately 44 percent were the company owner or president; 27 percent were managers or supervisors; 16 percent were involved with company operations and 13 percent handled sales or marketing.



Source: Green Industry Expo

NETWORKING DRIVES PLCAA MANAGEMENT CONFERENCE

IN A TIME OF business flux and evolution, lawn and landscape owners and managers need to embrace change and lay the foundation for a solid future.

That was the premise behind the first management conference sponsored by the Professional Lawn Care Association of America. The three-day conference featured nationally recognized management trainer Larry Helms, Western Training Systems; Bob Jacques, American Honda Motor Co.; and Pat Norton, Barefoot Grass.

About 70 lawn care professionals attended the first year event held in Phoenix.

"So many owners and managers are preoccupied with hiring, training and purchasing the latest products," said Ann Mc-Clure, PLCAA executive vice president. "This conference gave them an opportunity to sit back and look at their businesses from a different perspective." PLCAA expects the management conference to become an annual event to meet the growing business needs of the industry's more experienced operators.

Everyone agreed the networking opportunities couldn't be beat. "Seeing two

(continued on page 10)

ISCIPLINE is one of the first rules of successful investing, particularly with stocks. Emotions can often get the better of investors, causing them to react too quickly, only to regret their actions later. Two time-tested investment strategies, based on stocks in the Dow Jones Industrial Average* have shown that discipline can pay off over time. The strategies are often known as top 10 and low five.

THE TOP 10 APPROACH. Top 10 investors buy the 10 highest yielding stocks in the DJIA and hold them for 12 months. After 12 months, investors sell any stocks that are no longer among the top 10 and buy any that are new to the list.

THE LOW FIVE STRATEBY. Investors employing the low five strategy purchase the five lowest priced of the 10 highest yielding DJIA stocks. They hold the stocks for 12 months, after which time they readjust their portfolios so that they continue to own the five lowest priced of the 10 highest yielding DJIA stocks.

REASONS BEHIND THE STRATEGIES. There are four primary reasons why investors have used the top ten and low five disciplines:

The stocks are blue chip names. The 30 companies in the DJIA are generally considered to be large and financially sound. Thus, they are viewed as relatively conservative.

2. The stocks are out of favor. When you buy the highest yielding stocks, you are in effect purchasing issues that are out of favor. The high yield usually means the share prices are depressed.

3. The yields tend to support the stock prices in down markets. Stocks that offer moderate dividend yields tend to perform better during weak markets than stocks that do not offer a dividend.

Historical performance has been impressive. Both strategies have proven to be effective over time, according to Beating the Dow, a monthly newsletter edited by John Downes (and a book of the same name by Michael O'Higgins

(continued on page 24)

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For more information on how a Dixie Chopper might make your business more profitable, feel free to give us a call. We would be happy to give you real operating comparisons versus the current equipment that you are using. If they make sense, we'll talk a little more. If a Dixie Chopper doesn't fit your profile, at least you'll know how the competition got the contract.

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Don't be fooled by look-a-likes from other manufacturers that are only just now jumping into the zero turning radius market because it's a "have to" case.

Fifteen years ago we didn't make a different machine because we had to. We did it because we felt zero turning radius was a better way of doing things. Today, that feeling has caught on throughout the industry. So if you're ready to make the move, check us out; we're confident you'll find the Dixie Chopper is the only *real* choice for price, performance, and reliability.



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MARKET TRENDS

(continued from page 8)

businessmen from different companies in two different



Lou Wierichs (conference chairman), Larry Helms (keynote speaker) and Executive Vice President Ann McClure take a break from the weekend program.

countries sharing ideas was a special highlight to me," said McClure. "It provides a rapport among those who provide lawn care. It's important to provide something they can share as the industry matures."

dent Ann
McClure take
a break from
the weekend
program.

Helms, president and chief
operating officer
of Western
Training Sys-

GALENDAR

ensure that your meet

MAR. 20 Michigan Forestry and Park Association: Aerial Rescue Training, Southfield. Contact: 517/ 482-5530.

MAR. 21-24 ALCA Student Field Days, San Luis Obispo, Calif. Contact: Associated Landscape Contractors of America, 708/620-6363.

MAR. 27 Michigan Arborist Assocation Workshop, Southfield. Contact: MAA, 800/622-4055.

MAR. 28-30 California Interior Plantscape Conference, San Francisco. Contact: 619/723-9910.

MAR. 30 Wetlands: Ecology,

Creation and Restoration, Millbrook, N.Y. Contact: Institute of Ecosystem Studies, 914/677-9643.

APR. 16-19 Compost Facility Operator Training, Baton Rouge, La. Contact: 504/388-5920.

APR. 20 Integrated Pest Management workshop, Millbrook, N.Y. Contact: 914/677-9643.

APR. 27-MAY 1 New York Recreation and Park Society Conference, Syracuse. Contact: 518/584-0321.

MAY 4 Shade Gardening workshop, Millbrook, N.Y. Contact: Institute of Ecosystem Studies, 914/677-9643.

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"Our homes are our castles" has never been more true than it is today. America's trend toward cocooning means people are investing more money than ever before in their homes. And that means pride of ownership is at an all-time high. Lawn and landscape services are a viable and important option for more and more of these homeowners – reach them through Metromail. Metromail's realty information puts you in touch with America's homeowners, whether it's New Movers, New Homeowners or Established Homeowners. Use Metromail's Homeowner lists, including names, addresses, and even phone numbers to reach more prospective customers in your business area.

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even pay the postage! Jim Cleary of Cleary's Landscape and Lawn Service in Lakeland. Florida, understands this first hand. Out of over 6,000 entries his was chosen in the 1995 Product Giveaway to receive, among other products, free

equipment from Toro and Husqvarna.

LIKE MOST LANDSCAPE CONTRACTORS, Cleary is trying to maintain steady progress and growth in his business as he diversifies. His company is now expanding to include some design and irrigation services. "I don't win many things," Cleary said. "You don't know how much I can use this. I'm stunned, and I'm in need of some equipment," he continued.

ARE YOU IN NEED of some equipment? Entering is simple....

TO ENTER THE 1996 **\$10,000** PRODUCT GIVEAWAY. complete the entry form on the opposite side of the card, remove it from the magazine, fold it in half, tape it and send it to us postage-paid. Forms must be complete in order to qualify. You may enter as many times as you want. The winner will be chosen in December 1996. (See below for more details and rules. No purchase necessary.)

ules & Regulations

- 1. NO PURCHASE NECESSARY
 2. The context is open to licensed lawn and landscape contractors, their employees and suppliers. Only persons who, as of the date of the price drawing, are 15 years of age or older, with a valid driver's license, and are legal residents of the U.S. are eligible to enter. Entry cards must be fully completed.

 3. This sweepstakes is not open to employees or the families of all sponsoring firms, Lawn & Landscape magazine, or other GIE Publishing Co. publications, and affiliated companies.

 4. Enter by completing and mailing the official entry form available in the monthly issues of Lawn & Landscape magazine, or receive a valid entry form by sending a postage paid envelope to Sweepstakes '96, clo GIE Publishing, 4012 Bridge Avenue, Cleveland, Ohlo, 4113. Not responsible or liable for lost, lats, stolen, mutilated, liegible, incomplete, postage due or misdirected entries. Mo mechanical reproductions permitted.

 5. PRIZE \$10,000 retail value of professional lawn and landscape products. The winner will be determined a random drawing of all entries received by November 30, 1996. The winner will be required by U.S. mail and/or telephone. Prize notification returned as undeliverable as addressed will result in an alternate winner being drawn and notified until or prize substitution offered. Prize is not transferable.

 7. All federal, state and/or local laws, if any, are the sole responsibility of the visioner. Winner will be required to sign an afficiart of eligibility and liability/publicity release (allowing the sweepstakes sponsor to use the winner's name and likeness for publicity purposes) as a condition of being awarded the prize. Failure to do so will result in an alternate winner winner will specified.

 8. Void wherever prohibited or restricted by law.

 9. Odds of winning wilb de determined by the number of entries received. All entries become the property of Lawn & Landscape magazine and GIE Publishing Co.

 10. By participating, you agree to those rules and decisions of the judges wh

- to this sweepstakes.

 11. To obtain the name of the winner of this sw
- Sweepstakes,* 4012 Bridge Ave., Cleveland, Ohio 44113, Attn: Fran Franzak.



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JUL. 25-27 Turfgrass Producers International Summer Convention and Field Day, Sacramento, Calif. Contact: 708/705-9898.

JUL. 28-30 The International Lawn, Garden & Power Equipment EXPO, Kentucky Exposition Center, Louisville. Contact: EXPO '96, 800/588-8767.

AUG. 2-3 ALCA Masters in Management for the Landscape Industry workshop, Chicago, III. Contact: ALCA, 703/620-6363.

AUG. 9-11 Southern Nurserymen's Association SNA '96, Georgia World Congress Center, Atlanta. Contact: 770/973-9026. AUG. 16-18 TAN-MISSLARK Nursery and Garden Supply Show, Houston, Texas. Contact: 512/280-5182.

AUG. 20 Wisconsin Turfgrass Field Day, Madison. Contact: 608/ 845-6536.

AUG. 20-24 American Association of Nurserymen Conference, Portland. Contact: AAN, 202/789-2900.

AUG. 23-25 Farwest Show, Oregon Convention Center, Portland. Contact: 800/342-6401.

SEPT. 4-8 Responsible Industry for a Sound Environment Annual Meeting, West Palm Beach, Fla. Contact: RISE, 202/872-3860. tems, has made a name for himself in the green industry. His targeted message dealt with managing change and customer service. McClure said he opened the eyes of the attendees by forcing them to think "outside the box" on what their businesses will be like not just next year but 10 years from now.

Jacques presented a nuts and bolts message on growing your business and Norton described how to evaluate the worth of a lawn care company.

"We'd like the management conference to become

MISSION STATEMENT:

AWN & LANDSCAPE magazine delivers superior, total coverage of the continually evolving professional lawn and landscape contractor market, from in-depth business trends and technical research reports to market analysis and new product introductions. For 17 years, L&L has provided industry presidents, business owners and top-level managers the most up-to-date information needed to effectively run their businesses.

an important part of our association," said Lou Wierichs, president of Pro-X Systems in Appleton,



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USE READER SERVICE #18

MARKET TRENDS

Wis., and conference chairman.

Thirty-six attendees participated in a PLCAA Golf Classic Fundraiser held during the conference. The 1997 Management Conference will be held Jan. 17-19 at the Embassy Suites, Tempe, Ariz.

▼ COURT RULINGS VINDICATE DOWELANCO'S DURSBAN™

DowElanco, Indianapolis, Ind., announced that two out of three lawsuits involving alleged injury from exposure

to Dursban[™] products have been resolv-



ed, both of which vindicated the company. A third lawsuit is still pending.

The three suits were the focus of a CBS weekly news magazine, "Eye to Eye with Connie Chung," which was aired in January of 1995. In the suit of Jack Kahn v. DowElanco, Kahn claimed he was exposed to Dursban while employed at a pest control firm and that the exposure led him to

(continued on page 16)

ASSOCIATION NEWS

he Associated Landscape Contractors of America set April 1 as the deadline for its 1995 Safety Award Contest. The contest recognizes landscape professionals demonstrating a commitment to professional safety on a daily basis. Contest categories include fleet safety, employee safety and combined employee and fleet safety, which are then further subdivided based on company size. For more information about the contest, contact ALCA at 800/395-2522,

The Georgia Turfgrass Association announced the election results for its board of directors for 1996. New board members are: Mark Banta, Cobb County Agricultural Extension Agent, Marietta; Charles King, King Green, Norcross; Aaron McWhorter, North Georgia Turf, Whitesburg; and Keith Karnok, University of Georgia-appointed advisory liaison.

The Florida Nurserymen & Growers Association unveiled a new certification program for technicians. The Florida Certified Landscape Technician program addresses the need for a technician certification program that doesn't include as strict a curriculum as the contractors' program. The goals of the program are to encourage professionalism, to increase awareness of landscape certification and to provide a means of self improvement to technicians.

The New York Turfgrass Association announced results from the officers election held at its recently sold-out conference. Stephen Smith, Old Colony Landscaping, Taunton, Mass., will serve as president for 1996, along with Anthony Peca, Batavia Turf Farms, Batavia, N.Y., vice president and John Fik, Hobart and William Smith College, Geneva, N.Y., secretary-treasurer.

The Irrigation Association scheduled its Step 2 and 3 examinations for certified irrigation contractors and designers for 1996. Test dates include: April 8 in Fresno, Calif.; May 4 in Las Vegas; and April 8 in Fairfax, Va. For information about the program call Daria Jakubowski, 703/573-3551.

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MARKET TRENDS

(continued from page 14)

develop "chemical sensitivity" and a neurological condition called "peripheral neuropathy." However, while under oath during pretrial interviews, Kahn's doctor admitted that Kahn had actually developed the condition before he was ever exposed to Dursban. His attorneys filed a motion to dismiss the case, giving DowElanco a complete victory.

In the second case, Apple v. Tri-County North Local School District, students and teachers alleged they had been injured by repeated applications of Dursban in the school. Although DowElanco was never sued in this

(continued on page 18)

TRANSITION

Tom Bridges was promoted to manager of Stens Power Equipment Parts' Meridian Distribution Center, and Jeff West was hired as a district sales manager covering Georgia. Stens also hired David Avery and John Rennix as district sales managers.







Veronica Smit

Berryman & Henigar named **Stephen Higgins** as senior associate in the management & finance division.

Lofts Seed announced the retirement of senior vice president, **John Morrissey**, who worked with the company since being hired by founder Selmer Loft in 1949 as a salesman.

Thomas Floyd joined Pennzoil Products as the senior vice president, marketing.

Homelite appointed **Robert McKee** director of engineering for consumer products and **Scott Crabtree** director of environmental affairs, while **Cary Murphy** was hired as an advertising production manager.

L.R. Nelson announced the retirement of **Nick Owens** as president and COO. Nelson also appointed **Veronica Smith** to the post of Kansas/Missouri Sales Manager, adding to her duties as the landscape & turf technical manager; **Roberto Izaguirre** to international sales manager, responsible for sales throughout Latin America, Europe and the Pacific Rim; and **Denyse Arles** to California/Southwest sales manager.

Jacklin Seed announced the appointment of **Brandie Beebe** to the marketing department. Her responsibilities will include public relations and advertising for the seed company.

Rick Curlett joined Exmark Manufacturing as director of marketing. Exmark also hired **Norman Buckhouse** as a senior project engineer and **Phyllis Gardner** as director of human resources.

James Garner is a new sales manager at Applewood Seed Co.

Russ Murray was promoted to national accounts manager for Aquarium Pharmaceuticals. His responsibilities will include lawn and garden accounts for the western portion of the country.

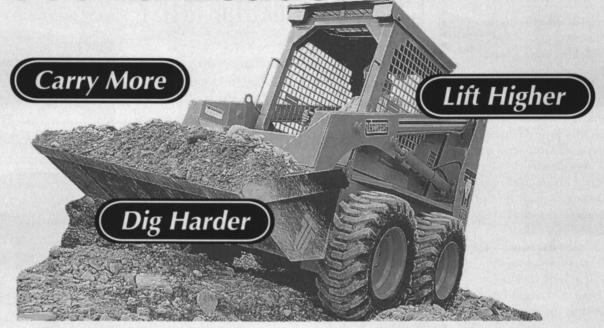
Trak International added two new product managers to its expanded product development team.

Peter Haikio will work as product manager, material handling equipment, and Bob Lessner will fill the new position of product manager, compact equipment.

Stephen King joined the Bozzuto Group as controller, responsible for all accounting and compliance functions.

Mike Stevens is a new sales representative for Eagle Lift.

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MARKET TRENDS

(continued from page 10)

case, the plaintiffs sued the applicator and people associated with the design and maintenance of the school. Their case alleged that the building was improperly ventilated, allowing a buildup of formal-dehyde in the building. As there is no formaldehyde in Dursban, the suit against the PCO was dismissed.

David Morris, national marketing manager for turf, ornamental & technical products, noted that DowElanco has never lost a Dursban personal injury lawsuit at trial, because of the volume of scientific data supporting the product.

(continued on page 20)

OSHA'STOP 10 LIST

he Occupational Safety and Health Administration's top 10 most commonly cited violations for the landscape industry include:

cited violations for the landscape moustry include,	
STANDARD VIOLATED	# OF VIOLATIONS
Written Hazard Communication Program	2,781
Employee information and training	2,205
Lack of employer instruction to employee	1,236
No material safety data sheets for chemicals	1,061
Guarding of open-sided floors, platforms and runways	1,023
Head protection	972
Ground fault protection	879
MSDS accessible during workshift to employees	876
Protection of employees	845
Not using personal protective equipment	687
	Source: ALCA



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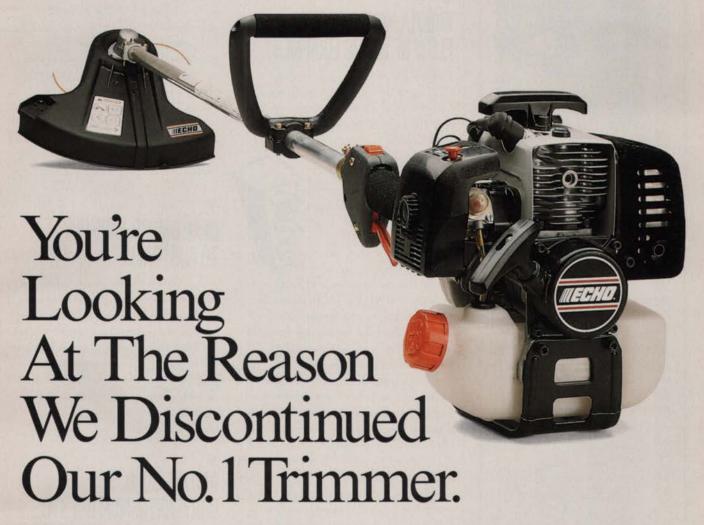
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USE READER SERVICE #56

Northern Sales Office 800-437-9618 Southern Sales Office 800-472-1738



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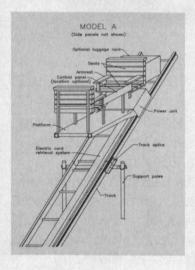
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USE READER SERVICE #22

MARKET TRENDS

(continued from page 18)

KUBOTA MOVES TO STOP FLOW OF BOGUS EQUIPMENT

Kubota Tractor Corp., Torrence, Calif., has filed an action with the International Trade Commission to stop the importing and distributing of used Kubota tractors into the United States from Japan.

According to Rich-

ard Briggs, legal counsel representing Kubota, the tractors are 50-hp or less B-Series and L-Series units that were used in Japan, resold to exporters there and shipped to importers in the United States, who distributed the units throughout the country. The tractors average between 10 to 12 years old and carry the Kubota name plate, Briggs noted.

"The biggest problem is that the units were made for Japanese standards and not American standards," he explained. Certain safety features are not part of the equipment. "Consumers of this equipment simply don't understand what they are buying."

The ITC was expected to start an investigation in mid-February and rule within a year. If Kubota wins, all shipments of the used equipment will be halted.

DAVEY TREE EXPERT ACQUIRES DETROIT'S REINHOLD GROUP

The Davey Tree Expert Co., Kent, Ohio recently acquired ownership of The Reinhold Group, a landscape maintenance firm located in Pontiac, Mich.

The Reinhold Group, which was established 65 years ago, provides grounds maintenance services to large commercial customers in the metropolitan Detroit area. The acquisition fits with Davey's movement into large-scale commercial maintenance projects through its commercial services division, which was established in early 1995.

Rick Ramsey, vice president and general manager of the division, explained that all key management and field employees will become Davey employees and the office will operate as the southeastern Michigan branch of Davey's commercial division. He added, "Reinhold had a long-standing reputation for high quality landscape services. They are an excellent team of landscape professionals and we look forward to keeping this team together."

DEAL BRINGS HARMONY TO AUSTRALIA

Harmony Products, Chesapeake, Va., will provide the rights to its patents and research for forming granular fertilizers and animal feed supplements to an Australian company specializing in the recycling of organic waste streams. The licensing agreement with Bio-Recycle requires Harmony to provide various consulting services for engineering and equipment design.

ANDTHE GOLD Chrysanthemum Goesto...

Rentokil may not be on the medal stands for this summer's Olympic Games, but it will be around those stands.

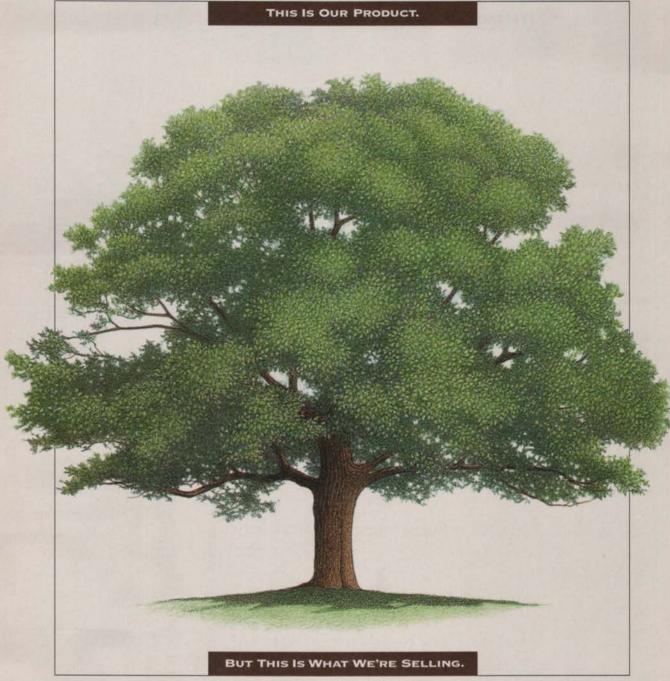
The company's Tropical Plant
Services division reached an agreement
with the Atlanta Committee for the
Olympic Games to supply all foliage
and flowering plants for the event.
Florida growers will supply nearly
25,000 plants and Rentokil will
donate its services to install and
maintain the plantings.

PHC AGREESTO BUY ISI

Plant Health Care, Pittsburgh, agreed to acquire Industrial Services International, a Bradenton, Fla.-based

(continued on page 24)





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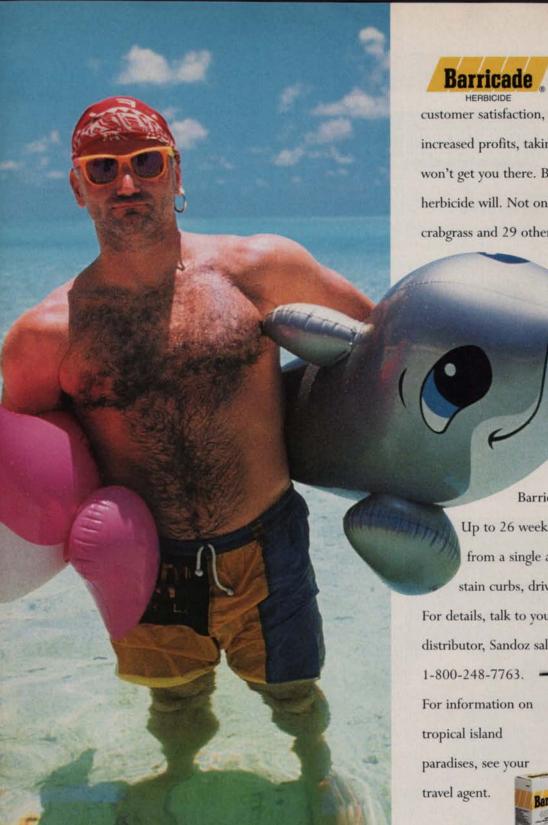
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Turf Industries, Inc. Houston, TX 800-288-8873

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United Horticultural Supply Tampa, FL 813-628-0496

United Horticultural Supply Tucson, AZ 520-293-4330

Vigoro Industries Winter Haven, FL 800-329-4238

Wilbur-Ellis Co. Auburn, WA 206-351-6591

USE READER SERVICE #120

(continued from page 20)

producer of superabsorbent polymers sold under the name Terra-Sorb." The acquisition of the water products broadens PHC's line of plant health care products.

EXPO'96 PLANS SET FOR JULY

This year's International Lawn, Garden & Power Equipment Expo will be held at the Kentucky Exposition Center in Louisville, Ky., on July 28-30. This is the exposition's normal schedule, which is a Sunday through Tuesday.

However, after Expo organizers surveyed a sam-

PERSONAL FINANCE

(continued from page 8)

with John Downes).

From January 1973 through December 1994, a portfolio containing the top 10 DJIA stocks would have posted average annual compound growth of 17.1 percent per year.** A low five DJIA stock portfolio would have posted a 20.6 percent growth rate.** The DJIA rose 10.9 percent over the same period. These returns assume reinvestment of dividends each 12 months, exclude brokerage commission costs and assume the investment was made on the first trading day of the year. However, O'Higgins

wrote, "It doesn't matter what 12-month period is used, as long as it is used consistently over time."

- John Houlihan, Dean Witter Reynolds, Melville, N.Y.

The information and data in this report were obtained from sources deemed reliable. Their accuracy or completeness is not guaranteed and the giving of the same is not deemed a solicitation on our part with respect to the sale or any purchase of any securities or commodities.

*Dow Jones Industrial Average is the property of Dow Jones & Company Inc., which is unaffiliated with and has not participated in any way in the creation of the top 10 or low five strategies or the selection of stocks therein.

** Past performance does not guarantee future results. While the top 10 and low five strategies outperformed the DJIA in some years, they underperformed the DJIA in other years.

ple of recent attendees, they received an overwhelming vote of support for a move to a Saturday through Monday schedule. Currently, they are considering moving to the

new schedule for 1997. Call 800/558-8767 for show information.

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ENVIRONMENTAL FORUM









APITOL DAZE. Between the budgetary debate and upcoming elections, getting lawmakers to concentrate on the green industry's message was an exceptional challenge. Still, more than 60 members of the Professional Lawn Care Association of America from 18 states converged on Washington, D.C., to lobby for important green industry issues.

The 7th Annual Legislative Day on the Hill, held Jan. 29-30, did not have to address any issues that negatively target the green industry, according to Tom Delaney, PLCAA's director of government affairs. However, it was a great opportunity to show the industry's unity and present positive lawn care messages.

"PLCAA Legislative Day attendees know that you must keep positive lawn care messages and balanced legislation in front of policy makers at all times," Delaney said. PLCAA representatives arrived to find that some lawmakers were back in their home districts talking with constituents and making arrangements for upcoming campaigns. Those that remained in Washington were more attentive and relaxed, Delaney noted, due to the stalemate on the budget.

On the agenda were two specific items slated for discussion in the reauthorization of the Federal Insecticide, Fungicide and

(continued on page 28)

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USE READER SERVICE #45

ENVIRONMENTAL FORUM

(continued from page 20)

Rodenticide Act, which has yet to emerge from congressional debate.

The first issue is the industry's desire for a federal preemption provision. If such a provision were implemented, no state or municipality could pass pesticide application ordinances more restrictive than what the federal sovernment allows. Many states have such preemption laws in place to keep municipalities from passing widely different or overly restrictive ordinances, but PLCAA is concerned about states with outdated or weak pesticide rules that are vulnerable to challenge by cities.

The second issue within

FIFRA relates to training requirements. Currently, FIFRA only requires that applicators of restricted use pesticides be trained. certified or regulated. However, in-house personnel such as janitors, grounds keepers and building managers who apply general use pesticides in areas such as schools and office buildings do not need to meet any requirements. Delaney said PLCAA representatives communicated the need for training requirements at this level of pesticide application.

"We want these people to be required to at least receive training," said Delaney.

On a more positive note, lawmakers were also reminded of the importance of a healthy, green lawn to the environment. To drive the point home, PLCAA representatives left a copy of the video, "The Value of Turf to Water Quality and the Environment," with each legislator they visited.

INDOOR BENEFITS. Thanks to The Plain Dealer, Cleveland's daily newspaper, readers learned about the benefits of indoor plants to the home environment.

The story, headlined "Plants are Incredible Green Vacuum Cleaners," discussed past and present research on the ways interior plants can rid the air in buildings and homes of pollutants, bacteria and fungi.

The article described

studies by researchers using electron microscopes showing the waxy surface covered with dust and bacteria. It also cited research that shows leaves "scavenge polycrylic hydrocarbons, organics left over from burning fuels in boilers and vehicles, and which include several known or suspected carcinogens."

how ABOUT YOU? Do you have any news to report about the green industry and the environment, or an opinion you would like to express? We'd love to hear from you. Submit your ideas to: Environmental Forum, Lawn & Landscape, 4012 Bridge Avenue, Cleveland, Ohio, 44113.

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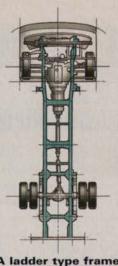
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Initiated in 1980, NTEP coordinates the impartial evaluation trials of different varieties of turfgrasses that

are conducted in the United States and Canada.

Each testing period lasts one year and the results are published in booklet form and made available to anyone who requests it. There is a booklet available for each variety tested.

In recent years, the NTEP tests have become increasingly saturated with tested varieties. For example, the 1994 perennial ryegrass trial tested 96 varieties!

Still, the results can reveal much about the behavior and performance of



turfgrasses in certain conditions in specific areas of the country.

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Progress Report comes bound as a booklet with each report arranged in a standard format. Toward the front of the book you NTEP yearly progress reports provide statistical evidence of performance differences between turforass varieties.

will find Table A, titled "Locations, Site Descriptions and Management Practices." This table contains information about

where the test took place and the conditions to which the turfgrass was subjected. Categories include sun or shade, amount of nitrogen, soil type and pH, levels of soil phosphorus and potassium, irrigation applied and mowing height.

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IN YOUR TURF

make sure the test conditions match the conditions at your site or geographic location. For example, data collected from a Kentucky bluegrass test mowed at 1 inch and irrigated to prevent stress would not be of much use if your customer's lawn is not irrigated.

Table B, titled "Locations and Data Collected," summarizes the characteristics of the data collected, such as green-up and seedling vigor, and the months that the data was actually recorded. According to NTEP, researchers performing the evaluations emphasize two of the most important characteristics when evaluating varieties — color and density.

The next three tables in the report relate to turfgrass quality. Table 1 contains the mean ratings for each of the turfgrass varieties at each location, then gives the average rating for each variety across all the test sites.

When a variety is said to be the number one rated turf in a particular NTEP trial, this is the rating referred to by a seed company.

Remember that top finishers don't necessarily relate to your region — you are probably better off looking for a test site that closely matches your area and checking out the top turfgrass there.

Table 2 shows the same

data broken down by the month it was collected. By looking at the ratings for each month, you can see how a particular variety performed in that month.

For example, a low rating in April or May might indicate slow green-up.

In addition, you can
use the data
when determining what
varieties to
use for a
blend, like
putting a poor
spring/strong
summer
performer
together with

a variety with the opposite characteristics.

Another thing to consider is the Least Significant Difference for these tables. The LSD is listed at

In recent years, the

NTEP tests have

become increas-

tested varieties.

For example, the

1994 perennial

ryegrass trail

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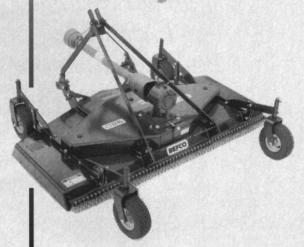
ingly saturated with

the bottom of Table 1. and lets you know at what point there is a significant quality difference between two varieties. For example, if Variety A rated a 6, and Variety B rated 5.5 while the LSD was 0.5, there is no statistical quality differ-

(continued on page 34)

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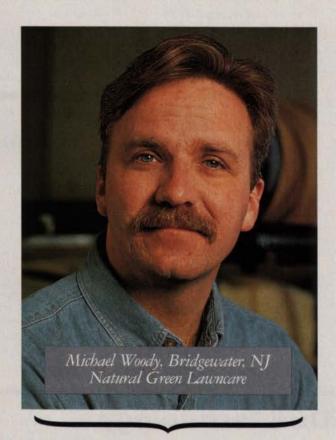
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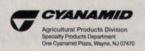
CYCLONE REAR DISCHARGE FINISHING MOWER

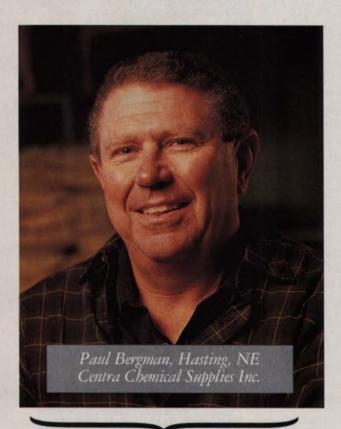


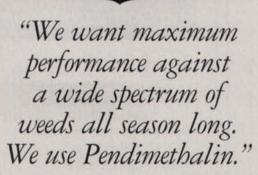
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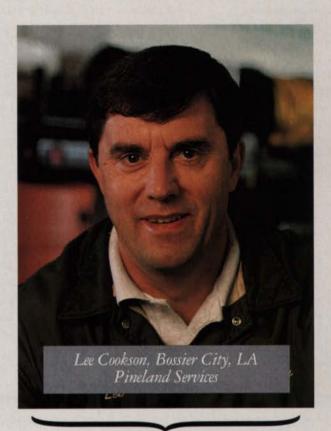


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Pendimethalin Nothing Beats Pendimethalin

(continued from page 31)

ence between the two.

Finally, Table 3 ranks the varieties by quality ratings. It provides a quick visual guide for determining the general quality performance over each location and region.

The remaining tables list the performance ratings for a variety of other turfgrass characteristics. Some of the descriptive ratings include color. density and leaf texture. For these characteristics, it is a good idea to look at ratings from different areas of the country, because the numbers reflect to some degree the bias of a particular researcher doing the observations.

The category "percent living ground cover" should not be confused with density — it is the damage caused by stress such as disease and drought. It can be used to determine the survivability of turforass after summer stress.

Other tables look at the incidence and affect of diseases, such as leafspot. brown patch and red thread. In looking at this data, consider ratings from test plots near your area, since disease incidence and organisms vary widely.

Keep in mind that the characteristics of certain diseases do not lend themselves to detection over one year. For example, diseases such as summer

natch and necrotic ring spot tend to show their frogeve appearance only after thatch develops in two to four years.

Data is also presented on insect resistance, although they often do not appear uniformly across test plots in a testing area. When it does

appear, it gives a significant picture of the turf variety's level of susceptibility to an insect pest.

Other traits, such as vertical growth, sod

The results can reveal much about the behavior and performance of turfgrasses in certain conditions in specific areas of

the country.

.

strength. winter kill and wear tolerance may also be included in the report.

To receive copies of the vearly progress reports, you must pay a \$30 annual membership fee. For more information. contact the

National Turf Evaluation Program, BARC-West, Building 002, Room 013, Beltsville, Md., 20705. The phone number is 301/504-5125.

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The blade cuts with astonishing ease. Long, to reach into tight areas; large, to slice easily through mature vines and branches; the blade is Radial Arc™ ground and clad

with a tough, slick, three-layer fluoropolymer that reduces friction to a bare minimum. This blade requires one-third less force than a conventional blade to make the same cut.

The blade is a separate component. Changing it takes one tool and one minute.

The forged hook is designed to draw the material being cut closer to the pivot. This maximizes leverage and minimizes

the effort required to make a cut. The hook's curvature is shallow enough to easily slip between dense, tangled branches and support wires. Yet it is deep enough to hold the branch securely as the cut is being made. The sap groove is deep and wide for improved self-cleaning.

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The square-shouldered, right-threaded pivot bolt that enables quick blade change is positioned so that the hook and blade open wide with a minimum of handle movement—in other words, with less effort. And the same coating that makes cutting so easy also self-lubricates the pivot action.

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The hand grips are designed for comfort and durability. They're thick, to minimize hand fatique. They're molded of, tough polyethylene and the bottom is extra thick for longer wear when used to drag brush along the ground and into a pile.

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21-inch AL 6620 cuts limbs up to 11/2 inches thick.

BYPASS LOPPER

INTERIORSCAPES

LIFESTYLES of the rich and famous almost inevitably include lush interiorscapes that accent the expensive and luxurious homes. By definition, the residential services market is high-end.

The contractors who report a thriving residential business note that their clients are willing to invest in the design and installation of interiorscapes and are able to afford high monthly plant maintenance fees. For some residential clients, interiorscapes become a statement in themselves — of affluence, of taste and even of art.

While some contractors shy away from this market, others actively cultivate the work through their own network of social acquaintences, interior designers and developers.

Landscape Images, of Lake Forest, Calif., is a company experienced in

residential interiorscape. Although he has been called the "King of Residential Interiorscape" by industry peers, Steve McCurdy, president, noted that the majority of his company's clients are commercial. "Only about 30 percent of our clients are high-end residential," he said. But those clients

are rather remarkable.

Most are located in the more posh areas of Southern California and provide McCurdy with steady and ever interesting projects. He explained that some monthly maintenance tabs are as low as \$100 and others can bring in an average of \$2,000.

His more wealthy clients may require frequent replacement of rare orchids or other flowers, large and lush displays and constant vigilence. "In some of these accounts, we may even have to go back the same week to replace flowers on a timely basis."

he noted. "These clients have expensive cars, wear expensive clothes and spend millions of dollars on furnishings. For them, everything

.

His more wealthy

clients may require

frequent replace-

or other flowers.

large and lush

displays and

constant vigilance.

ment of rare orchids

has to be perfect all the time."

Some clients want to see the interiorscape company on the premises often; others never want to see workers attending plants.

"Some contractors see residential work as a service nightmare because the clients are so picky," McCurdy said. "In com-

mercial work, it is more businesslike and managers have more to worry about than each and every plant."



said in his high-end market, there is relatively little competition and most of his competitors move in their own circles. His connections with certain interior designers, as well as word-of-mouth advertising, usually bring in a steady stream of work. "It's rare that I even have to bid against my competitors on residential accounts," he explained.

Although interior designers can be a valuable connection for future work, McCurdy pointed out that they often have only a foggy idea of the particular plant material needed for the installation's finished look. "Or, the designers may know what they want but they're not horticulturally correct—the plants wouldn't live."

In some cases, the designer will request a certain Handling highend residential accounts is not for every interiorscape firm. It may be a good niche market for the contractor who can invest the time. Photo: Landscape Images

look that is totally inappropriate for the site.
"They may want a certain look and don't care if it will cost the client money to maintain. We may have to replace the

plants constantly because they don't do well in a location. Sometimes, the clients don't care about the costs either," he noted.

One profitable part of the residential equation is in design and installation. Another is the containers, which can be profitable if the selection is handled through the interiorscape company. "The price of containers can go through the roof on some of these installations." McCurdy said. "For instance, we had an installation that cost \$45,000 (with maintenance of \$400 per month). and the containers were two-thirds of the price. A \$15,000- to \$20,000installation can easily escalate to more than \$60,000 if the price of containers is included."



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Some restrictions apply to the no-crack deck, no-fail spindle warranty. See your Ransomes distributor for the details.



Ecosystems Imagery Inc.

HEADQUARTERS: Encinitas, Calif. FOUNDED: 1979

OWNERS: Thom and Garnelle Maxwell-Miller PRIMARY SERVICES: All aspects of landscape site development, specializing in custom projects such as zoos, botanical gardens, corporate headquarters, model homes and residential estates. Also offers design/build services and irrigation master planning.

EMPLOYEES: Approximately 50 1995 SALES: \$2.6 Million 1996 PROJECTION: \$3 Million

Executive Summary

THE CONCEPT: Ecosystems Imagery was created to provide the highest quality, environmentally sensitive landscape services available. The mission is steady, planned growth and profitability through demonstrated improvement of public and private gardens which are responsive to the needs of both the clients and nature.

FUTURE CHALLENGES: Further expansion into more private golf/resort properties and the addition of art and landscape artifacts to offer a more complete landscape package.

The President

THOM MAXWELL-MILLER AGE: 47

BACKGROUND: Worked in various positions for landscape and tree care firms before joining his father and brother's landscape maintenance firm in 1977. Created a landscape construction division, and formed Ecosystems Imagery in 1979. He served four terms on the California Landscape Contractors Association state executive board of directors, and the last three terms as the organization's chairman of future directions. He is active in regional and national political efforts for the landscape industry.

EQUITY HELD: Garnelle is the majority owner with 65 percent; Thom owns 35 percent.



Creative Na

Exotic plant
material, bioclimate
creation and
"wowing" customers
have made
Ecosystems
Imagery an elite
landscape firm in
Southern
California.

By Paul Schrimpf

iture

REATIVITY and vision are important attributes to possess as a landscape designer and installer, but it takes much more for a firm to truly excel. Listening, client empathy, communication and tireless attention to detail can make the difference between a landscape project that completely matches the client's expectation and one that falls short.

Thom Maxwell-Miller, president of Ecosystems Imagery, Encinitas, Calif., has worked hard to keep these qualities together while building his company into one of the most creative, and recognized, design/build and installation companies in Southern California.

Working with top-notch landscape architects and developing connections with owners of large private estates, Ecosystems Imagery has cultivated a reputation for ambitious and unusual landscapes. Its client list

includes the San Diego Zoo, Quail Botanical Garden, several major private estates, corporate headquarters, resorts and model houses.

Creativity aside, Maxwell-Miller backs up his designs with a strong, committed team of managers. His wife, Garnelle, is the majority owner of the company and handles contractual and legal responsibilities, job cost accounting, quality control and safety as well as most of the day-to-day operations. Larry Bareis, Ecosystems Imagery's construction superintendent, oversees all of the landscape construction and implementation; he's been with the company for 15 years.

"Garnelle is extremely detail-oriented, and does all the work that drives me nuts," said Maxwell-Miller. "Her biggest frustration is despite the work she does, she is as creative as I am but she doesn't get the opportunities to use those skills, or the credit she deserves for her part in the final result — without her, there's no company."

"Larry and I see eye-to-eye on most things," he continued, "although I tend to go more off the deep end creatively while he stays a little more tied to the practical. But we're both nuts about getting things done right the first time — we blend together very well."

Teamwork and creativity have paid off in prestigious awards. Ecosystems Imagery won the California Landscape Contractors Association Sweepstakes Award two consecutive years and the Associated Landscape Contractors of America Grand Prize award for commercial landscapes in 1994, and for residential landscapes in 1995.

CAN DO ATTITUDE. Ecosystems Imagery has the reputation as a company that can make the seemingly impossible a reality in the landscape. Many of its first projects were with established architects that provided a variety of creative opportunities.

The reputation for designing and constructing the unusual picked



(Above) Use of exotic plant material is one of the design strengths at Ecosystems Imagery. (left) The management team of, from left, Thom Maxwell-Miller, Garnelle Maxwell-Miller and Larry Bareis.

up steam and opened many doors for Ecosystems throughout the years. "We use a much more exotic palate of plant material than anyone else we know," said Maxwell-Miller. "We tend to get more work from landscape architects because they are aware of our expertise."

This flair for the exotic created another niche — the bioclimate. As it first did with the San Diego Zoo, and then with private estates, Ecosystems Imagery takes ecologically sound climatic themes, such as a rainforest or mountain woodland, and recreates the theme within a client's landscape.

"We go to a lot of detail to recreate those themes as truly as possible with plant material that will live in this region, but that creates the feeling that the owner wants," said Maxwell-Miller.

One of their benchmark projects, the \$1.8 million tropical rainforest at the zoo, was a challenge due to water restrictions. "We employed a lot of fog systems, multiple layering of material and good soil preparation."

KNOWING THE LIMITS. A self-admitted stickler for managing every detail, Max-

well-Miller and his managers learned a hard lesson from a fast growth period in the late 1980s. In a one and a half year period, the company took on new jobs that inflated the employee count from 30 to around 140. Lending the kind of attention he insists on to his clients and projects became like running on a treadmill.

"It was a scramble, because we wanted to keep the quality and reputation we built," he explained. "So, we did all the things that professionalism dictates — we got a highly trained purchasing agent, more accounting staff, uniforms and more trucks and equipment. Garnelle and I were working probably 75 hours a week. At

the end of the year not only did we fail to make any more money, but our workmen's compensation rates went up, our insurance ratios went up, our taxes went up and we all looked at each other and said, 'whatare we doing this for?'"

For the next nine months, the company cut back to 50 employees and reduced the number of projects it was accepting. "In a creative industry, if you can't take time to

recharge on a continuous basis, it becomes very hard to keep any kind of a creative edge," he said.

BUSINESS BASICS. With only 5 percent of the business tied to maintenance, Ecosystems Imagery can keep its equipment overhead relatively low. "We run five street-licensed vehicles, one large excavating backhoe, a good quality skid steer and our irrigation trailers," explained Maxwell-Miller. "We have enough for the volume we try to do, and we rent the things we don't use on a

recurring basis. Employees report directly to the site, so there's no need for extra vehicles."

When choosing work, Maxwell-Miller first considers the level of professionalism on the other side of the fence. "Our first choice is negotiated work with clients and architects that we have a good relationship with, regardless of profit margin or any other factor," he said.

The company doesn't grind out bids, either. Maxwell-Miller works with Bareis personally on each bid, and every proposal is fully detailed.

"Even before we had computers, we itemized everything we were putting into the landscape," he said.



To ensure that a project is within a client's vision, Maxwell-Miller walks the job with the client as often as possible.

KEEP LISTENING. "Regardless of the client, one of the things we try to do is get to know the owner and what they are really saying," explained Maxwell-Miller.

"This means getting

into a relaxed situation with them — finding out more about their lifestyle, the colors they like, what kind of entertaining they do, whether they will be looking at the landscape from the inside or the outside and even their allergies.

"You have to ask questions," he continued, "and then be patient enough to let the owner go where they are going to go with the question. Too many people ask the question and, being in a hurry, only listen for the answer they want to hear."

The listening continues throughout the job, and Maxwell-Miller takes every opportunity he can to walk the job with the owner and discuss the progress. "As the job progresses," he explained, "the owner may express that things are different than they saw in their minds. I've found that many people have trouble visualizing their desires until the project starts to take form.

"At that point," he continued, "you need patience and knowledge to further explore the client's inability to communicate their vision. On the other hand, some clients need to be steered very strongly from an idea that is not compatible with their site or bioclimate."

Client demand, along with the pressure of a highly regulatory state government, have also lead Ecosystems Imagery to emphasize landscape design that is consistent with the Southern California climates.

"More and more clients have been responsive to environmental issues," ex-

(continued on page 44)



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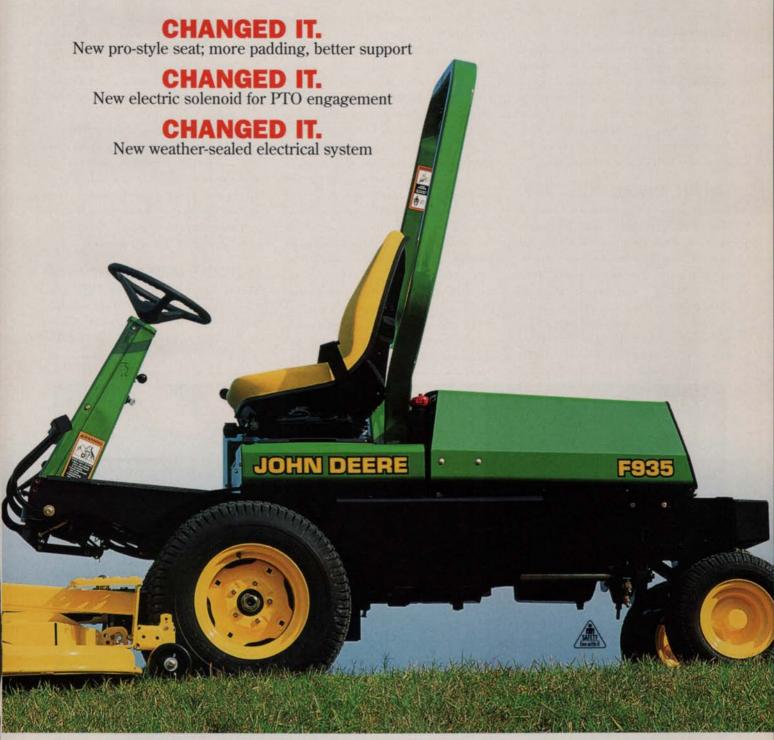
Change is good. Sometimes. But when you've got a front mower with as many outstanding features as the F900 Series, it's often best not to mess.

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(continued from page 40)

plained Maxwell-Miller, "especially as we have gotten into golf course and resort type work because of the various regulations and public pressures. Even homeowners, though, are very concerned with the environment — even if they don't feel a deep-seated need to be, they realize that there is an importance for creating a sustainable environment."

EMPLOYEE HANDLING. The construction division of Ecosystems consists of four crews averaging 10 to 15 people per crew. Each crew has a foreman and two assistant foremen or crew leaders, again depending on the size and scope of the job. "We may have as many as three crews on the same job," he said.

State regulations and company policy require ongoing training of employees in safety, labels and techniques, and the foremen and assistant foremen play critical roles in the process.

Coordinated by Garnelle, the company's safety committee meets monthly to review adherence to policy, accidents in the field and training procedures. They also produce the topics for the crew's monthly tailgate meetings. The foreman is the safety committee chairman for the crew, and the assistant foreman is the lead implementer of the programs and training.

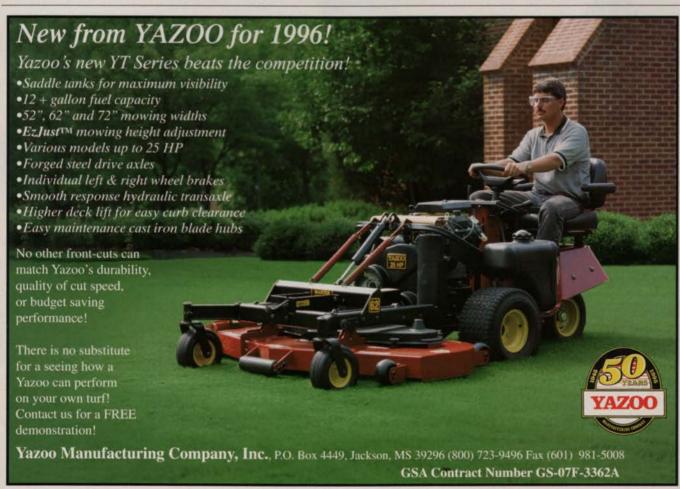
Like many areas of the country, Maxwell-Miller said hiring and retaining good employees is a constant challenge. "We have a good core of people, but we have gone through a lot to find them," he explained. "For managers in the construction area in general, it's hard to find quality landscape foremen and assistant foremen who are also dependable, have a stable family and are drug and alcohol free. Sometimes we get the guy who stays clean and sober all week, but who parties all weekend and has trouble coming in Monday morning."

Well connected with construction and landscape companies throughout the area, Maxwell-Miller feels most comfortable hiring from other firms.

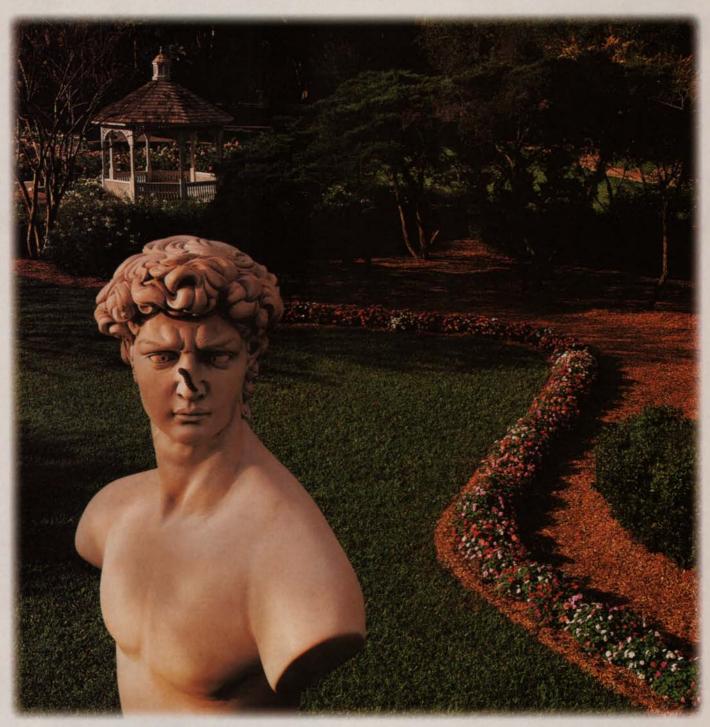
"If they worked anywhere in Southern California, it's usually someone I know and can call," he explained. "There are only so many questions you can legally ask, but one you can ask is, 'Would you hire this person again?' It's a simple question, but it is rarely asked."

POLITICALLY ACTIVE. Maxwell-Miller likes to call his home state the "Republic of California," because of its intense level of regulation that makes it unique in the United States. To this end, he

(continued on page 46)



DURSBAN ELIMINATES 140 INSECT PESTS BECAUSE ALL IT TAKES IS ONE TO BUG A CUSTOMER.

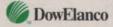


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(continued from page 44)

stays active in state politics. He discussed this in a recent interview:

Q. Why did you join the California Landscape Contractors Association?

A. At first, it was for the networking with other landscape professionals. But when the San Diego chapter's active membership dwindled to just a small core of people, I got more involved in the organization itself, as well as its political activities.

Q. What do you do as chairman of future directions?

A. Our goal is to determine where members think the organization should be in 20 to 25 years. My responsibility has been to ask members good questions, listen to their answers and report my findings back to the board and try to get the executive board to consider what the majority of members have to say.

Q. Is it as difficult to work in California as reputed?

A. Actually, it's a well meaning state, it's a great state, but it has become very restrictive to business. We have lost a lot of businesses in the last few years. Most recently, they have been debating whether to change the sales tax to include value-added services. This would mean contractors would not only have to tack on sales tax but would have to figure sales tax on the finished product. The contractors who take money under the table will do even better, while the professionals

trying to be legitimate will get hit.

Q. Water districts in California have historically looked at landscapes as wa-

We go to a lot of detail to recreate themes as truly as possible, with plant material that will live in this region and create the feeling the

owner wants.

ter wasters. Has the California landscape industry made any headway in this area?

A Where we used to be looked at as screaming reactionaries, they now call upon us for information and resources, and they invite us to almost every meeting. Now, we have representation and we get to hear everything that goes on in the water districts.

Ecosystems Imagery is located at 1329 Lake Drive, Encinitas, Calif., 92024. The phone is 619/436-8608.

The author is Managing Editor of Lawn & Landscape magazine.

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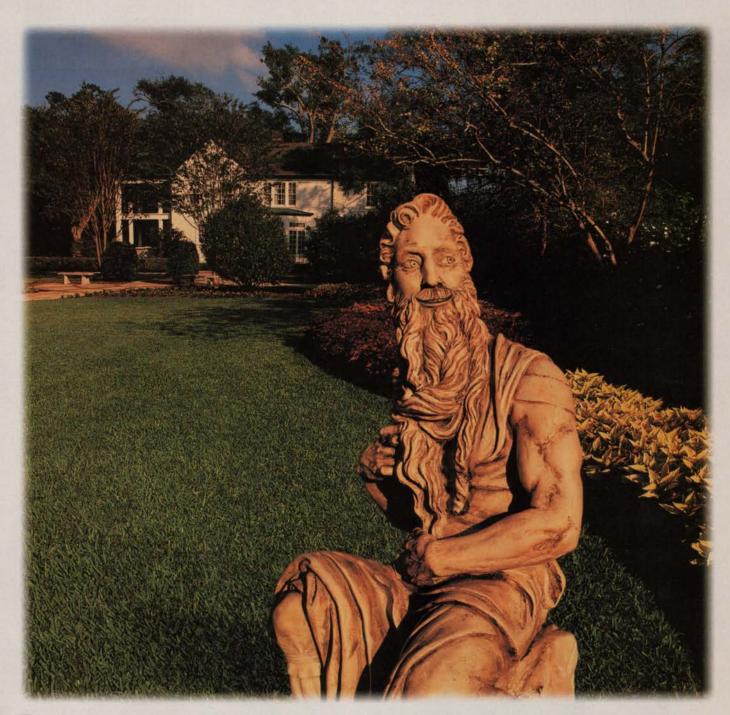
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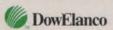
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The New Insecticides:

Rethinking Pest Management

NTHE 1950s and 1960s, chlordane, malathion and diazinon were the insecticides used for turf and ornamental insect control. Chlordane had an oral LD₅₀ of 335, malathion's was 290 and diazinon's was 466. When certain insects developed resistance, and when this group was found to cause unwanted environmental side effects, new insecticides came to market. They were carbaryl (Sevin™), trichlorfon (Dylox,™

Proxol™) and chlorpyrifos (Dursban™).

With a variety of new and more targeted insecticides available on the market, landscape managers may have to rethink their traditional application

By David Shetlar

schedules.



Pyrethroids and soaps can offer control of European pine sawfly larvae. Credit: Shetlar

These insecticides had oral LD_{50} levels of 850, 395-933, and 530-940, respectively.

Industry then introduced disulfoton (Di-Syston, [™] LD₅₀ = 1.4), oxydemeton-methyl (Metasystox-R, [™] LD₅₀ = 50), isofenphos (Oftanol, [™] LD₅₀ = 92 to

(Oftanol,™ LD₅₀= 92 to 143) and isazophos (Triumph,™ LD₅₀ = 60 to 295). In the 1980s, the EPA

In the 1980s, the EPA served notice that it did not want to consider any new organophosphates and carbamates, especially if they were more toxic than the ones currently registered.

This attitude, along with increased demand by consumers for biological and biorational controls, led many companies to develop alternative materials.

The industry can now make use of several compounds that represent new pesticide chemistry, as well as some biological controls. Some have longer residual activity than the older products but are only effective against young, developing insects. Others have very short residual activity and work on very specific targets.

Some landscape firms have also turned to the "soft" pesticides that include horticultural

> oils and soaps, either by themselves or in combination with reduced rates of insecticides.

> THE PYRETHROID OPTION. Pyrethroids, the synthetic compounds that mimic the natural botanical pyrethrin, have been under development for almost two decades. Some original pyrethroids had very short residual activity and caused skin rashes or respiratory distress.

Recent pyrethroids, such as cyfluthrin (Tempo™), lambda-cyhalothrin (Scimitar,™ Battle™), bifenthrin (Tal-

(continued on page 52)

IF YOU WANT TO KNOW HOW LONG GALLERY WORKS TO PREVENT BROADLEAF WEEDS, ASK SOMEONE WITH TIME ON THEIR HANDS.



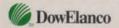
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Buckle Up, Americal

(continued from page 48)

star[™]) and fluvalinate (Mav-rik[™]), have longer residual activity and fewer adverse side effects. In fact, many applicators describe the odor of these pyrethroids as being "floral" in nature.

For those concerned about "environmental pesticide loads," pyrethroids are very favorable because they are used at tenths or hundredths of a pound of active ingredient per acre, as opposed to pounds of active ingredient.

On ornamentals, pyrethroids work well against a wide range of leaf-feeding insects such as caterpillars, sawflies, leaf beetles and Japanese beetles. Like their contact/stomach poison counterparts in the organophosphate and carbamate groups, pyrethroids can only work against leaf miners and scales when these insects are in exposed stages — as adult leafminers and scale crawlers.

While most pyrethroids give excellent control of sod webworms and cutworms, little data has been published on their efficacy against other surface pests such as chinch bugs and billbugs.

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bugs and billbugs.

Reports indicate that they perform satisfactorily if targeted correctly against those two pests. The chinch bugs are best controlled when adults are still laying eggs and small nymphs are present.

Billbugs appear to be a bit more difficult to manage since pyrethroids may not have much affect on the larvae once they have moved into the soil-thatch area.

The best strategy is to target an application for when the adults are beginning their spring movement and laying their eggs.

Research has shown that some pyrethroids are very ef-

fective against the black turfgrass ataenius adults. If the adult control strategy is being used, apply the pyrethroid when Vanhoutte spirea (or Bridal Wreath spirea) is beginning full bloom.



NEEM EXTRACTS. When the U.S. Department of Agriculture first tried to develop neem extract (neem oil is extracted from the Asian neem tree), few companies were willing to commercialize it. The first products were based on crude extracts and had varying amounts of the active ingredient, azadirachtin.

This is an insect growth regulator. Insect larvae or nymphs usually stop

> feeding and have difficulty in molting. Adult insects are often repelled when they come into contact with it.

> Current products containing azadirachtins (Turplex,™ Bio-neem™) are now based on the amount of actual azadirachtin contained and the formulations have been adjusted to keep the active ingredients active longer.

Azadirachtin is virtually "nontoxic" to nontarget animals ($LD_{50} = 4,241$) it is used at hundredths of a pound of active ingredient per acre and it only works against small larvae that are very difficult to monitor.

Remember that azadirachtins are only effective when used against small, actively molting insects. On ornamentals, azadirachtin appears to have good activity against leafminers and whiteInsect infestations can be a problem but these white pine aphids are easily controlled with the new pyrethroids, horticultural oils and soaps.

flies. Plan to make regular applications, usually at 14- to 21-day intervals, from late May through mid-August.

While this kind of program may appear to be counter to traditional IPM thinking (i.e., make a pesticide application only when the pest population warrants it), azadirachtin actually fits well into a program.

THE CHLORONICOTINYLS. Without a doubt, this new chemistry has created great excitement with the introduction of imidacloprid (Merit™). When first discovered, scientists were unsure of its mode of action but it appeared that imidacloprid may be like an insect growth regulator. It only worked well against very young insects.

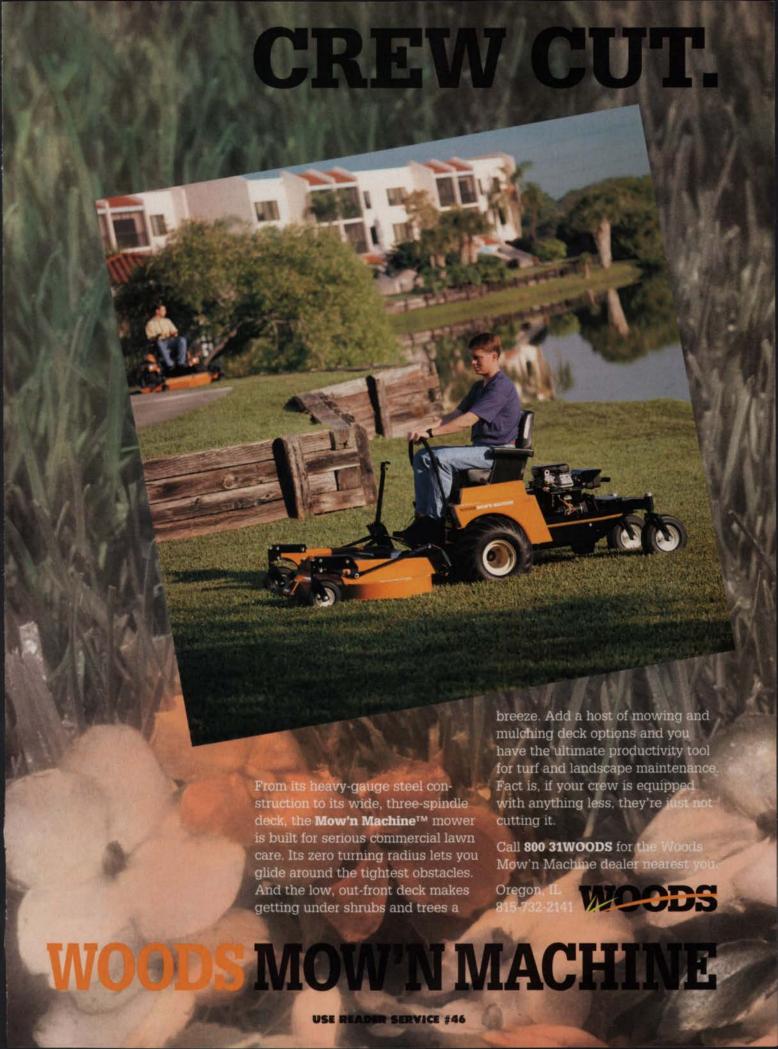
However, we now know that it affects the nicotinic acetylcholine receptor sites of the insect nervous system. Insects rely on this neural transmitter system to a great extent, while mammals, fish and birds rarely use it. Therefore, it has very little effect on nontargets (LD_{50} =1,858 to 2,591).

Apparently, when the insect neural system is affected by imidacloprid, it "tells" the insect to stop feeding. This is lethal to small larvae within a couple of days. However, with nearly mature larva, development can be completed without death. Therefore, imidacloprid must be used when young, immature insects are expected to be present, not after they have made significant development.

Another feature of imidacloprid is its systemic activity. When applied to the soil around trees and shrubs, it can be taken up through the roots and transported into the leaves. We also suspect that this happens in turf and are determining how long this uptake lasts.

Imidacloprid is being used success-

(continued on page 54)



(continued from page 52)

fully to manage tough ornamental pests such as leafminers and borers. However, soil applications have to be made 30 days prior to the time that the pest will be active. Some uses have achieved excellent control of the birch leafminer and the bronze birch borer when applications are made to trees during the previous November!

It appears that imidacloprid remains active in the foliage of turf for 20 to 30 days after the initial application. However, it remains active in the soil-thatch level for 90 to 100 days.

In studies in Ohio, we have been able to apply imidacloprid in mid-May (when bluegrass billbug adults are laying eggs) and achieve excellent control of billbugs as well as the masked chafer and Japanese beetle grubs that come in July and August.

We are still not sure if imidacloprid is a good product for caterpillar (sod webworm and cutworm) control. When we have monitored these caterpillars and know when young third and fourth instar larvae are present, we get good control. However, if fifth and sixth instar larvae are present, we get poor control.

Field experience indicates that we can suppress sod webworm and cutworm populations for 20 to 30 days after an application. Areas that experience multiple generations may have to make a subsequent surface insecticide application to keep them under control.

NEW MOLTING DISRUPTER. During the past few years, several companies have been developing insecticides that can be generally classed as insect growth regulators. Rohm and Haas and American Cyanamid have been co-developing one that looks very promising as a grub control product — halofenozide (RH-0345). Apparently, it is not a traditional insect growth regulator in the way that it disrupts the molting process. It is most active against caterpillars, beetle grubs and fly larvae.

Halofenozide does not adversely affect birds, fish, earthworms and honey bees. Its LD_{5q} is 2,850, and it has a soil half-life of about 128 days. It also has some systemic activity.

Over two years of testing, halofenozide has provided excellent control of Japanese beetle and masked chafer grubs in Ohio tests when applied before mid-August.

Like imidacloprid, it appears to be a compound that can be used in mid-May and will have sufficient residue to control grubs in July and August.

Rohm and Haas and
American Cyanamid have applied for an experimental use permit for 1996 and expect full registration in 1997. If you are approached by a company representative to participate in the EUP program, this could be an excellent product to use against your "problem" grub infestations.

USING BACTERIA. The white grub milky disease caused by *Bacillus popillae* Dutky has been on the market for many years and is recommended by those not wanting to use pesticides to manage grubs. Some have complained that the products were difficult to find and this is most likely due to the poor production of the spore powder in 1993.

Japanese beetle grubs were difficult to find and Fairfax Labs in New York produced little product for the 1994 season. Unfortunately, the only available products contain a strain that is active only against the Japanese beetle.

Evaluations in Ohio and Kentucky have revealed that this strain appears to be a "weak" pathogen, at least in these soils, and 20 percent to 25 percent infections appears to be the maximum possible. In fact, recent reports in the Atlantic states suggest that less than 50 percent control is the norm.

For years, entomologists have been working with another bacterium, *Bacillus thuringiensis* (usually just called "Bt"),

When the U.S.

Department of
Agriculture first tried to develop neem extract (neem oil is extracted from the Asian neem tree), few companies were willing to commercialize it.

that has numerous strains which have been effective for control of various caterpillars, mosquito larvae and leaf beetles. After hushed reports that new strains had been discovered that can eliminate white grubs, Mycogen Corp. of San Diego released a Bt strain "japonensis" variety 'buibui' for limited testing in 1994-95. Field tests confirmed that it could achieve 90 percent control or better when applied to first and second instar masked chafer or Japanese beetle grubs in August. We tested

the material again in the spring of 1995 and were amazed to get 70 percent con-

trol of spring grubs.

Bt 'buibui' is applied by the gallon instead of active ingredient per acre. The bacterium and its toxin are contained in a liquid slurry that is sprayed through conventional liquid application equipment. However, the current rate of 26 gallons of slurry per acre may challenge turf application equipment that is designed to apply 1 to 1.5 gallons per 1,000 square feet (or 44 to 66 gallons per acre).

Unlike many of the previously described insecticides, Bt 'buibui' will only affect certain white grubs, especially masked chafers and Japanese beetles. This Bt must also be applied when the grubs are actively feeding near the soilthatch interface. First and early second instar grubs are much more susceptible than large third instar grubs. Therefore, applications in mid- to late August are probably best.

Bt strains are also noted to be sensitive to direct sunlight. Irrigation soon after an application should enhance performance. Mycogen expected an EUP in 1995 and full registration in 1996. It has selected M-Press™ as its name.

FUNGI AND NEMATODES. Another biological control was registered for turf insect control in 1995 — Naturalis-T™

from Troy Biosciences Inc., Phoenix, Ariz. This product is based on the fungal pathogen, Beauveria bassiana JW-1. Beauveria is commonly called the "white fungus" of insects and is often found in chinch bug and billbug infestations. Naturalis-T lists chinch bugs, crickets and grasshoppers on its label. Since Beauveria is a fungus, fungicide applications should be avoided at the time of use. At present, there are few published reports as to the efficacy of this product for turf.

Entomopathogenic (insect killing) nematodes also continue to be developed. Steinernema nematodes are commercially available under several trade names (Biosafe, TM Vector, TM Savior, TM Scanmask, TM etc.). S. carpocapsae is the most commonly produced species because of the ease of production of juveniles in large fermentation tanks. It is most useful for managing cutworms, sod webworms, billbugs and fleas. However, nematodes are very susceptible to desiccation, cannot tolerate direct sunlight and may be killed by other turf insecticides or fungicides. S. feltiae and S. glaseri are also marketed for surface insect and white grub management.

Steinernematid nematodes, in general, have not performed well for man-

Some landscape

companies have

pesticides that

turned to the 'soft'

include horticultural

oils and soaps, either

by themselves or in

combination with

reduced rates of

insecticides.

agement of white grubs. S. riobravos (Vector-MC™) and S. scapterisci (Proactant-Ss™) are registered for control of mole crickets and properly made applications have produced satisfactory control.

Heterorhabditis bacteriophora nematodes are commercially available but generally from smaller suppliers. This is because it is difficult to culture. It has generally been the best per-

forming species for control of white grubs but efficacy is not consistent.

THE "SOFT" PESTIGIDES. Many landscape managers are getting more comfortable with the use of oils, both horticultural (summer or verdant) and dormant. Most of the original, true dormant oils were too heavy and contained impurities that could cause significant plant damage if used when the plant was not truly dormant. Most of the modern mineral oils readily state on their labels that they can be used for dormant or summer applications. Be sure to read

(continued on page 115)

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Commercial Market Gets

Lean, Mean and Green

F YOUR BUSINESS isn't on a fat free diet yet, it should be. At least, it should be fat free if you're going to compete with the big boys of commercial landscape contracting. Years ago, it was OK to run a sloppy operation, ignore those pesky productivity and expense figures and just amble down the road to success.

Today, it's much different.

Today's market is price driven, and successful contractors have responded by cutting out unnecessary fat. The appetite for profit is too strong. The result is the evolution of more professional companies, better management and smarter operations. In many cases, contractors have been forced to get smart or get out.

REGIONAL CONTROL. Commercial landscape installation and maintenance, like the real estate market in general, reacts to the fluctuations of the economy. After the boom of the 1980s, the economy sagged in most areas of the country, and with it went many real estate values. Overbuilding, overinvestment and the savings and loan crisis brought the high flying industry to its knees.

Gradually, new investors entered the commercial real estate market. Some have spent huge sums on landscape renovation and other projects to increase a property's "curb appeal" and occupancy rates.

"There's been a huge trend developing in commercial real estate during the last five years," explained Scott Brickman, vice presi-

dent of The Brickman Group, Langhorne, Pa. "Many properties are now owned by institutional owners such as pension funds or insurance companies. The local owner/manager is less common and many property managers manage in several markets."

These third-party management firms are driven by the budget and have brought standardized management practices into therealm of property management, he pointed out.

"This has been an advantage for our business," said Brickman, "because it has caused the landscape contractor to become more professional." Some of the standards covering landscape contracting involve work prices, maintenance standards, productivity and scheduling benchmarks and total quality management programs.

Brickman noted the result is that savvy



Many commercial property managers are setting standards for landscape work based on budget objectives and good practices. Photos: W. Scott Mitchell

Stiff competition and property managers with a taste for low budgets are changing the commercial landscape market into a more professional arena.

By Susan Gibson



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USE READER SERVICE #69

commercial market

(continued from page 56)

landscape contractors have responded by standardizing their own processes and constantly improving their operations.

Other landscape contractors have encountered similar standardization when dealing with regional property management firms hired by large national firms in an effort to standardize costs or shrink their payrolls by outsourcing. In some areas, such outsourcing is driven by extremely low unemployment rates. When one company handles all business sites nationwide, management wants to be able to measure performance and make wide ranging budget decisions.

How does this change the commercial landscape contracting market? Brickman explained: "It used to be that smaller contractors went out on a job and decided what to do that day on site, as opposed to planning. Now we ask how long a specific job should take to do, how we should schedule work, how we can prepare for it. Whether we're cutting grass in Florida or New Jersey, we have a structure that allows us to look at the job to be done, and decide what crew to use, when to do it, how long it should take and what equipment should be used. The process hasn't changed what we do, but how we do it."

QUALITY REDEFINED. Just because the emphasis is on lean operations doesn't mean that landscape quality takes a back seat to profits. It means that today's property managers appreciate good work while also keeping an eye on the budget. This realization can be challenging for contractors.

"The commercial customer is more educated and more demanding," noted Kent Miller, vice president of marketing for The Groundskeeper, Tucson, Ariz. "They want quality service, walk-throughs of the property, checklists. They want to know the condition of the irrigation system, when to plant certain plants — they want more for less."

"We can't stay with the things we're comfortable with anymore," explained Michael Rorie, president of Groundmasters, Cincinnati, Ohio. "We can't be rigid, but rather, we have to be flexible in cost. For instance, take the standards for planting flowers. We now have more aggressive targets to meet in terms of cost and the standards we use now may not be based on pure horticultural standards or even our own personal standards. Now, if it is less than a priority for the client, we may not guarantee the plants or we may use a different variety."

Successful firms
handling
commercial
properties must
operate with a
minimum of 'fat'
to remain
competitive and
profitable.



Those companies that are successful have accepted the competitive circumstances and what the customer demands. It's a mental transition we have to make, not a physical one.

He believes the emphasis on budget is a natural for the new property manager. "Property managers used to be like a boss in every building. Now, I'd estimate only one out of five is on-site today. They're all competing for lower fees, they want to put less workload on their managers, have less overhead through less administrative support on site and become profitable through more

automated processes."

The clients' focus on money encourages a change of view in successful companies. "We may even change our expectation of maintaining the flowers. If we don't need to cut the back of a plant, we may not do it to meet the budget," Rorie said, noting that the floral arrangement may still look fine from the front, which is a priority for the client.

He pointed out that in spite of reduced budgets, the industry is thriving because of an improved profit picture. "Those companies that are successful have accepted the competitive circumstances and what the customer demands. It's a mental transition we have to make, not a physical one. We can no longer be rigid; we have to walk into a client's office and listen. We've accepted that these are the new rules."

The emphasis on better management, leaner productivity and quality operations has enabled Rorie's company to become more innovative and achieve profitability, he believes. "We operate more competitively, we re-analyze every process and then eliminate or streamline operations. The system works, there's less disappointment and we're more competitive."

The mental transition can be rejuvenating to a company, Rorie explained. "Instead of saying, 'We can't,' now we say, 'How will we?' I believe you aren't allowed to operate 'fat' and make money today. It's like having a huge meal and throwing half of it away. With leaner operations, we can still have a full meal, with less waste, less to clean up, less cost and achieve the same thing — satisfaction."

COMPETITION CONTINUES. Intense competition was the description most contractors used to describe the commercial market — whether it be on a regional or local level. Most were in agreement that property managers are motivated by price.

"Competition has always been a factor in the landscape industry, especially with a 7 percent increase in the number of competitors during the last five years," noted Denis Byers, vice president of marketing and business development for Landscape Resources, Irving, Texas.

Whether the property manager is regional or local, experience and reputation still add competitive punch. According to Bruce Church, president of Church Landscape, Lombard, Ill.,

(continued on page 62)

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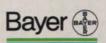
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(continued from page 59)

the market is weeding out many unprofessional maintenance firms that jumped in during the construction lull a few years ago. He said the shoddy work of those "instant maintenance contractors" is getting negative attention from property managers who are finally starting to appreciate professional quality work.

Church Landscape cultivates work with landscape architects to build relationships and avoid the bidding trap. If the firm does bid, he tries to get on a qualified list of only a few companies or tries to deal directly with the property owner or manager, rather than with the general contractor.

Many companies performing commercial installation and maintenance work have done quite well by becoming known as one of an area's "top performers." While intense competition makes it harder to maintain long-term relationships with commercial clients, Rorie said he feels that the more successful firms can actually be in a less competitive situation. This perception as an "elite" contractor can result in winning more large scale jobs, being able to charge slightly more for the work or just being able to continue with a contract.

"It's a transition that many companies have gone through to be earmarked as 'the best', and some are still struggling to be known as a 'top performer' in their market," he noted.

The ability to win contracts in markets crowded with competition depends on the level of professionalism a company exhibits, according to Miller. "A lot of factors count, such as how well a company knows its customers, the kinds of landscape services it provides, whether it is bonded and how much the property managers rely on them to answer questions and service their needs."

The challenge, Miller noted, is to maintain good one-to-one relationships with the customers and also make sure that they are not lost in the numbers. "Communication is a big challenge. We want to make sure they understand what we're doing."

Landscape Resources recently decentralized much of its operations and established branch operations to facilitate contact with its commercial clients. The client gets one manager to deal with and that manager is responsible for a limited number of properties.

David Frank Landscape Contracting in Germantown, Wis., has taken the satellite office down to more of a local level. Because his customers are fairly sophisticated and are used to frequent communication and attention, he has







established nine dispatch facilities that are no more than six blocks from any one client. Another factor that helps his firm maintain its competitive edge is its long establishment (nearly four decades) in a market he described as "extremely

CONTRACT NEGOTIATIONS. Another way to beat the competition is to lock in work

conservative."

Keeping competitive may mean adding special services for existing clients, which adds to the bottom line without adding many overhead costs.

for longer contract periods. In some extremely competitive markets, this strategy can help limit the number of competitors. In other markets, however, one-year contracts are standard.

For the client, a longer term contract is an opportunity to lock up prices and eliminate the yearly bidding process. Many property managers, however, are just not comfortable with longer term contracts.

"Just about everyone in the industry is pushing for three-, four- and even five-year contracts to create some stability, but most clients want more independence than that," Frank explained.

"You can get a longer contract, but not without a 30-day cancellation clause."

Jim Marcus, president of Four Seasons Landscape, San Jose, Calif., agreed. He said most decisions are still based on economics and while his firm strives to sign two-year contracts, most area contracts still carry 60-day out clauses. "You just can't hold these people down," he observed.

The term of a contract is often not as important as the services covered. "You get a false sense of security with a threeyear contract," Rorie pointed out. "We all know that agreements are breakable, and they're only good with whom you made them."

Corporate downsizing and budget cutting have had their inevitable effects on landscape contracts, noted Bruce Moore, president and CEO of Eastern

(continued on page 66)

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Land Management, Shelton, Conn. "Often, the facility manager has no knowledge of landscape and plant care and we have to go through an education process. We used to go out with an all encompassing contract of full services, but facility managers want bare bones contracts now."

Landscape necessities may overrule a pared down contract that was written without a full understanding of landscape needs, he noted. "Sometimes, a manager will look back at the year-end figures and realize there were some extra things that we still had to do such as aeration or snow removal, causing the figures to go over budget. When we have had a heavy snow year, we might have to go back to the manager and work out how we can get paid for the extra work. We want to help them meet budget.

Sometimes, however, the specifications are out-dated."

Old specifications that make no allowance for new technology or materials may have to be addressed. Moore uses specifications prepared by the Associated Landscape Contractors of

America. "We've used those specs to help property managers write new ones and they have welcomed the examples. Some of the old specifications don't make sense because they were written by someone without a technical background."

MORE SALES WITH LESS. Pared down landscape budgets and cost conscious property managers are two facts of today's commercial market. But smart

Many contractors are finding that lean and mean can equal green. In fact, some believe that the pressure for smarter operations is a major force driving innovation.

companies are learning how to expand their sales, increase their profits and spend less money in the process. And they focus on existing customers.

In markets where occupancy rates are climbing again, some property managers are will-

ing to spend money for enhancements or renovations that was not available in previous years. This could mean work on color beds, plant replacements and even some larger renovations.

"Although our current market is growing, we also look for growth through hang-on services that enhance a landscape and add to our margin, but don't cost us extra in terms of sales and administrative costs," said Rorie. "For in-



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stance, we're doing some parking lot sweeping for some full-service existing customers and that doesn't even involve new routing. On other properties, we're staining mulch as an addition to existing services — anything that we can sell to existing clients. It's a simple, better way to increase our margin and become more competitive."

Eastern Land Management follows a similar strategy of adding services like irrigation, color beds or parking lot sweeping to existing client properties.

Even small services or requests are not being overlooked, reported Church. His firm provides swan and geese control in landscapes, as well as a limited amount of holiday decorating and other seasonal work for existing clients.

Four Seasons is considering adding tree maintenance and irrigation management services to enhance existing relationships with its commercial clients.

Although Arteka Natural Green, Eden Prairie, Minn., is primarily a landscape design/build firm, it has found a way to extend business with its existing clients through a program it calls the "Arteka Advantage." According to David Luse, owner, the program offers a threeyear warranty on the new landscape installation, available when the clients sign a three-year maintenance contract. The advantage for Arteka is that it gives the company new profit opportunities, continues a relationship beyond the typical one-year term of warranty and helps to cement long-term relationships.

Many other landscape contractors have discovered that lean and mean can equal green. In fact, some believe that the pressure for smarter operations is a major force driving innovation.

"If there is no competitive reason, a company will continue to produce waste," said Rorie. "It's amazing how innovative you get when there is a lot of intense competition. It gives us a sense of urgency and deadline, and in those circumstances, we always meet budget."

The author is Editor of Lawn & Landscape magazine.



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Mower Productivity By The Numbers

Sloping property, closely spaced landscape plantings and even types of grass should be factoring into calculations to determine the true productivity of a mower. Credit: John Deere

Guessing is one way to estimate your equipment's productivity, but the most profitable method is to measure the real costs of labor and equipment.

by Steve and Suz Trusty

N TODAY'S cost conscious economy, it seems as though your accountant should be riding with your crews to tally up the operating costs. While the dollars and cents of business operation may not be a favorite topic, the way you manage those dollars and cents will keep your business operating — or force you to lock up for good.

Cost effective operation requires split vision. You must focus on the big picture of overall profit and loss, yet never lose sight of the small details. Mower productivity is a major factor in a company's profitability. The type of mowers you select, the hours of operation, scheduled maintenance and unscheduled downtime, transportation costs and labor expenses must be balanced by billable hours.

MOWER SELECTION. Take the time to research which combination of mower types will accomplish your objectives most efficiently and cost effectively. Your criteria will depend on your mix of accounts.

Obviously, the wider the mower deck, the greater the area cut with each pass. But a riding mower with a midmount, 60-inch deck that speeds along in open expanses may not be able to squeeze through a narrow gate or maneuver around a highly detailed landscape as efficiently as a 36-inch walk-behind unit.

Put a stopwatch to some on-site comparison checks between various sizes and types of machines run by your operators under comparable circumstances. Mow a



section of open turf with a 60-inch midmount riding machine and a 60inch front mower. Put the watch to the same two units in a premeasured section of turf with landscaping details typical of your client mix. Compare a 48-inch walk-behind mower with a 36-inch unit.

Besides the relative size of the properties you maintain, factor in variations that mowers and crews must handle. Are the properties flat, sloping or steep? How widely spaced are hardscape features and landscape plantings? Are mowing sites widely scattered or clustered? What types of grasses are involved? Are most turf locations of high or low visibility? And, most important, what are the client expectations for each site?

Consider your crews' performance.

Calculate Your Mowing Costs

y figuring your equipment costs per hour and covering all possible equipment-related costs, you can get a clear picture of the amount of productivity each mower brings to your operations and set your pricing structure accordingly.

EQUIPMENT

- 1. Initial cost of unit
- 2. Finance charges (total)
- 3. Total unit cost (#1 + #2)
- 4. Projected total use-hours
- 5. Projected use-hours per year
- 6. Total projected years of use (#4 divided by #5)
- 7. Projected value at end of use
- 8. Depreciable cost (#3 minus #7)
- 9. Depreciable cost per year (#8 divided by #6)
- 10. Unit cost per use-hour (#9 divided by #5)

OPERATION COSTS

- 11. Fuel used per hour (gallons per hour)
- 12. Cost of fuel per hour (gallon cost of fuel x #11)
- Annual cost of other fluids: oil, grease, antifreeze, etc.
- 14. Cost of other fluids per hour (#13 divided by #5)

MAINTENANCE AND REPAIR COSTS

- 15. Parts
- 16. Labor
- 17. Percent of in-house maintenance
 - + repair costs allocated to the unit
- 18. Annual costs of maintenance + repairs per hour (#15 + #16 + #17) divided by #5

OTHER

- 19. Insurance
- 20. Taxes
- 21. Parking/storage
- 22. Licenses
- 23. Annual costs of other expenses per use-hour (#19 + #20 + #21 + #22) divided by #5

TOTAL UNIT COSTS PER HOUR

Annual cost = (#10 + #12 + #14 + #18 + #23)

Will operators be more likely to pick up debris than to mow over it if they use walk-behind units? How do riding machines affect operator fatigue at the end of a 10-hour day? Ask crew members to assess the little things on each machine that mean so much during a day, including the control placement and the ease of cutting height adjustment.

You may find it most effective to vary the mix of mower types and deck sizes according to crew assignments, or find that a standard set of mowers for each crew is most efficient.

Consider transportation options relative to the size and number of mowers required for each crew. You're paying for that transportation all day, even when it's only in use a few hours. Could you cut costs by using designated transports to move bigger equipment to several job sites and assigning smaller trucks with

mower productivity

smaller mowers to each crew?

Compare the initial costs of larger mowers to smaller machines. How important are those differences when allocated over the life of the mower? Compare the fuel quantities and related operating costs. Calculate the difference per hour of operation. Will more complex machines require a more experienced operator?

Factor in the expertise of your technicians. Will you be using gas powered or diesel powered machines? Are hydraulic units included? Will the more complex machines require a greater degree of skill for maintenance than you can provide in-house?

Depending on your geographic region, mowers will run nonstop from seven to 12 months of the year. A mower out of operation costs you money. Investing in quality equipment up front

Depending on your geographic region, mowers will run nonstop from seven to 12 months of the year. A mower out of operation costs you money.

pays off over the life of the machine.

FINANCING OPTIONS. What financing options are available to you? Are you paving a significant portion of the mower costs up front, or are you allocating those costs over a longer period? Are you purchasing a block of machines at one time or adding one piece of equip-

Financing options give you the flexibility to balance your cash flow by allocating equipment purchases to profitable times of the year or by spreading those costs over a longer period.

Compare different warranty programs and extended service options along with the initial purchase price.

MAINTENANCE NEEDS.

Even the best equipment breaks down at times. Consider parts availability and services offered by your dealer. Can the service network supply special order parts within 24 hours? Does the warranty cover the complete machine, or will you need to work with one source on the cutting unit and another source on the engine?

Does the dealer understand your business and your needs for quick turnaround on equipment repairs? Do commercial machines take priority in the service line up? Does the dealer offer

(continued on page 72)

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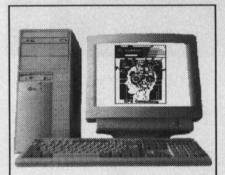
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mower productivity

(continued from page 70)

special early morning or late evening hours for commercial operators? Are loaner machines available in a pinch?

Analyze the costs associated with your in-house service department and crew of technicians. While your own machines have top priority with the inhouse technicians, this is balanced by the number of technicians you employ and their skill levels.

Since equipment doesn't break down on a regular schedule or when it's convenient, your technicians may have too much to do at some times, too little to do at others. Also, the space, tools and parts they need to work with are a part of your fixed costs when figuring mowing expenses. This may be included as a percentage of the total overhead package or a portion of the cost can be allocated to each machine.

EQUIPMENT LIFE. Consider the useful life of each mower. At what point is the operation of a unit no longer cost effective? Some companies report excellent results by using an aggressive preventive maintenance program on older machines and running them for many years. Others prefer to set a use-hour limit and trade all machines when they reach that point.

No one understands your company's operations as well as you, so it's your decision when to replace equipment. Assess the exact operating costs of each machine periodically, at least twice a year. If your company is computerized, you may be able to track crew time and equipment use reports on a daily, weekly or monthly basis.

Computerized or not, pull out the stopwatch every so often to monitor the exact results of existing mowing units.

Then compare the stopwatch results of an experienced operator mowing a comparable area with the type and size machine that you anticipate will replace the existing unit. If the older unit shows a significant drop in efficiency, it's time to replace it.

NONBILLABLE TIME. It would be great if you could charge full price for each mower's services from the time it left the shop in the morning until it logged back in that night. In reality, there's a block of nonbillable time involved.

Mowers and crews must travel to and from the job site. There are fuel stops, loading and unloading time, lunch times and break times. If clippings are collected, time is needed to empty bags or carts and to transport the clippings to the collection site.

(continued on page 74)



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mower productivity

(continued from page 72)

Track nonbillable hours by having crews note it on their daily work sheets. Have each crew record a daily start time, as well as their on-site arrival time, work start and stop times, and a site departure time at each site. To determine the actual equipment use, have each operator record the starting and ending times for each mower used at each job site, along with the work completed at that site.

Compile an average of the nonbilled

No one understands your company's operations as well as you do, so ultimately it is your decision when to replace equipment.

time for each crew member and each piece of equipment. Factor these figures into your calculations on mower and labor productivity.

CREW ALLOCATION. Labor costs make up a huge portion of your operating expenses. The more efficiently your crews operate the more productive and cost effective they (and your mowers) will be.

Analyze the records of nonbillable hours to determine how much time each crew member and machine are out of

> action waiting for another crew member to complete a task. If this figure is excessive, can you adjust crew size or alter assignments within the crew to keep more people and machines at work more of the time?

Would it be cost effective to establish separate trim and clean crews to move from site to site independently?

Remember that labor costs entail much more than the direct wages of each employee. Consider overtime, nonworking hours, benefits, training and government costs.

GREATE A BALANCE. Your service charges must be competitive in the marketplace, yet allow you to cover your costs and make a decent profit. The more effectively you manage productivity and know your costs, the more likely you'll reach your targeted profitability.

The authors are partners in Trusty & Associates, Council Bluffs, Iowa, and are consultants to the horticultural trade. Steve is executive director of the Sports Turf Managers Association.





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Conservation, Costs Drive

Irrigation Improvements

SK AN INDUSTRY insider about the major force driving irrigation technology, and most will respond without hesitation: water conservation.

The trend toward water conservation, which began when water supplies were severely limited in areas like California, continues to be the focus with products and services aimed at "smart" use of water. Regulations designed to mandate water conservation were not implemented when shortages were relieved, yet conservation efforts continue.

Some irrigation designers and their clients are returning to more traditional concepts as water becomes slightly available again. "Given the abundance of water and an upturn in the economy, we are seeing a return to more traditional design, which seems to have always been more to the liking of most of our clients," noted Larry Bareis, construction superintendent at Ecosystems Imagery Inc., Encinitas, Calif.

The return to tradition does not mean a return to complacency, though. The water crisis irrevocably changed irrigation, and conservation will continue to drive new technology.

Depending on the area, it's just a matter of time, according to Larry Keesen, vice president of Keesen Water Management, Aurora, Colo. Water conservation is "more prominent in the West where water is a bigger issue, but after a few more droughts, it's going to be more critical to the rest of the country."

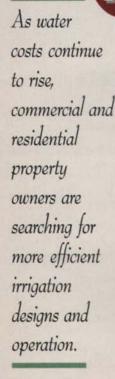
NEW THINKING. One result of the emphasis on water conservation is the water auditor training program, Keesen said. "This program is going to have a big effect on industry because landscape contractors and maintenance personnel will start to realize what they're doing with the systems. Right now, they're just going out and watering and if the landscapes are dry, they just water longer."

He explained that the program teaches con-

tractors to analyze system performance, then makes recommendations for improved efficiency of the operations. Commercial property managers and condominium associations in particular are showing interest in water audits. Some auditors use the information to renovate systems, correct drainage, recommend new plantings and install sophisticated sensors for continuous analysis.

Water auditing gives irrigation professionals an in-depth look at a system's actual performance and its economic consequences. Brian Vinchesi, presi-

(continued on page 78)





Water conservation concerns have spurred new technological developments in irrigation, including nozzles that provide more uniform coverage.

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Rotors for all Residential Sites



(continued from page 76)

dent, Irrigation Consulting & Engineering Inc., Pepperell, Mass., described its impact: "California's mandated water auditing showed how bad the uniformities really were for the majority of installed irrigation systems, not only from an installation standpoint, but also from the manufacturing end."

Bareis cited another change promoted by conservation: "Many water districts are preparing for the use of reclaimed water systems in irrigation for large commercial landscaping. It is an important step forward to ensure that we have enough water for the future.

"This has led to a new line of products to conform to the laws involved with installing a system of this type," he continued. "The effect has been across the board in the industry as everyone from the specifier to the manufacturer to the

contractor had to reeducate themselves and retool to ensure conformity."

Water use efficiency has gained in importance, noted Dick Crowl,

president, Crowl's Irrigation Service, St. Joseph, Mo. "The concern for our water supplies and the demand for better use efficiency has driven the development of water conserving equipment and techniques for the turf and ornamental market. Supply is the biggest concern, but with better design and installation comes greater economics."

SEARCHING FOR UNIFORMITY. Manufacturers have responded with new ideas. At the same time, contractors are looking more closely at existing systems for

'For the past few years, manufacturers have greatly improved sprinkler nozzle designs to provide better water distribution and therefore, more uniform irrigation applications'.

renovation or improved operations.

One result is "better and more economical moisture sensing equipment, greater dependence on com-

puterized design and controllers and more solar- or battery-powered control equipment," said Crowl. He noted that the move to this type of equipment will necessitate the need for irrigation workers to become computer literate.

The design of nozzles has become much more sophisticated in recent years, noted Vinchesi. "For the past few years, manufacturers have greatly improved sprinkler nozzle designs to provide better water distribution and therefore, more uniform irrigation applications. More

(continued on page 80)





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(continued from page 78)

designers and contractors are looking at how good or bad a sprinkler's performance is, based on its distribution uniformity. They're comparing sprinklers and making buying decisions based on its uniformity."

He predicted this trend will continue. "The industry will benefit from nozzle improvements. Nozzle work leads to more discussion regarding uniformity. Improved nozzles provide more uniform coverage, which saves water by not having to operate the sprinklers for as long a period of time to apply a specific amount of water to all areas."

Bareis named other improvements now used in landscape work: "There have

One result is 'better and more economical

moisture sensing equipment, greater

dependence on computerized design and

controllers and more solar- or battery-

powered control equipment.

been many positive steps forward pressure regulation at the sprinkler head, radius adjustable nozzles, built-in check valves and rotors to cover the 15- to 30-footrange have all helped the designer. Fully ad-

justable multiple nozzle rotors make installation easier. The use of rain shutoff devices, master valve control, flow sensing and radio remote capability are becoming commonplace. There has been increased product development by all the major manufacturers in the area of

drip and low precipitation xerigation style irrigation."

MASTER CONTROLLERS. Several professionals noted the advantages of centralized command systems. "Radio is significantly changing the irrigation control system," said Vinchesi. "The ability to remotely operate the zone valves saves both labor and wear on the equipment. Remote monitoring and control of irrigation is also gaining popularity on larger commercial sites."

This trend is growing, he added. "Already some, and soon more, companies will offer remote management of irrigation systems through central controls in their offices. They will ad-

just the irrigation control via modem on a weekly or daily basis in return for a fee from the client. The remote sensors will identify any breakage or malfunctions in the system and a service technician can then be dispatched

to repair the problem. We will also see the increased use of moisture sensors to save water with the control and sensor adjustment built into the satellite."

Sophisticated sensing and controllers, as well as solar-powered systems, wireless technology and micro spray irrigation will become more user-friendly.

"I worked with command systems with weather station data on site that actually set and adjust programs based on evapotranspiration. Many programs are now Windows-based and are becoming much easier for entry level people to use," Bareis noted.

Large-scale projects are probably where new irrigation equipment will first be installed. "There are a lot of old systems now in use and I think we're going to see a lot of system renovation work coming up," Keesen predicted. "I see a lot of concern for water conservation — more concern in the commercial market because of the costs."

IN THE SPECS. Water conservation has also resulted in irrigation being included in more construction designs, both commercial and residential.

"Irrigation systems are normally included in the plans of new commercial construction; this is a change in the past 10 years," Crowl explained. "Residential construction demand is now increasing because irrigation is considered a positive factor in future house value. This was not the case five years ago."

Keesen said people have developed an appreciation of both landscape and economics. "People used to feel like they didn't need irrigation, but now there's more awareness that plant material will do better if it's watered when it needs water, not just when it rains."

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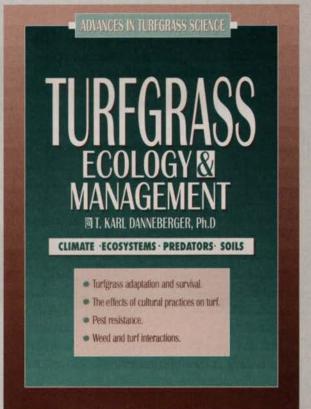
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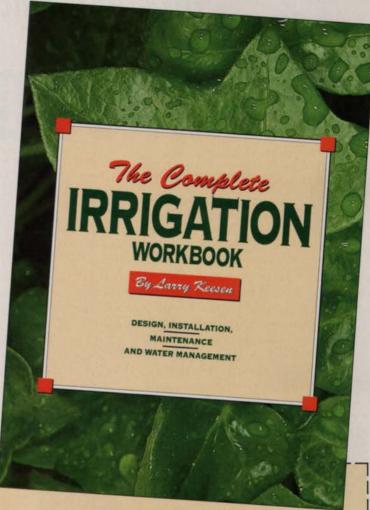


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Injecting New Technology Into Spraying

STHE SUN setting on the days of lawn care pesticides being applied with traditional backpack sprayers and 600-gallon trucks? Probably not, but equipment manufacturers see a growing trend in injection-type spraying systems being the choice applicator of the future.

Pesticide applicators are feeling constant pressure from both customers and the government to be environmentally responsible and control the amount of products they use in the landscape. This pressure is being communicated to manufacturers in demands for better, safer equipment that gives the operator more control over pesticide usage.

These truck-based injection systems mix the concentrated products into solution as the water travels through the hose toward the nozzle. Some systems also offer separate concentrate containers so operators

> can easily switch from a herbicide to an insecticide to a fungicide for spot treatments.

> LEADING THE WAY. "We think the biggest change in pesticide application over the next five years is going to be a move toward the extended use of injection-style systems," predicted Tom Sayward, president of Tuflex Manufacturing, Pompano Beach, Fla. "We, as an industry, have to be more proactive as far as showing the community at large that we are taking pains not to be too flippant on pesticide applications."

> Sayward explained the key to such systems is having a tank of plain water instead of needing to mix pesticides, herbicides or fungicides into a tank batch before even visiting a job site.

> "This is a very proactive approach without using the previously mixed product on each lawn," he said. Lawn care trucks can now visit almost any site to spray because the same truck

(continued on page 86)

Constant attention to the bottom line and environmental concerns are directing the development of new, more versatile spraying equipment.

By Bob West



Durability and drift control capabilities are two things to shop for when purchasing a new hand-held or backpack sprayer.

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can be capable of applying herbicides, fungicides and fertilizers without returning to the shop to change its solution, he added.

"Nurse tank application will never be entirely eliminated," concluded Michael Howe, president of H&H Holdings, Barrie, Ontario. "But we can make the tank as multifunctional as possible."

Rhett M. Clark Inc., LeRov. N.Y., a distributor of Gregson products, offers a system that allows operators to make blanket applications of one product and spot treat with a second simply by pulling a second trigger on the spray gun. The system employs a second coaxial hose inside the primary 1/2-inch hose to separate the products.

"It doesn't make sense now to go around spraying like you have your eyes closed," said Rhett Clark. "Rarely does

There's Still

No Substitute For Quality

t's not enough anymore that contractors buy equipment labeled "new and improved." Equipment manufacturers recommend that design, construction, company reputation and ease of use figure into the buying decision.

"There's always somebody with a gimmick out there," said Westheffer's Ron Revis, sales manager for the turf division, in Lawrence, Kan.

Revis recommends that contractors shopping for new pesticide equipment stick to the wellknown brand names. "You're going to have breakdowns in equipment. There's no avoiding

that," he said, "But the key is getting replacement parts. You can't afford to have equipment down too long."

Tom Sayward, president of Tuflex Manufacturing, Pompano Beach, Fla., echoed Revis' comments and said equipment buyers have to look at the big picture. "A lot of the equipment might have high up-front expenses, but you need to be thinking if it will still be functional in five years."

Michael Howe, president of H&H Holdings, Barrie, Ontario, said applicators demand more from the equipment they shop for now than they



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did years ago. "Contractors really understand the science of the application now," he said. "Questions about equipment to provide blanket and spot treatment are coming up more often."

Gary Palmer, president and owner of GNC Pump. Houston, Texas, noted that many equipment buyers make mistakes by underestimating the importance of engineering, "You've got to make sure the nozzle you're using is the right size for the hose and the hole in the pump or else you'll burn out your equipment."

And don't forget to seek the opinion of the equipment operator. "There's often a lot of differences in what's suitable for the buyer and what the operator thinks works best," according to Rhett Clark, Rhett M. Clark Inc., LeRoy, N.Y. "Make sure you bring the employees into the decision-making process."

an entire lawn need an application."

Howe agreed. "A truck that used to carry 800 gallons of premixed pesticide or fertilizer now carries less than a gallon of concentrate to dispense as it's required," he said. "Applicators can custom mix an application for a customer's lawn and then go do the same for the next customer."

Howe said injection systems could also reduce expenses for companies. "The spray is produced by hydraulic flow instead of a pump or gasoline engine, so contractors can use smaller trucks and save money by using less products."

In addition, adding an injection system to a truck could allow a company to expand its application business. "We're seeing a growing trend of contractors adding tree and shrub care to residential accounts," Howe added. "Companies could use an injection system with separate concentrate tanks to make a lawn truck a tree and shrub truck as well."

Ron Revis, sales manager for the turf division of Westheffer, Lawrence, Kan., added that larger companies that can spend more on capital expenditures are purchasing trucks with fiberglass shells to enclose the spray unit for additional safety. "But if you have a spill with these systems it's only going to be one gallon of concentrate instead of 600 gallons of a mix," he said.

Revis noted drawbacks for these systems are the higher cost, an inability to sustain the higher pressure ratings and a lack of existing equipment which integrates easily with injectors.

"Although injection systems haven't received a lot of acceptance yet," Sayward admitted, "they are going to be the big trend for pesticide applicators in this industry over the next 10 years."

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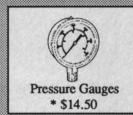
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CAUGHT THE DRIFT. Manufacturers also know that hand-held, backpack and boom sprayers will never be eliminated from the market. So when it comes to improving them, manufacturers know they have to improve drift control.

Richard Gould, director of North

American sales for Spraying Systems, Wheaton, Ill., said, "All new hand-held sprayer developments are a product of the general environmental movement."

"Drift control is a major issue," noted Keith Passaur, general manager for Nomix, Smyrna, Ga. "What's the point 'It doesn't make sense now to go around spraying like you have your eyes closed. Rarely does an entire lawn need an application.

of spraying at all when a little breeze is going to eliminate everything you're supposed to avoid?"

Hand-held and backpack sprayers also have to be durable. Pete Fernald, product support manager at Shindaiwa Inc., Tualatin, Ore., which recently entered the market with a backpack sprayer, said many contractors realize equipment operators aren't always concerned with caring for equipment.

"Durability is a big thing to buyers," he noted. "And they want equipment that tears down easily for quick repair."

Electronic flow rate controls are the future of boom sprayers, according to Gould. As well as helping operators control the amount of pesticides applied, these controls will also provide automated record keeping of pesticide output.

Rogers Innovative, Saskatoon, Saskatchewan, is focusing development efforts of boom sprayers on drift control. One model covers the spray nozzles with a shroud to allow spraying at any time, regardless of wind conditions.

"We have to address what the public sees, as opposed to what you're actually doing," noted Barry Rogers, president. "This type of system keeps customers happy because they know the pesticides aren't in the air they breathe."

A Toro boom sprayer is designed to automatically increase or decrease rate flow based on the vehicle's speed, so turf isn't damaged because it receives too much herbicide as the vehicle slows down driving up a hill.

"Spraying vehicles have to be designed to be sprayers from the ground up," said Kent Hahn, Toro's marketing manager for application products.

The author is Assistant Editor for Lawn & Landscape magazine.

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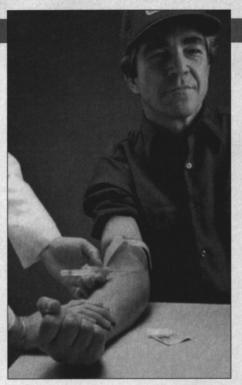
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Substance Abuse: Can You Afford Not to Test?



A simple \$35 blood test for drugs could save a company thousands of dollars.

Why are so many companies instituting drug and alcohol testing programs while so many others aren't?

By Bob West

HE MEEK shall inherit a work force of drug and alcohol abusers," according to Richard Lehr, general counsel to the Professional Lawn Care Association of America.

This may sound a bit too dramatic, but those employers, regardless of their industry, that choose not to test employees for drug and/or alcohol abuse may be risking the future of their business.

ROLLING THE DICE. Lehr said companies are gambling by not instituting a substance abuse program, because the leading cause of commercial accidents and injuries is the use of prohibited substances. "For a company not to test is such a risk, because you just don't want to wait until you have a problem. I can't emphasize that enough."

Chris Senske, president of Senske Lawn & Tree Care in Kennewick, Wash., would have lost had he bet against anyone in his company being high on drugs or intoxicated and costing him money. A few years ago, one of his employees drove a company vehicle home from work, but stopped off at a bar for a few drinks on his way. When he resumed his trip home the employee (now under the influence of alcohol) crashed the truck into a telephone pole, setting himself on fire.

Senske said the employee wanted workmen's

compensation for injuries suffered in the accident. The Washington State Supreme Court, ruled that the employee was not eligible for any compensation because under the company's drug and alcohol policy, anyone under the influence of those substances is not considered to be capable of working as an employee.

"We decided then that we wanted to make sure we had the highest caliber personnel and that we weren't putting the public, our customers or any other employees at risk because of someone who might have a problem with drugs or alcohol." Senske said.

Dan's Landscaping, Terrytown, La., has enjoyed numerous benefits from the development of its substance abuse program. Dan Standley, owner, said worker productivity increased, while absenteeism, accidents and workmen's compensation rates decreased since he began testing.

"I got tired of people not showing up for work or coming in late, the damaged equipment, the turnover, low morale and attitude problems, so I put in the program," Standley said. "It's the best thing I ever did for the company."

WHERE DO YOU START? Jim Kapnick, vice president of Kapnick Insurance, Adrian, Mich., rec-

(continued on page 92)

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(continued from page 90)

ommended companies work with their attorney and insurance provider to develop a program.

Lehr said the first step for any company setting up a new program is to check if it is covered by U.S. Department of Transportation requirements or any state laws.

"One key factor when you're going to write the policy is to make sure your employees are aware of its development in advance," Lehr added.

Senske said he gave his employees

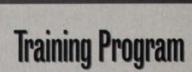
30 days advance notice before he began testing. "Most of the employees cheered the program," he said. "And others chose not to continue with us. I look at it like a kind of natural selection."

Everyone interviewed said pre-employment screening is a must for a successful program, and that a positive test result automatically cancels that individual's application.

RANDOM TESTS. Most companies also require employees to submit to random testing for drugs throughout the course of the year, but random tests for alcohol are not allowed in any state since it can be consumed legally without affecting someone's behavior, according to Lehr.

"Companies must decide that if they're going to do random testing, it will truly be random testing," Lehr said. "That means anyone from a technician to the owner could be required to be tested. You can't discriminate."

Certain situations, such as workplace accidents, may also require immediate testing. "The policy should include forcause testing when an employer has reason to believe an individual may be impaired at work or when there is a job related accident," Lehr explained.



he Professional Lawn Care Association of America offers a video training program for substance abuse in the workplace. "Working Partners" includes a video and manuals for the employer and employees, which facilitate interactive group discussions about marijuana, alcohol, steroids, crack, cocaine and other substances.

For more information about the program, contact PLCAA at 800/458-3466.



Drug Abuse Detection (time limits)

These tests are often the most important for insurance and workmen's compensation claims.

Standley said he took an employee to be tested after the employee backed a company truck into the side of a garage. When the employee's test results indicated a presence of prohibited substances he was fired on the spot.

All of the actual testing is conducted by outside laboratories or personal physicians. Standley recommended that companies developing a program get references for various labs to see how well they handle testing and how they maintain the chain of custody of all samples.

George Gaumer, national sales manager, commercial services at The Davey Tree Expert Co., Kent, Ohio, said every one of Davey's 5,500 employees is tested annually. "It can be expensive, but we feel it saves us a lot of money in the long

run, not only in out-ofpocket costs but more important, in improved safety and morale, quality of work and reduced accidents."

Senske spends about \$7,000 annually for his program. "There's no direct financial benefits from insurance companies or anyone else to do this, but there are indirect benefits."

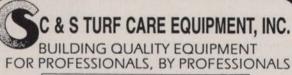
Brooke Davis, a loss control consultant at CNA Insurance, Chicago, Ill., said having a substance abuse testing program in place won't directly affect a

company's insurance costs, but CNA does recommend having a program. "The strong points of such a program are to deter applicants who have a problem

DRUG DETECTION TIME AFTER USAGE **Amnhetamines** 1-120 hours BARBITURATES Short-acting 4.5 days Phenobarbital 7 days Benzodiazepines 2 days None detected Diazepam Cocaine 8-48 hours **OPIATES** Heroin 1-4 days Meperidine 4-24 hours Methadone 7-56 hours 84 hours Morphine Methaqualone up to 60 hours Marijuana 6-81 days Courtesy: CNA Insurance

> and to spell out what happens when an employee is injured and tests positive afterward," she noted. "The programs

> > (continued on page 118)





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USE READER SERVICE #94

DESIGN NOTEBOOK

ONE MAY consider an "outdoor room" a contradiction in terms. Wide open and washed in sunlight with cool breezes and fragrant blooms, the outdoors provide a fascinating world of space waiting to be defined and discovered. One such project, the Fletcher Residence, defined the open spaces surrounding the house into a series of functional outdoor rooms.

Located in Boca
Grande, Fla., on Gasparilla Island, the owners
purchased a turn of the
century Mediterranean
style home with the explicit
goal of recreating its old
charm through extensive
renovations. To achieve
this goal, the owners hired
Smallwood Design Group,
Naples, Fla.

The residence was recognized as an award winner in the residential design/build category over \$100,000 in the 1995 Associated Landscape Contractors of America Environmental Improvement Awards Program.

DESIGN CHALLENGE: "Our goal was to provide an exterior hardscape design and planting installation that embraced a casual yet elegant lifestyle for the client's use and enjoyment," said Paul Drummond, vice president of business development for Smallwood. An initial obstacle in the project was the linear aspect of the property and its relationship to the residence.

It was through this axial relationship that Small-

wood set up a sequence of spaces tying together and flowing into each other, while still functioning independently.

DESIGN SOLUTION:

Each exterior room provides a unique garden experience tying into the use of the interior rooms of the residence.

One of the most enjoyable spaces in the design is the casual sitting area beneath the existing banyan tree at the front of the site. The banyan tree, identified as one of the five largest in Florida, provides a shady microclimate unique to the property. With its towering overhead canopy and the deep, cool



PROJECT: Landscape company:

DESIGNER: SIZE OF PROPERTY: Man-Hours to Construct: Plants Installed: Fletcher Residence
Smallwood Design Group,
Naples, Fla.
JoAnn Smallwood, president
Patrick Trefz
31,000 square feet
860 installation hours
More than 1,000 total

shade it provides, the tree forms a casual sitting area, which Smallwood has surrounded with a mosaic of shade loving bromeliads, ginger and fern.

A keystone paver walkway connects this space to the other gardens and leads the user from the banyan tree garden, along the gray slag driveway and into the herb garden.

Located adjacent to the kitchen, the herb garden

provides a charming and intimate space rich with color, texture and smell.

Through the original design, and reinforced by the arrange-

Entry walls, designed to incorporate features of the architecture, create the enclosure of the Herb Garden and begin the sequence of outdoor rooms along the side of the residence.

ment of the residence on the site, each outdoor room is enclosed by a series of walls, hedges or gates. It was through the use of these enclosures that we created the elements of surprise and mystery. Each space acts independently with its own aesthetic personality and function.

From the herb garden, visitors access the courtvard room, an elegant space flowing from the large French doors of the residence into a private courtyard. A wood trellis covered with colorful bougainvillea, keystone pavers and a small fountain providing the gentle sound of water embellish the courtyard space, providing an entertainment garden as an overflow for evening parties.

The plantings in the courtyard space had to appear comfortable and mature, yet provide intimacy by creating a human scale to the otherwise open space. Success in the garden is in the details; large terra-cotta pots overgrown with annuals, jasmine vine creeping along the pavers and up the walls and orchids perched around



DESIGN NOTEBOOK

the fountain provide many pockets of color.

Progressing deeper into the site, another gate leads to the entrance of the pool garden. Again, keystone pavers serve as the link between the spaces, but the pool garden has a personality of its own. A thicket of coconut palms creates a tropical environment and define the space with their overhead canopy of palm fronds, casting much needed shade to the space. Hand painted murals frame the spa area, providing a visual link to similar murals within the interior of the residence.

Due to the pool's proximity to the Gulf of Mexico, the space is The large Banyan tree that dominated the front of the residence.

enclosed with a wrought iron gate that affords views to the water.

One of the key challenges of the site was the space associated with the rear yard. Located directly on the Gulf of Mexico, the rear yard is traversed with a 15-foot high bulkhead above the sandy beaches.

A dune-like environment was developed in the rear yard, complete with the native vegetation indigenous to a dune. Mature

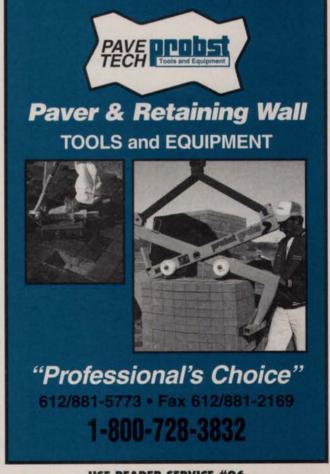


sabal palms, seagrape and buttonwood were planted with sea oats and railroad vine. A large cabana was designed and constructed to capture the views of the spectacular evening sunsets.

The design and subsequent landscape installation success of this Boca Grande estate was achieved through a marriage of the site to the architecture. Garden rooms provide functional spaces and aesthetic links to the architecture. The gardens appear mature and intimate — almost weathered and seem as though they evolved out of labors of love rather than contrived on paper. — Paul Drummond

The author is vice president of business operations for Smallwood Design Group, located in Naples, Fla.





HORTICULTURE FORUM

TRUE GRIT

LANDSCAPE contractors who maintain their own holding nurseries or other growing areas already understand the importance of heeling in to build up healthy roots to avoid transplant shock. At Wade and Gatton Nurseries and Landscape in Bellville, Ohio, the process is serious business for 1,000 acres of nursery.

That's why the switch to a tiny, granite-based gravel has had such an impact on the firm's operations, according to Thomas Wade, landscape manager. He buys the gravel, known as "Number 9" grit, at a local gravel pit and uses it as a replacement for mulch. Workers place a 1-inch layer of it around tree roots.

He has found that the grit encourages the growth of dense, fibrous root sys-



tems because it provides good air circulation and prevents the root ball from becoming too wet. This dense root system helps plants of all sizes avoid summer transplant shock. "We have found there to be very little, if any, transplant shock."

Wade noted that different plants have different levels of moisture they can tolerate, and often the only way to know if the root ball is too wet is when the plants start to decline. The grit allows enough air flow around the roots for each plant to self-regulate its moisture.

The grit also enables granular herbicides and slow-release, liquid-based fertilizers to penetrate properly. He applies fertilizer through the irrigation system at night. Granular Workers prepare to move a tree that has developed a dense, fibrous root system while growing in granite-based grit.

herbicides are applied with spreaders.

The grit discourages weed seed growth, unlike mulch. As summer moves into autumn, the grit enables falling leaves to blow away, avoiding the need for raking.

Since the grit has excellent drainage, rivulets of muddy water will not form or mess up the pathways. This also gives better traction for trucks and other vehicles moving around the nursery. Wade reported that customers visiting the nursery appreciate the clean, mud-free areas. In winter, the gravel can be disturbed easily, unlike mulch, which can freeze into place. The grit handles well and is easy to shovel, he reported.

Since the gravel has no tannic acid, it will not stain. Mud eventually wins out, though. "When the gravel picks up some mud, we dig it up and transfer it to our landscape sites, where we use it as a soil medium. We then replace it with new gravel," he noted. Typically, the planting bed mix is 15 to 25 percent grit with soil.

DIFFICULT LOCUST. "Of all the plants we've heeled in with this grit, only locusts do not like it. Of course, they also do not like being heeled in with mulch either, Wade added.

PLANT BENEFITS



ade listed the following advantages he has found using Number 9 granite-based grit:

- 1. Reusable.
- 2. Low cost.
- 3. Facilitates heeling in.
- 4. Dock area can be kept neat and clean.
- 5. Herbicides and fertilizers are easy to apply.
- 6. Leaves blow away in the fall.
- **7.** Lessens transplanting shock in midsummer due to dense, fibrous root systems.
- 8. Customers can look at the plant material close up without getting dirty or muddy.

- S. Less chance of injury for employees, because as mulch decomposes, it can get very slick.
- **10.** Excellent water drainage around plants on dock area no waterlogged areas.
- 11. Ball integrity of a plant is great due to fibrous root growth.
- **12.** Can use the grit in landscape planting bed preparation to facilitate aeration and drainage.
- **13.** Roots will survive and thrive on top of gravel due to its cool, moist temperature.
- 14. Firms that reuse water will find this method hastens water movement and reduces the amount of mud and mess coming off the dock areas.
- 15. It's an affordable material because it can be reused and it can facilitate landscape operations in a variety of ways.



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MAXXimum Value

The BC 1800 from Vermeer is a drum-style brush chipper equipped to



handle material up to 18 inches in diameter. The 69-inch feed table keeps operators safely away from the feed roller system and standard curbside controls and live hydraulics allow the operator to reverse the feed rollers even if the cutting disc stops. Available engines include an 81-hp or 102-hp Perkins 4.236 diesel and a 116-hp 4BTA 3.9 Cummins, and the chipper's extendible tongue lengthens at 12and 24-inch increments. Circle 125 on reader service card

Maruyama's MS046 backpack sprayer spreads a fine mist in a broad fan pattern from the standard nozzle for shrubs and other low plants. A 19.8-cc Maruyama AE200 engine powers the centrifugal pump. The 6.6gallon tank is made of high density polyethylene and has a double filter basket. An optional

spray head is available for herbicide applications.

Circle 126 on reader service card

American Cyanamid's Pendulum" 3.3 EC turf herbicide received approval for use in California, making the emulsifiable concentrate form of this herbicide now available in all 50 states. Pendulum 3.3 EC offers applicators product

versatility and eliminates concerns of spray drift because it is safe on numerous warm- and coolseason grasses, trees, shrubs, ground covers and perennials.

Circle 127 on reader service card

The Touch Probe is an easy-to-use data collection tool that works in the

(continued on page 100)

Bradco's Model 617 heavy-duty skid steer trencher is a hydraulically driven attachment available with a variety of booms and chain widths to dig up to 4 feet deep and up to 12 inches wide. The trencher's double standard 2-inch pitch antiback-flex chain can be set with various tooth patterns for different digging conditions. The unit can also be side shifted 17 inches to the right for working closer to obstructions, walls or curbing.

Circle 128 on reader service card



Fusarium Wilt Coryneum Blight Verticillium Wilt

Anthracnose Cedar Branch Canke Oak Wilt

Fusarium Monilforme Oak Decline Ker

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Ceratocystis Dieback Dutch Elm Disease Palm Bud Rot Philalophora

Diplodia Tip Blight Vermicularia Dieback

Leptographium Canker Phomopsis Canker

THE TIME PROVEN MICRO-INJECTION SYSTEM Nectria Canker Mimosa Wilt



OS ANGELES, CA 90065

(continued from page 98)

harshest environments for tracking employees and productivity. The entire system from Agricultural Data Systems also includes a downloader station, a serial port cable, memory buttons and the communications software (for DOS or Macintosh). The buttons are read only or read/write electronic memory chips in small, water resistant, stainless steel canisters with unique identification numbers for information storage to be worn by employees.

Circle 129 on reader service card

The Hydroject* 4000 pullbehind water injection cultivation attachment

from Toro Company draws water from a 200-gallon tank mounted in the bed of a utility vehicle. This unique aerator offers up to 50 minutes of continous use and allows operators to ride in the utility vehicle for more comfort and efficiency, with speeds up to 20 mph. Nozzle spaces are adjustable. The injectors can be raised for ground clearance and transport.

The water injection system can be used for cultivation and for injecting liquid wetting agents and Toro's BioPro® soil conditioners into the soil.

Circle 130 on reader service card

The Solvita Compost Maturity Test from Woods End Research Laboratory lets compost producers make on-site process decisions and improvements and assess finished product stability. A gelcoated indicator paddle is inserted into a jar of sample compost and indicates compost maturity by turning to one of eight colors in four hours.

Circle 131 on reader service card

Douglas Dynamics' Dyna-Hoist

1500 lift system is specifically designed to fit 3/4- and 1-ton pickup trucks and will lift up to 1,500 pounds to the bed of the truck with a hydraulically

operated boom and an electric winch. The Model 750, for 1/2-ton trucks, has a 750-pound lifting capacity. Available options include a cargo platform, pallet forks and a steel dump box for lifting and transporting various materials.

Circle 132 on reader service card



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John Deere added a 3-cylinder, 18-hp. liquid-cooled Yanmar diesel engine for increased power and towing capacity to its Gator line of haulers. The 6x4

diesel has an increased payload and a towing capacity of 1,400 pounds with more high-end torque and increased engine life, without sacrificing the low ground pressure and low center of gravity which keep the Gators from leaving turf marks. The 4wheel drive and differential lock move them at speeds to 15.5 mph without clutching or shifting.

Circle 133 on reader service card



The new Easy Hitch™ Mounting System from **Teledyne Specialty Equipment** attaches the company's line of Piggy Back" material handlers to a variety of truck trailers to reduce damaging bouncing and impact from transport. The Piggy Back line includes the D5000, a heavy load transporter that provides extra traction through the Trac-Loc system for

driving smoothly over unpaved areas.

Circle 134 on reader service card

Tanaka's commercial trimmer/brushcutter, the TBC-2510, weighs just 11.6 pounds and has a 24-cc engine to produce 1.3-hp. A heavy duty anti-

vibration system is located at the engine/shaft mount to provide smooth cutting power. A stress relieved. chromed plated cylinder, a forged steel connecting rod and large ball

bearing supported crankshaft provide durability. Circle 135 on reader service card

The Scavenger is an all terrain litter vacuum with a 5-hp Briggs & Stratton or Honda engine turning on an all steel impeller. From Parker Sweeper, the vacuum

The Surge Lightning Advance Protection is Flowtronex PSI's lightning surge arrester for pump stations. SLAP provides primary and secondary protection by dissipating power up to 3,720 joules or 82.5 million volt amps. SLAP is available by itself or as part of any Flowtronex PSI pump station.

Circle 136 on reader service card



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NEW PRODUCTS

has a 30-inch sweeping path and a 9-cubic-foot collection bag. The Scavenger is available in manual or self-propelled models with a debris deflector for operator safety.

Circle 137 on reader service card

Ford Power Products Division

introduced the 3.0L V6 engine to fill the horse-power gap between its Cleveland and Lima Ranger models for equipment such as generator sets, brush chippers, irrigation pumps and compressors. The engine was adjusted to produce 150 foot-pounds of torque at 2,000 rpm, running on gasoline fuel.

Circle 138 on reader service card

Submersible aerators from Aquascape, a Toro partner, rejuvenate pond water problems caused by growing

organic debris and algae. The submersible aspirating aerators can be installed with AquaScape's Duck

Hydro commercial walk-behind mowers from F.D. K008 provide responsive fingertip control without slippage on inclines or in



wet conditions. The Quick-Lift cutting height adjustment eases going over curbs and loading into trailers, and the HydroTrac tracking adjustment aids straight tracking on slopes and other conditions. Units are available with 36-, 48-, 52- and 61-inch deck sizes, and offer four Kohler engine options ranging from 16- to 20-hp.

Circle 139 on reader service card

Decoy air inlets to hide the air inlet tubes from passing public traffic. The aerators assist the natural decomposition of debris and reduce settling in a pond or lake, reducing the need to dredge the bottom.

Circle 140 on reader service card

CHEE Manufacturing reengineered the transmission system for its enginedriven, 2- and 3-inch diaphragm dewatering pumps. The models are said to last longer and cut down on maintenance costs because the new transmission eliminates the need for reduction gearing and accepts standard keyed shaft engines. Circle 141 on reader service card

(continued on page 104)

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(continued from page 102)

Messenger 2.0 from Nortel is a unifying messaging system combining desktop integration of voice mail, fax and e-mail for easier office to job site communications. It is a local area network-based client/ server application working with Nortel's Meridian Mail system with a graphical user interface for quick message identification on Windows and Macintosh operating systems.

Circle 142 on reader service card

A 22-page booklet, Trenchless Technology Innovation, details various features of the Ditch Witch directional boring system and pneumatic piercing

tools. The publication features fourcolor photographs and highlights 10 different tools or systems for underground construction.

Circle 143 on reader service card

The CRT61 is a heavy-duty tiller from Husqvarna featuring counterrotating tines and a 5.5-hp Tecumseh* Enduro engine with overhead valves. The CRT61 offers a seven position depth

The PrizeLawn Lil'foot is a new spreader from PSB Company with a .75-cubic-foot capacity injection molded hopper holding up to 50 pounds of material. The spreader rolls on 10-inch pneumatic tires and is supported by an all steel, epoxy powder coated frame and a positive lock on/off system prevents application accidents. The hopper mounted rate control lets the operator lock in a spreading rate for operating efficiency.

Circle 144 on reader service card

stake for various types of work, adjustable tine



shields and power forward and reverse gears with sealed transmission for increased maneuverability. Circle 145 on reader service card

Shindaiwa released its first backpack sprayer, the SP415. The sprayer tested maintenance-free through 2,500 hours of operating at 36 strokes per minute while pumping 23 gallons per hour at 45 psi. The

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NEW PRODUCTS

4-gallon tank has an operating range of 15 to 90 psi and offers padded shoulder straps and a contoured plastic tank for comfort while wearing. Standard features also include four different nozzles, a reversible pump handle and a piston pump with built-in

tank agitator. Circle 146 on reader service card

Lofts Seed has released a new Kentucky bluegrass, Princeton-105, very similar to the company's P-104, but designed to produce more seeds. P-105 provides an aggressive, dense turf with moderately dark color for high activity areas requiring quick recovery from wear.

Lofts also offers Rebel III, a turf-type tall fescue. Similar to Rebel II, the version distinguishes itself

The YZTK20 is **Yazoo's** new twinstick zero-turning radius riding mower. The mower features hydrostatic transmission, a 48-inch mowing deck and a 20-hp Kohler Command engine with overhead valves. The YZTK20 also offers an electric blade clutch, cast-iron blade shaft hubs and five strategically placed antiscalp rollers. **Circle 147 on reader service card**

by its dark green color and is designed to perform well throughout the transition areas of the Southeast.

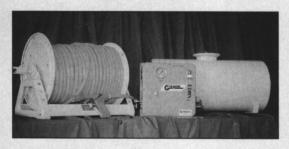
Circle 148 on reader service card

A 38-hp, 116cubic-inch Peugeot
XUD9 diesel engine
powers Melroe's
Bobcat* 751 skid-steer
loader to a 1,200-pound
operating capacity. The
751 offers a compact
footprint for a mid-size
loader and has a turning
radius of less than six feet
on rugged axles that offer
removable hubs for service
and automatically lubricated axle bearings. This



model comes with a unique cooling system that brings cool, debris-free air in from above and through the radiator and oil cooler before mixing it with engine air and exhausting it out side vents. This design is said to help keep engine components clean.

Circle 149 on reader service card



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USE READER SERVICE #116

CytoGro is a 100 percent organic hormone biostimulant from TerraBiotics that is said to offer more root building power per dollar than any other biostimulant. CytoGro is designed from a blend of cytokinins, auxins and natural synergists to stimulate root growth, improve water leaf status and speed up the recovery of damaged turf, and is also said to improve salinity tolerance and increase fertilizer

Circle 150 on reader service card

A new fabricated mower deck made of 11-gauge welded steel with a larger discharge tunnel and opening is available for the 50-inch Dixon ZTR" 5502 commercial riding mower. The mower features Hydro Gear* transmissions, a 20-hp Kohler engine, zero-turning



radius and a durable body that tilts up for easy servicing. Deck widths range from 30 to 60 inches.

Circle 151 on reader service card

Permaloc's Permastrip is a rigid L-shaped aluminum landscape maintenance strip designed for straight runs bordering buildings, fences and other problem areas. Available in 1/8- or 3/16-inch thicknesses at 3 1/2-inches tall, it comes in 16-foot sections that join with sliding connectors. Five 12-inch heavy duty aluminum stakes anchor the strip, which is available with a natural aluminum finish or a black painted finish.

Circle 152 on reader service card

(continued on page 108)



Photo courtesy of: Hartfeld International Golf Course

REWARD® THE NO-WAIT, NO-WORRY HERBICIDE.

Stop waiting around for Roundup and Finale to go to work on weeds. With REWARD herbicide, you see results on broadleaf and grass weeds in as little as one day after application. Providing quick, effective control on golf courses, around residential and commercial turf, in greenhouses, nurseries and right-of-ways—even in aquatic situations. Without worry about the surrounding non-target vegetation, fish and wildlife. Put the no-wait, no-worry herbicide to work for you. REWARD.



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ZENECA Professional Products

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NEW PRODUCTS

(continued from page 106)

Saco Stamping & Assembly offers the Saco Flex-Blade™, which provides motor shaft protection for walk-behind mowers. The blade, available in 20-, 21- and 22-inch lengths, has spring loaded joints allowing the ends to flex up and over rocks, tree roots, water lines and other hidden obstacles that can

cause damage on blades or the motor shaft. The joints also allow the blade ends to swing back so the mower does not bog down in tall grass.

Circle 153 on reader service card

Versa-Lok* standard steps integrate easily into Versa-



dard cap units as treads, in either the base pedestal or

and

stan-

Lok cut-in methods. Technical Bulletin 2 explains step-bying step selection and several walls by using options.

Circle 155 on reader service card units as risers

A variety of information

A variety of information about Homelite's complete line of Green Machine professional grounds care equipment is available in a new pocket brochure. The four-color, 16-page booklet includes product specifications, warranty information and product highlights.

Circle 156 on reader service card

Complete Turf & Landscape™ 14-3-6 from Harmony features an agronomically balanced

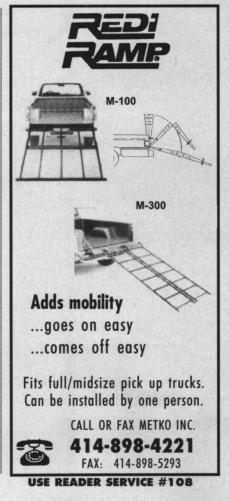
E.F. Burlingham & Sons has three new seed varieties for the market, Renegade turf type tall fescue, Celebration turf perennial ryegrass blend and Southern Choice tall fescue. Renegrade offers a shorter growth habit than other varieties, a moderately fine leaf blade, a wide genetic base and a broad range of geographic adaptability. Celebration is a blend of short-growing Wizard and Excel perennial ryegrasses to minimize clippings in public areas. Southern Choice is said to feature excellent drought and heat tolerance and germinate quickly to fill in lawns in sun or shade areas. **Gircle 154 on reader service card**

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Lawn Maintenance Contractor Ornamental Shrub & Tree Service Irrigation Contractor Landscape Architect Other Contract Services (please describe):	3. What were your approximate 1995 revenues? 0 -\$50,000 \$50,001 - \$100,00 \$100,001 - \$250,000

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□ \$500,001 - \$1 million + \$1 million

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% Residential % Gov't/Municipal

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6. Circle what percent of your business is:

Lawn Care	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
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Irrigation Serv.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Pest Control	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Installation	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Trees & Ornmtls.	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

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Circle 157 on reader service card

Torra's Riverside* Simazine 90DF postemergent herbicide is EPA-certified for tank mix with various other herbicides for weed control in southern varieties of turfgrasses. Simazine addresses problems with many annual grasses and broadleaf weeds such as burclover, chickweed, dandelion, crimson clover, speedwell and yarrow, among others.

Gircle 158 on reader service card

Blended of organic substances, Skin Coat North America's Protective Skin Barrier protects against a variety of chemicals, dry compounds acids and petroleum products. A 17-ounce aerosol can delivers approximately 250 applications. Circle 159 on reader service card

Typar Patio Pro is a new underlay fabric to combat heaving or settling in brick or stone walkways and patios. From Reemay, the spinbonded polypropylene fabric also minimizes the amount of stone and sand required for such projects. It resists acids, alkalis and microorganisms while its porous construction allows water to flow through to soil and avoid puddling.

Gircle 160 on reader service card

Kubota introduces the R-20 line of articulated wheel loaders for increased power and quieter operation. The R420 and R520 offer 43 and 49-hp, respectively, with Kubota's diesel engine. Both models feature load sensing transmission which automatically changes from high speed-low torque to low speed-high torque as the load increases. The E-TVCS diesel engines are designed to meet cleaner emissions standards and reduce operating noise levels.

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NEW PRODUCTS

Grotech's Dumper trailer carries up to 6,000 pounds in its 4-foot by 8-foot heavy duty welded steel bed. The Dumper features a 3-stage telescopic cylinder, self-contained 12-volt hydraulics, stake pockets, a 2-way tailgate with chains and an enclosed pump unit and battery box. Flotation tires allow for safe use on turf or traveling to off-road sites.

The Mulcherizer" is the new mulching deck for Jacobsen's Turfcat" outfront rotary mowers. It cuts and recuts clippings and forces them back down into the turf on a single pass, without windrowing. A



dual action flap evenly distributes clippings through the turf. The deck fits all hydraulically driven Turfcat models and is available in 60- and 72inch cutting models.

Circle 164 on reader service card

The Excel Hustler Range Wing mower cuts a 12foot swath with zerodegree turning maneuver-

ability. The heavy duty dualtrim deck is belt driven by a PTO shaft with offset trim capability on either side of the tractor. Direct drive gear motors are powered on the wing decks by a hydraulic gear pump mounted on top of the outer deck spindles. All decks feature rear discharge and high-lift blades, and each deck can be raised for single or double wing operation. The new decks fit the Hustler 4300, 4420, 4500 and 4600 models.

Circle 165 on reader service card

Snapper's Pro Gear" mid-size, walk-behind mower offers seven different model versions with varying features. Engines range from a base 9-hp OHV Kawasaki to a 14-hp OHV Kawasaki in the more powerful 48-inch deck models. All four of the larger models offer nonfloating or full floating decks made of 7-gauge steel with three 16 1/2-inch, alloy steel cutting blades. Other options include automatic pistol grip controls or comfort loop steering, while 16-inch, 4-ply drive tires are standard on the four models.

Circle 163 on reader service card

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PRODUCT PROFILE

VERSATILITY ENHANCES IPM PROGRAM

LANDSCAPE professionals are often called on to control a variety of pests, including flies, carpenter ants, cockroaches, wasps, silverfish, mole crickets, ticks and many others. A different insecticide might be necessary to control each pest effectively. The treatment area must also be taken into consideration, as an insecticide used to treat turf may be harmful to ornamentals.

As a result, many contractors find themselves burdened with the hassle and expense of using a range of pesticide products to treat turf, flowers, shrubs and trees. Often, these insecticides require repeat treatments to control their customers' pest problems.

Bob Hiles, turf and ornamental protection manager for the Engledow Group in Indianapolis, Ind., used expensive products that required repeat applications and inhibited his company's integrated pest management approach.

Engledow was established in 1932 and is the largest



Bob Hiles of the Engledow Group selected one general purpose insecticide to treat pests in trees, turf and ornamental areas.

horticultural services business in the Indianapolis area. The four divisions provide landscape design, installation and maintenance, interior landscape installation and maintenance, event services and retail cut-flower products. Approximately 180 employees work full time, with up to 225 working during peak season.

Most of Engledow's 200 exterior division clients are within a 60-mile radius of the city. Its customers' biggest insect problems are aphids and Japanese beetles. These pests infest

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by John Deere

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PRODUCT PROFILE

ornamental trees, shrubs and flowers.

In 1993, Hiles used Tempo insecticide, a product of Bayer Corp., for the first time. "I try to stay on top of new products that become available and Tempo was recommended to us. We experimented with it first on flowers for aphid control, got good results and kept right on using it."

After an additional registration for commercial use on turf in 1995, Engledow has expanded its use of the product to treat some of the area's large corporate headquarters.

Hiles claims he receives excellent control with low rates, no odor and long residual. "Our applicators love to spray it because of the low rates and no odor. They also like the liquid formulation for ease of

mixing. Its
residual control means
fewer applications for us
and very consistent control. We
maintain lots
of annual
flowers, which
are very sensitive to phy-

totoxicity and Tempo works well, without harming them. More important, the customers like the results —which are nice looking, healthy plants."

He also likes the broad

label and finds Tempo effective on mealy bugs, as well as aphids and Japanese beetles. In 1995, it became

'We're a lot more prescrip-

tion oriented ... We do a lot

less broadcast spraying of

insecticides and only treat

areas that have problems,

when they have problems.

Engledow's number one general purpose insecticide.

On a given day, Engledow's applicators may be dealing with three or four different pests. They mix Tempo in the

tank of their truck at the beginning of the day. If they're treating for aphids and a client has a mealy bug problem down the street, the applicators can handle both problems without remixing and reloading equipment.

Its low rates, low odor and broad label makes this product fit well into Engledow's integrated pest management program. The applicators do not have to carry as much insecticide in their vehicles and are able to use it in hand-held equipment, allowing for more precise treatments.

Hiles explained: "We're a lot more prescription oriented in our insect management philosophy — which is better for the industry and the environment. We do less broadcast spraying of insecticides and treat only areas that have problems, when they have problems. Tempo fits right into our philosophy."

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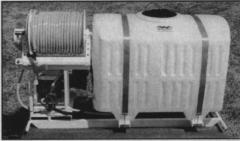
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* Denotes regional advertising

new insecticides

(continued from page 55)

the labels since the rates vary and certain types of plants are sensitive to oil applications of any variety.

Summer oils have been very useful to manage some resistant insects and mites. The two-spotted spider mite is often resistant to all the standard miticides but it is very susceptable to horticultural oil applications. Use for aphid, scale and whitefly infestations also appear to help conserve predator and parasite populations. These natural biological controls can often take over management of the target pests if they are not entirely destroyed by general cover sprays of broad-spectrum insecticides.

Insecticidal/miticidal soaps act much the same as oils, with the added benefit of acting as spreaders for insecticides when used in combination mixes.

The key to successful soap or oil

usage is coverage. These materials only work when the target pest is contacted. Therefore, if mites or whiteflies are on the undersides of leaves, the spray must be targeted to this area.

Biological controls are improving in efficacy but they require more precise timing to target the most susceptible stages of an insect pest.

The author is landscape entomologist at The Ohio State University, Columbus, Ohio.

Editor's note: Mention or absence of any product in this article is not meant to be an endorsement or criticism. Lawn & Landscape magazine wants to learn of new products as they are available. Please send announcements to: L&L, 4012 Bridge Ave., Cleveland, Ohio 44113. Read the label of any pest management product before using.

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(continued from page 93)

themselves aren't that difficult to institute," she added. "The problem is in making sure you institute the right program and have all the bases covered."

Lehr noted that according to the American Management Association, 8.5 percent of all job applicants who are tested for substance abuse before employment test positive. So companies shouldn't worry about scaring away the work force because they test for drugs and alcohol. "If you're scaring away the drug users, that's okay," he said. "Let the applicants know that you have a policy. Otherwise, all that you may be doing is hiring the people who are failing other companies' drug tests."

The author is Assistant Editor of Lawn & Landscape magazine.



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