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**Best no-fuss  
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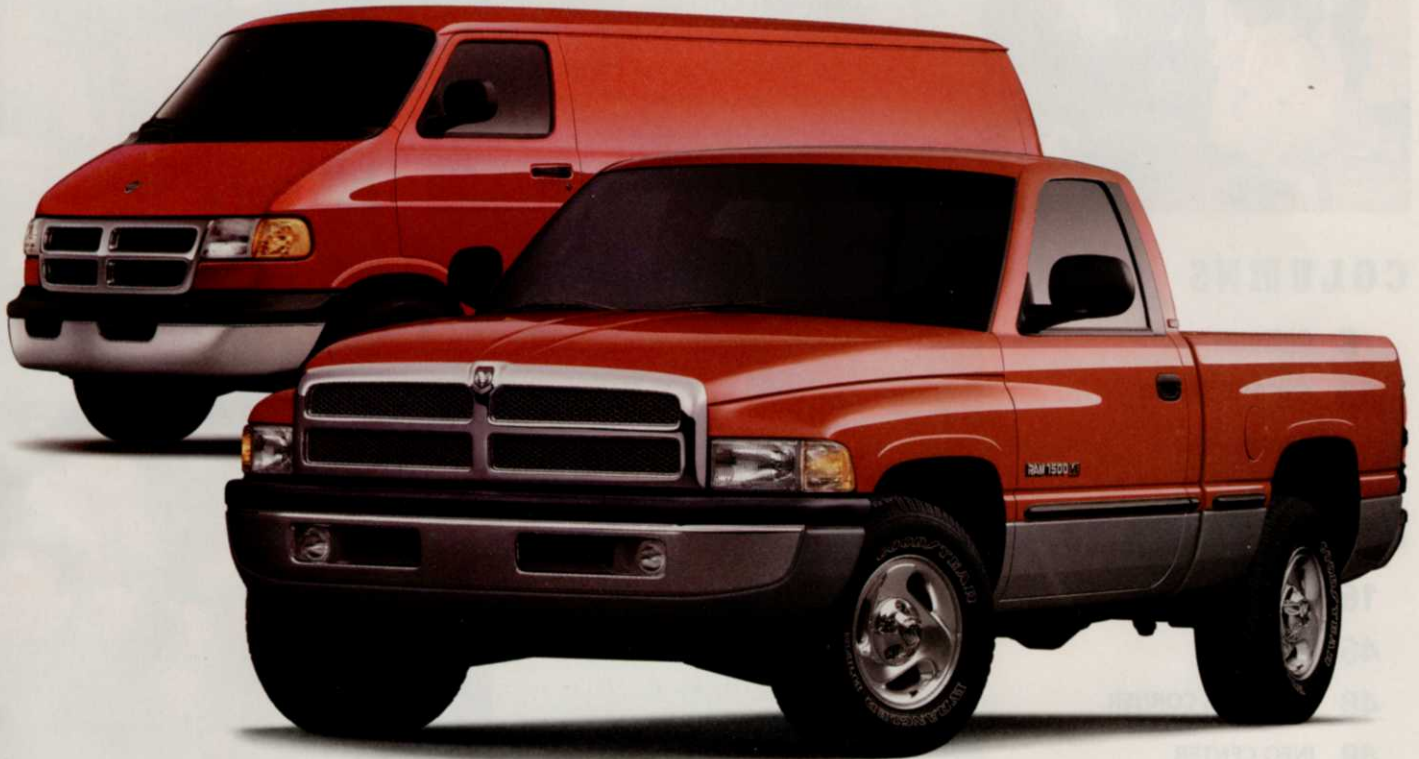


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# LANDSCAPE management



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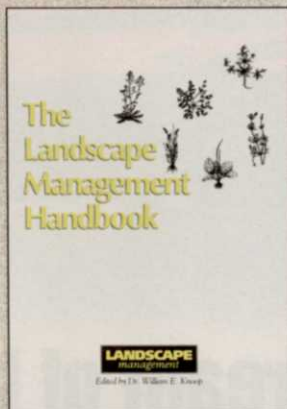
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**LANDSCAPE**  
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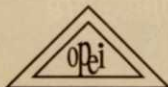
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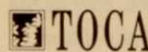
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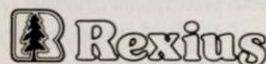
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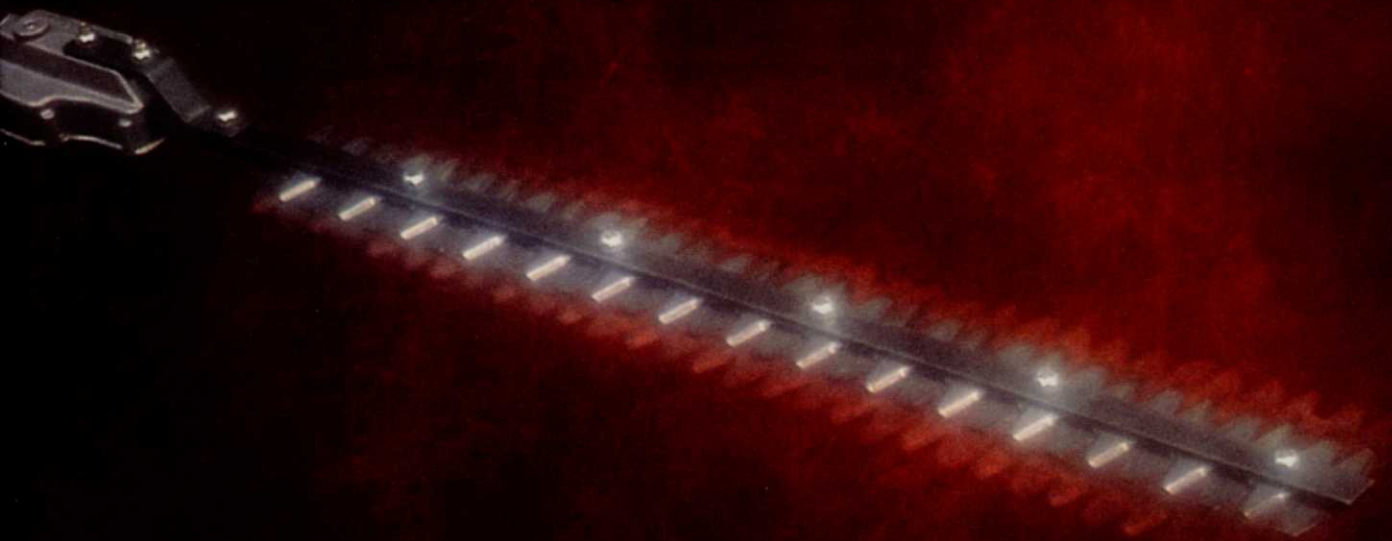
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**T**he "Millennium Bug" (a.k.a. YK2) is getting closer, and like a hungry June beetle, chomps away at the time the computer industry has to solve a potentially devastating computer glitch.

This seemingly simple problem is the result of a surprising lack of foresight by computer programmers during the industry's initial heyday.

"Currently, most computer operating systems and applications software only store the last two digits of the year (98) with the century (19) generally implied," explains Karen Kerrigan of the Small Business Survival Committee, Washington, D.C.

"Thirty years ago, hardware was expensive and storage capacity limited, thus the two-digit practice became the norm. What was a best practice for the industry back then, now will make the year 2000 (00) indistinguishable from the current century," says Kerrigan.

This is one expensive problem. In May, service giant Waste Management had to take a pretax charge of \$70 million to \$90 million for costs related to the software bug.

It cut its quarterly dividend from 17 cents to a penny in a cost-saving measure. It's dropped its in-house strategy to eliminate the problem, and will follow parent USA Waste Service, Inc.'s plan.

Fortune Publisher Steve Forbes, in a heads-up memo to Congress and business and conservative leaders, says technical corrections to the bug will cost between \$300 billion to \$600 billion globally.

The Year 2000 Information Center—[www.year2000.com](http://www.year2000.com)—provides a forum for information and discussion about the year 2000 problem and possible solutions. The site lists more than 100 vendors who say they can help cure the bug.

One of the experts in this area is Peter de Jager of de Jager & Company, Limited, co-author of "Managing 00: Surviving the Year 2000 Com-

puting Crisis," (John Wiley & Sons, 1997).

"In a world of business problems, the Year 2000 problem is unique," says de Jager, "Every modern company is affected by it, must fix it, and shares exactly the same immovable, uncaring deadline."

If your fiscal year begins sometime around mid-1999, your troubles are even closer.

This problem goes beyond employee problems or payroll problems or scheduling problems. Instead, it is related to *all* of them.

If your business software is year 2000 compliant, you're halfway there, says Jon Huntress, writer/producer for the Tanagra Corp., sponsors of the year 2000 web site. Huntress likens it to a winter storm that will eventually pass, but only if you are prepared for a flurry of confusion.

"If you are planning for your business to survive a week-long blizzard, you're probably going to be all right," says Huntress. But you have to be certain your suppliers are up to speed.

"Find another way to get to your customers. Make sure that your product and money can come in, and your product can go out.

"You have to look at every single supplier, and your bank. They should have asked about your year 2000 plan by now. I would stockpile chemicals to make sure I had a little extra. Don't rely on 'just in time' delivery."

"Many small companies with newer PCs may not experience any problems," says Brandon Uttley of software provider Alydaar.

"Larger companies, however, with networked systems should consult with their software providers to determine what programs may cause problems. They may also contact companies like Alydaar to determine the need for a risk assessment."

And we hear it's a good idea to check with your attorney about your potential liabilities related to this problem.

Visit the year 2000 web site at [www.year2000.com](http://www.year2000.com) for a list of software providers and more information on the bug. **LM**

## A bug like no other



*Terry McIver*

**TERRY McIVER**  
Editor-in-Chief



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## ORNAMENTAL PROTECTION PLAN

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*How do I manage wild garlic and onion weeds in lawns? We have difficulty managing them with our regular program. We have used Trimec 899/3-Way with sporadic results. Appreciate your comments.*

—MICHIGAN

Wild garlic and onion are difficult to manage. However, repeated applications of herbicides such as 2,4-D ester should help manage the weeds. 2,4-D ester is a selective, post-emergent herbicide. This means the target weeds, such as garlic and onions, must be actively growing. This product will not help manage the weeds as a pre-emergent. A common problem is timing. If you apply herbicide treatments when the weeds are not present, your application will not have any effect.

Use caution when applying products such as 2,4-D ester herbicides near non-target desirable plants (vegetable garden plants, flowering plants, etc.). Ester formulations can volatilize and drift to nearby plants and cause injury. Avoid use in windy conditions.

Read and follow label specifications for best results.

*How do I know if a tree needs mycorrhizae fungus? If it does need mycorrhizae fungus, how do I determine which one?*

—NEW YORK

A representative from Plant Health Care, Inc., the manufacturer of several mycorrhizae containing products mentioned the following, which might help answer your question.

Mycorrhizae is actually a symbiotic association of fungi and tree roots. There are two types of mycorrhizae: *ectomycorrhizae* which are basically on the external surface of the roots and *endomycorrhizae* which are inside the roots. Most plants have some sort of mycorrhizae fungal association.

It is difficult to determine whether or not a tree actually needs mycorrhizae. It is also difficult to tell how much mycorrhizae is in the soil associated

with a particular tree without studying and analyzing it scientifically. If the growing soil/site is good, and if there are a number of other trees growing nearby, there should be adequate mycorrhizae. If the tree is under stress or growing in poor soils, such as subsoil from a construction site, it may respond to the addition of mycorrhizae.

The table below indicates the specific mycorrhizae for different plant species. **LM**



**BALAKRISHNA RAO**  
 Manager of Research and  
 Technical Development  
 for the Davey Tree Expert  
 Company, Kent, Ohio

## SEND YOUR QUESTIONS TO:

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Please allow two to three months for an answer to appear in the magazine.

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Basswood	Blackberry	Palms
Beech	Boxelder	Paulownia
Birch	Buckeye	Persimmon
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Hemlock	Citrus	Rose
Hickory	Crabapple	Russian Olive
Larch	Crape Myrtle	Sassafras
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Madrone	Cycads	Sequoia
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Pecan	Elm	Sourwood
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Alder	Horsechestnut	All shrubs and foliage plants (except laurels, rhododendron, & azalea)
Casuarina	Hydrangea	All berries (except blueberry, cranberry & lingonberry)
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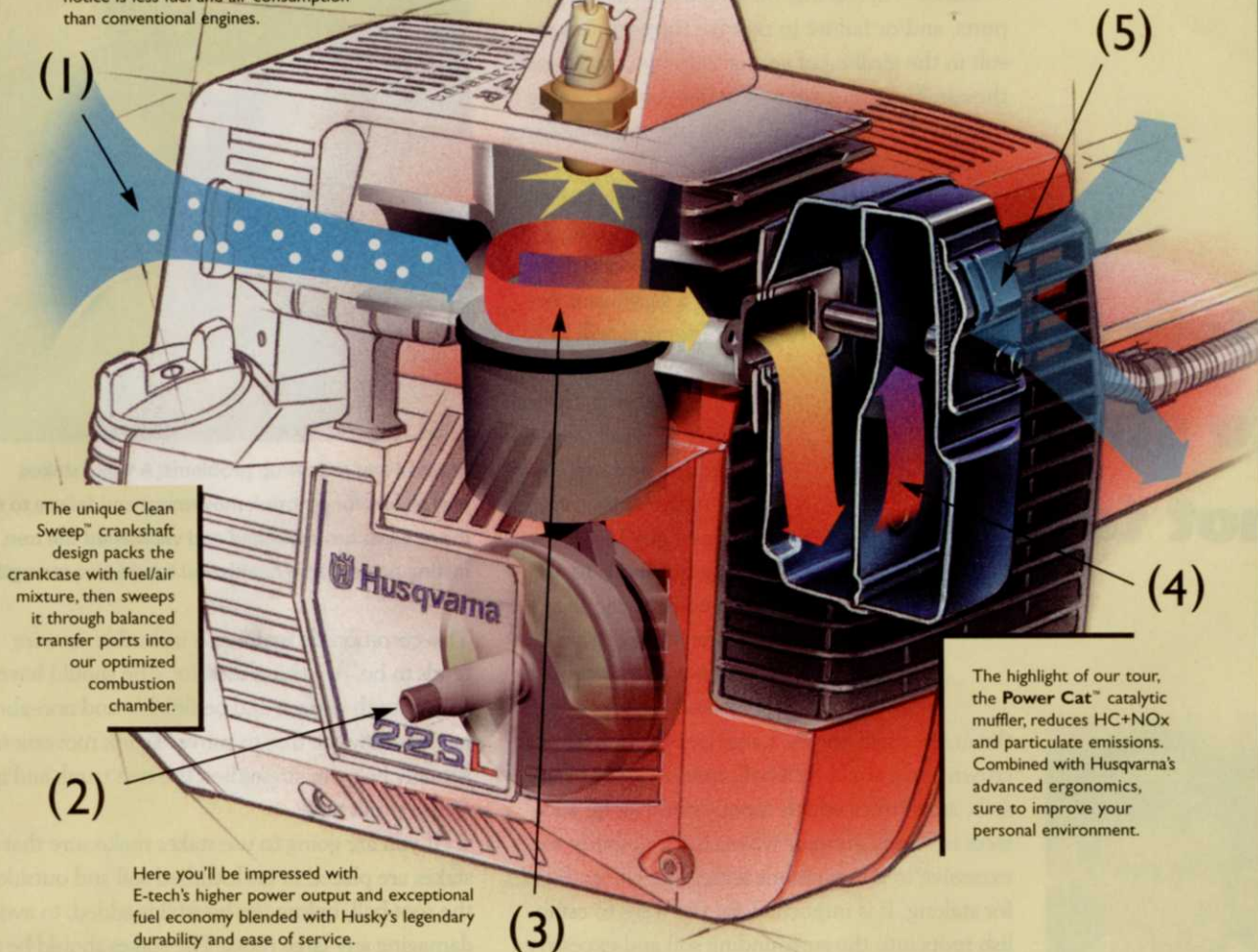


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## New trees: to stake or not to stake



**NANCY STAIRS**  
Technical Editor

**T**he tree is in the ground, are you going to stake it? Staking a tree for support is a common practice. Nearly as common is injury to trees as a direct result of staking. Incorrectly installed supports, and/or failure to remove supports can result in the girdling of young trees by compressing the cambium and killing the tree, or weakening it (not just weakened tree health but weakened tree structure as well).

In some instances, small trees appear to be staked in order to keep them from escaping.

Triple guy wires tightened to a significant degree of tension will indeed keep a tree from moving, however, the majority of small trees do not require any staking let alone to the extent of tightened guy wires.

The questions to ask when considering the need for staking trees are:

**Does the tree need to be staked?** In some cases

the answer will be yes. Large trees with a heavier crown and a small root ball, trees in wet or sandy soils, small trees which cannot stand alone and trees in windy areas or where the possibility for excessive tree movement is high are all candidates for staking. It is important for the trees to establish roots into the surrounding soil and excessive movement will impair that. Tree stability is a valid reason for staking.

**Will the manpower and time required for stake removal be scheduled in a timely manner?** More often than not, the answer is no. Most supports can and should be removed after one growing season. If this commitment cannot be met, the supports will very likely remain on the tree until the tree is wounded by the stakes or girdled by the ties. Follow-up is essential when staking is used.

**Are suitable materials available for staking?** Repeat after me: "Wire inside an old garden hose is NOT suitable tie material." If you don't think you can remember that, write it out 100 times.



**Method and follow-up problems:** A triple staked tree allows for no trunk movement and failure to remove wires has wounded and weakened the tree, affecting present tree health and future tree strength.

This common tie material is inflexible, as wire tends to be. Anything used for a tie should have a flat, smooth surface and be flexible and non-abrading, to allow the tree to move. Trunk movement actually helps to strengthen the tree trunk and increase trunk taper.

If you are going to use stakes make sure that the stakes are placed in undisturbed soil and outside the root ball, before the backfill is added, to avoid damaging any large roots. The stakes should be positioned so that the tree will not be blown into the stakes by the prevailing wind. A single stake can be located on the side of the prevailing wind so that the tree is blown away from the stake. Double stakes should be positioned perpendicular to the prevailing wind. Don't forget to remove the stakes and ties after the first growing season. And definitely don't remove the ties and leave the stakes.

Tree planting is an investment of time and money, but to see the payoff, pay attention to post-planting care. **LM**

Agree/Disagree? Comments/Questions? Column Suggestions? Let Nancy Stairs know at 440/891-2623. Fax: 440/891-2675. E-Mail: [nstairs@advanstar.com](mailto:nstairs@advanstar.com).



# *“Joining ALCA was the best investment I ever made.”*

“When I started in this business in 1978, I had a lot of business questions no one was answering,” says Judson Griggs, senior landscape architect at Lied’s Landscape in Sussex, Wis. “That’s when I joined ALCA.”

“By networking with ALCA members from around the country, attending marketing and technical seminars and using the Operating Cost Study to estimate projects, I have helped my company to achieve record sales revenues of more than \$10 million dollars.

“If you are serious about growing your landscape business, ALCA is the best resource in the country. Through their meetings, videos and publications, I learned cutting-edge techniques that I applied immediately to various projects which ultimately helped the company evolve and sustain its leadership role in the marketplace.”

**Join ALCA today and meet people like Judson Griggs.**

If you are an exterior, interior or landscape maintenance contractor, or simply want to see the landscape industry grow, call (800) 395-ALCA, or (703) 736-9666 for more information, or write: ALCA, 150 Elden Street, Suite 270, Herndon, VA 20170. Fax (703) 736-9668.



**ASSOCIATED LANDSCAPE CONTRACTORS OF AMERICA**



# LANDSCAPE MANAGEMENT wins big at TOCA for second year

**CLEVELAND**— For the second straight year, LANDSCAPE MANAGEMENT magazine made a strong showing in the Turf and Ornamental Communicators Association (TOCA) writing/photography/design competition, taking home a total of six awards for writing and graphic design.

The awards, presented at the TOCA annual meeting in May, were the most awards won by any lawn and landscape or grounds maintenance-targeted publication.

Managing Editor Ron Hall won two first place TOCA awards in the categories of "Feature Writing" and "Product Information Article."

Graphic Designer Lisa Bodnar swept the key design award categories for the second year in a row, winning:

- ▶ first place in "Feature Design"

- ▶ first place in "Cover Page Design"

- ▶ first place in the most impressive design category of "Overall Magazine Design"

- ▶ merit award for "Cover Page Design"

"LANDSCAPE MANAGEMENT's showing at this

year's TOCA Awards are more meaningful than last year, because many more entries were submitted by Green Industry magazines," said Terry McIver, LM

editor-in-chief.

"This speaks volumes about our ability to stand tall and proud in a very crowded and competitive Green Industry publishing arena" said McIver. There were a total of 149 entries in all categories.

Hall's "Feature Writing" award was given for "A Championship Maintenance Facility," which highlighted the efforts of the equipment maintenance team at Prestonwood Country Club, Raleigh, NC (Aug. 1997).

A second award was given to Hall in the category of "Product Information Article," for "Rubber to the Rescue," a look at crumb rubber used as a soil amendment (Jan. 1997).

"The author uses description well to paint a picture for the reader," wrote the writing judge about the Prestonwood story.

"Hall carries the description technique throughout the story, while telling the story of the Prestonwood Country Club's maintenance program. This was a fine job of writing."

"Ron Hall has long been a leading Green Industry editor, reporter and writer, and Lisa Bodnar's talents have consistently shined through in LANDSCAPE MANAGEMENT covers and feature designs," said McIver.

"Our mission is to serve the Green In-

dustry with the best-written, best-presented information," McIver said, "and we are grateful to be recognized in this way by an independent panel of judges." □

## AgriBioTech gets bigger in seed

**LAS VEGAS**—Add the Las Vegas Fertilizer Co., Inc., (LVF) and Rothwell Seeds of Lindsay, Ontario to the list of turf or forage seed companies acquired by AgriBioTech, Inc.

Las Vegas Fertilizer has revenues of about \$16 million a year, and sells turfgrass seed and ancillary products to golf courses and lawn and garden products to home improvement centers, mass merchants and independent nurseries in Nevada, California, Utah, Idaho and Wyoming.

On April 28 AgriBioTech, Inc., completed the acquisitions of Zajac Performance Seeds, Inc., and its Oregon affiliate, Kinder Seed, Inc.; Van Dyke Seed Co., Inc.; and Ohio Seed Company on April 28. The four companies have combined annual sales of about \$30 million.

"Zajac is an excellent turfgrass company which specializes in providing proprietary turfgrass varieties to independent wholesale distributors under private label," said Dr. Johnny R. Thomas, CEO of AgriBioTech. Kinder is a forage and turfgrass distribution company located in the northeastern U.S.; Van Dyke is a production company involved with forage crops such as

cont. on page 19







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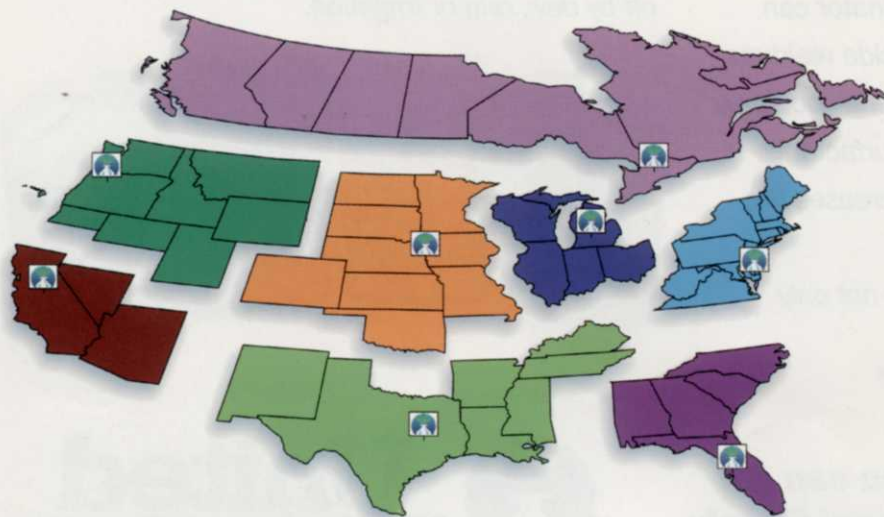


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cont. from page 16

red and crimson clover; Ohio Seed is a distribution company with about 60 percent turfgrass seed and 40 percent forage seed with sales primarily in Ohio and Michigan.

AgriBioTech is buying J&M Seed Company in Kentucky and Oseco Inc., Ontario, Canada, including all its seed and seed coating operations, Canadian Seed Coaters, North Battleford, Saskatchewan and Precision Seed Coaters, Inc., Yuma, AZ. The two companies have combined sales of about \$17 million.

AgriBioTech has completed 23 acquisitions since January 1, 1995 and claims annualized net sales of about \$426 million, including the previously announced pending acquisitions of Willamette Seed Company, Peterson Seed Company, Inc., Geo. W. Hill & Co., Inc., Fine Lawn Research, Inc., Geo W. Hill of Indiana, Inc., J&M Seed Company, and Oseco, Inc. □

## TOCA / Terra to award best Green Industry communicator

The Turf and Ornamental Communicators Association (TOCA) has officially announced the start of the *Environmental Communicator of the Year Award* Program.

Sponsored by Terra Industries, Inc., Sioux City, Iowa, the award will be given annually to an active Green Industry member for outstanding efforts in communicating the benefits of environmental stewardship. The award will build awareness among turf and ornamental communicators of the need to

## LM adds technical editor to staff



Nancy Stairs, LM's new technical editor

Nancy Stairs, B.Sc.F., has joined LANDSCAPE MANAGEMENT to serve as technical editor.

Previously employed by the Davey Tree Expert Company, Kent, Ohio, as an urban forester, Stairs brings a wide variety of arboriculture-related experience to the technical editor position. She earned a Bachelor of Science degree in Forestry from the University of New Brunswick, NB, Canada, has a diploma in horticulture, specializing in urban forestry and is a certified arborist with the International Society of Arboriculture.

Stairs has extensive writing, research and field experience. She has carried out tree inventories and has written management plans for cities, parks and golf courses, has authored technical bulletins and urban tree plans, and has conducted arborist consultations at golf course sites.

"Nancy Stairs is a fine addition to the LANDSCAPE MANAGEMENT editorial team," says Editor-in-Chief, Terry McIver.

"Having a technical editor on staff significantly raises the level of our in-house technical expertise," says McIver, "at a time when many of our readers want and need more technical information on all turf, ornamental and tree care topics."

Stairs will write a monthly column, "Arbor View", and will contribute articles on a variety of Green Industry topics.

"Joining LANDSCAPE MANAGEMENT opens the door to a whole new set of challenges for me," says Stairs. "I am hoping that with the phone, fax and e-mail accessibility we have that the readers will help direct that process by asking questions about specific tree and turfgrass issues. We then can answer them in a timely and useful way in our articles."

If there is a specific tree care topic you'd like to see covered in the pages of LANDSCAPE MANAGEMENT, write to Nancy Stairs at: [nstairs@advanstar.com](mailto:nstairs@advanstar.com) □

provide informative and education information to their audiences on environmental stewardship issues;

"Environmental stewardship began in the Green Industry many years ago, but it has never been fully appreciated, due to distractions from another brand of environmental activists, and media bias against pesticides and the profit motive," says Terry McIver, editor-in-chief of LANDSCAPE MANAGEMENT magazine, and a TOCA director.

"The *Environmental Communicator of the Year Award* is TOCA's way of acknowledging people whose literary tal-

ent and environmental concern has helped tell the truth about how the Green Industry benefits the environment," says McIver.

The award competition is open to anyone in the Green Industry. Nominees must be a TOCA member or be nominated by a present TOCA member.

Applications must arrive in the TOCA offices by January 15, 1999.

Any member may nominate himself for the award.

The award carries a \$500 cash stipend, which will be presented to the winner at

cont. on Grab Bag page 58



# Community heros, how you can qualify!

*By being a 'contributor' to your community, you can make great things happen for your neighbors, your organization and yourself.*

By RONALD HALL/Managing Editor

**S**urprise, Mr. Green Industry Pro, the public doesn't seem to know how important you are. It is not aware of the positive role that your company or golf course plays in your community.

Why should it? What have you done for it lately? Have you spoken out?

If you've been letting others be the business or environmental heros in your community, get off your duff. You'll discover that the rewards for participating in your community (apart from just doing business in it) are enormous. You'll meet and get to know other business and civic leaders. You'll generate good will for yourself and your operation. You may reap some positive publicity too, the kind you

help improve that long-neglected community ball park? How about that shabby garden in front of the elementary school? (Ask to put a plaque with your company name at the site.)

And there's always a charity looking for sponsors. A student career day that needs speakers. The positive ways to involve yourself with the public are unlimited.

Ron Keefer admits that his heart always melts a little when a neighborhood youngster looks up at him and, wide-eyed, asks if he's going to have his Halloween hay ride again in the fall.

"That's really all the reward I need," says Keefer who owns and operates the Clean Lawn application company. "I say, 'of course, we're going to have the hay ride again.'" For 20 years he's said that. So, every Halloween he converts his yellow tanker work truck into a hay wagon, and makes the rounds in and around his Pennsylvania neighborhood. When the truck bed is packed with costumed youngsters (and a few parents as chaperones) Keefer takes the noisy group from house to house, making sure that everybody gets candy—lots of it.

This is just one way that a green industry professional reaches out to his community. There are many, many more. For instance, Keefer also allows the American Red Cross to use his truck as a billboard on wheels at local blood drives. While his support of the Red Cross is sincere, he says, "when you have a lawn care truck parked inside a mall or in front of a church, people are going to notice it."

The Groundskeeper is one the largest landscape firms in the Southwest. When it offered to help beautify a quarter-acre park and adjoining entrance to the Tucson City

Dale Woulf, Northwest Grounds Maintenance, below, helped make this youth ballpark a reality.



can't buy at any price. But, best of all, you and your employees will build a growing satisfaction and pride in yourselves, and in the communities that you serve. These are great payoffs no matter how you figure it.

Where to start? How about something that will show immediate and lasting results? Can your expertise





**Ruppert Landscape Company at the grand re-opening of 'La Polvosa' (the dust bowl) in D.C. Work is done by the company but the re-opening lets everyone contribute to their community.**

Hall, it didn't realize how much excitement the project would generate.

"There had been a parking lot there," says Dave Ramsey, a regional vice president with The Groundskeeper. "The community wanted something there that embodied the spirit of Tucson and its founders."

The company, founded in Tucson about 22 years ago, donated labor and materials and worked with community groups—committees, councils, and artists—to complete the garden/landscape project.

"As we started working on it, more and more people became interested in it. It really snowballed," says Ramsey.

This wasn't the first time (and certainly not the last, says Ramsey) that The Groundskeeper tackled a special project.

The community involvement at Lied's Landscape Design & Development, Sussex, WI, goes beyond volunteering labor or materials for special projects which, of course, it does. The 52-year-old company encourages employees to participate individually in volunteer, civic and church activities, says company spokesman Judson Griggs.

In fact, anyone serious about progressing as a manager with Lied's *must* be active in his or her community. This might include speaking to service groups or garden clubs, participating in high school career days, or helping organizations like The March of Dimes or the MS Society.

Besides distinguishing Lied's and its employees from its competition, community involvement helps Lied's personnel develop enriching personal and professional contacts too, explains Griggs.

Company personnel participate in organizations like the Rotary Club, chair events like the Easter Seals, and speak before school groups or help out in Earth Day programs and cleanup days.

One of the big events in the Ruppert calendar each year is the company's annual training day. These day-long, hands-on training exercises for field personnel often involve a specific community project.

While not all of them are as dramatic as in 1992 when 300 Ruppert employees renovated and resodded a soccer field (known locally as 'the dust bowl') at the Lincoln Multicultural Center in downtown Washington D.C., all are greatly appreciated.

"The company does benefit from the visibility provided by the publicity but, ultimately, the benefits to Ruppert are in the building of relationships: in the community, with clients and among our own employees," says Ruppert's Kathleen Sheetz.

So, you don't run a big operation like Ruppert, Lied's or The Groundskeeper, and can't pull off the big project, should you bother to get involved too? Yes!

Actually, Dale Woulf of Northwest Grounds Maintenance near Seattle wasn't thinking of the thanks he'd get, or the publicity, when he raised more than \$7,000 to rebuild a Little League field; he was thinking baseball. As a founding

Ruppert Landscape Company, headquartered in Ashton, MD, considers itself "a resource" to the public within its many market locations.

member of the Fall City Little League, Woulf saw where his know-how could make a big difference. And it has.

His efforts led to a new properly draining diamond with dugouts, benches, and a new backdrop. Years later Woulf and his company continue to maintain the field as a service to the local ball players.

"The green industry can play an important role in the beautification of our communities," says Woulf. "I wanted to apply my skills to make a difference in Fall City."

*—additional reporting Nancy Stairs*

## Bug mobile touts IPM

Broccolo Tree and Lawn Care has a bug that weighs a ton and drives around Rochester. The new model VW beetle is painted in a ladybug pattern, and is meant to highlight the need for 'beneficial insects'.

"The Good Bug is another way for us to emphasize our commitment to Integrated Pest Management," says company President, Laurie Broccolo.

Broccolo Tree & Lawn Care's other community outreach activities include a traveling puppet show for children; GardenScape seminars and an annual Field Day at the Tinker Nature Park/Hansen Nature Center in Henrietta, NY.





## 'Ambassadors' get a warm welcome

"It's fun, it really is," says Bill Prest, superintendent at Sweetbriar Golf Club, Avon Lake, Ohio.



Bill Prest enjoys speaker's role.

"I've probably given 15 to 20 talks, and my experiences have been very, very positive."

Prest is one of a growing, but still small, group of "ambassadors".

These golf superintendents and lawn care professionals speak in front of civic and school groups within their communities. They explain their professions, and talk about products and equipment they use.

The Ambassador Speakers Program is jointly supported by GCSAA, PLCAA and RISE.

"I've incorporated some information about the environment and about pesticide use into a slide program," says Tom Gray, CGCS, superintendent at Franklin Hills Country Club, near Detroit. "I start with a slide of Augusta National and show them what we try to achieve. Then I talk about the responsible use of pesticides and, and about our efforts to protect the environment."

So far there are about 35 ambassadors. They all participated in one-day training programs before they began taking speaking assignments. The first group received instruction in Cincinnati in November 1996. The second group trained in Atlantic City, NJ, this past December.

Prest says he's talked to civic clubs (Rotary, Kiwanis, Lions) and to local school groups. While all are attentive, the response from the youngsters is usually more spirited. They particularly enjoy learning about the wildlife on golf courses. Then he helps them build bluebird or bat houses.

Prest says audiences seem to be genuinely interested in his message. Even so, he acknowledges that some of the people

he's spoken to "have some real concerns" over the use of pesticides.

"These concerns are usually unfounded, but they're there," he says. "You have to be prepared for this."



Tom Gray focuses on environment.

"I've had no negative reaction whatsoever," adds Randy Zidik, CGCS, superintendent at Rolling Hills Country Club near Pittsburgh. "I've been surprised by how interested people are in golf course maintenance."

Jon Cundiff, owner of Turfs Up Lawn Service near Kansas City, MO, focuses on the benefits of turf.

"I try to reaffirm the importance of what we're doing," says Cundiff. "As long as I can help them understand the benefits of what we're doing, they will better appreciate it."

Cundiff enlivens his presentation with true-life experiences from his days on the grounds crew of the KC Royals baseball team and the KC Chief football team.

"The time that I've spent in giving these talks has been minimal compared to the good I think they're doing for the industry," adds Cundiff.

Representatives from GCSAA, PLCAA and RISE met in May to discuss expanding the Ambassador Speakers Program. To learn more, contact either: Kristi Frey, CGSAA, 800/472-7878; Karen Weber, PLCAA, 800/458-3466; or Elizabeth Lawder, RISE, (202) 872-3860.

—RH

## Can you answer these questions?

One way to serve your community is by providing it with answers to questions on pesticide use.

In the eyes of some of the public who don't know the full story, pesticides are a villain. This Q&A from Responsible Industry for a Sound Environment (RISE) will help you and your crews face difficult questions.

**Q:** What is a pesticide?

**A:** A pesticide is any natural or synthetic substance that can be used to control or kill pests of any sort, including insects, fungi, rodents and weeds.

**Q:** Do pesticides cause cancer?

**A:** There are a few specific pesticides that have been shown to cause cancer in laboratory rodents. Pesticides do not cause cancer in people. In 1997, a panel of international cancer experts evaluated more than 70 published stories. The panel concluded that it was not aware of any definitive evidence to suggest that synthetic pesticides contribute significantly to overall cancer mortality.

**Q:** Are environmental levels of man-made pesticides and other synthetic chemicals an important cause of cancer?

**A:** No population studies and studies of the harmful properties of synthetic pesticides and other industrial chemicals do not support a cause and effect relationship between exposure to low levels of these materials and cancer.

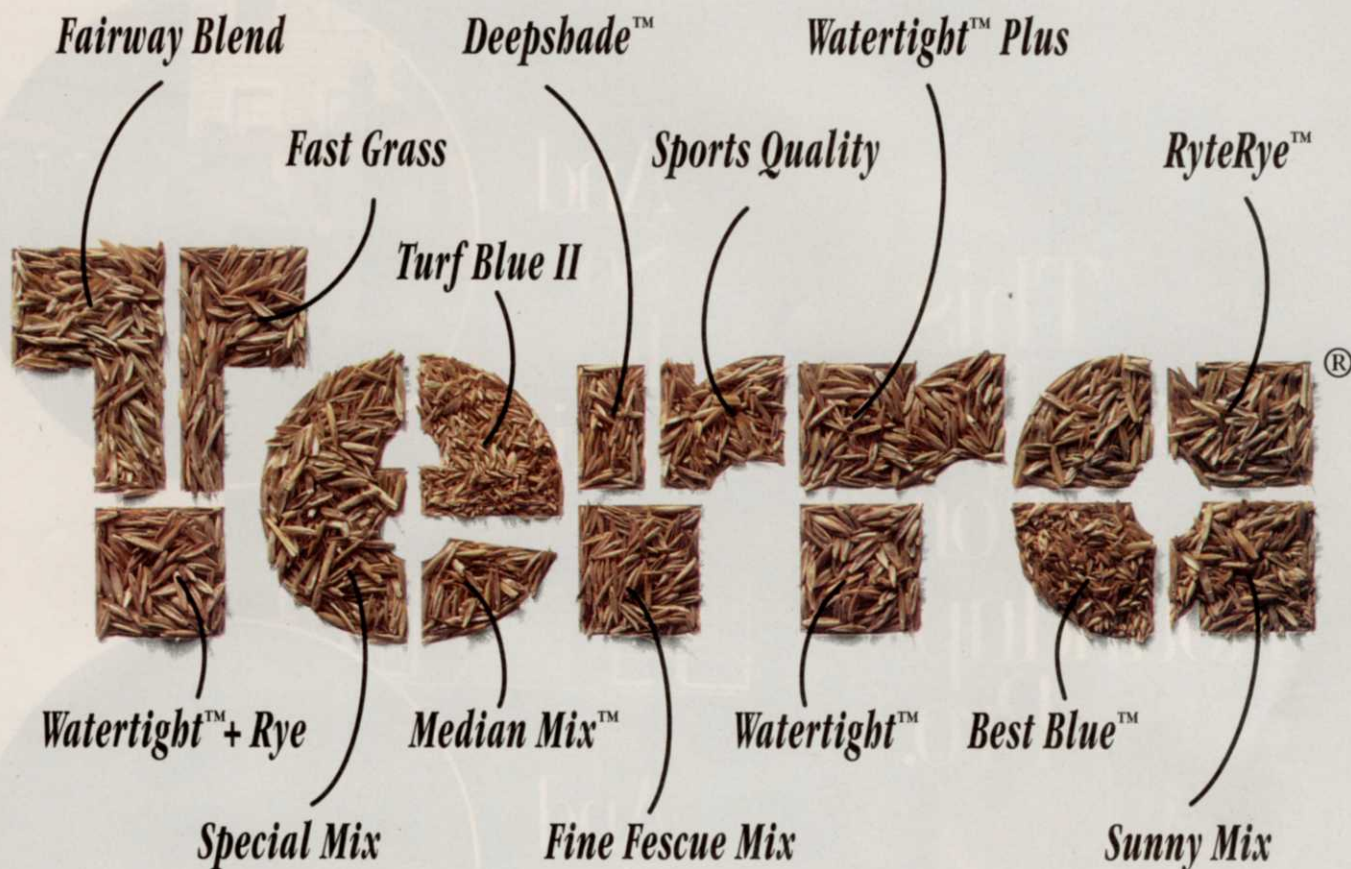
**Q:** Do pesticides cause cancer in children?

**A:** Pesticide exposure is only one of many potential causes being investigated. To be able to say with confidence that no association exists between pesticides and childhood cancer, the potential for such an association must be thoroughly studied. Many of the studies looking at these questions have been underway since the late 1980s. The findings from these studies are being evaluated and should be available by the end of 1999. Other potential environmental causes of cancer are being investigated.

For more information on how to answer these and other pesticide related questions, contact RISE at 202/872-3860.

—TM





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- Roundup Pro In The 21st Century.
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# ROTARY MOWERS

By CURT HARLER/ Contributing Editor

Check the ease of servicing on any riding mower. It should be simple to get to the oil dipstick, battery, and other key components. Check how easy it is to adjust the height of the mower itself. Most days will find the operator cutting in a variety of conditions and changing the cutting height should not provide an excuse for major downtime or a trip back to the shop. It's good to have a machine which can handle attachments to do a variety of other light tasks.

If diesel fuel is available at the worksite and the mowers are run long hours, diesel is probably the fuel of choice. No matter how easy diesels are to start, gas engines always will be more forgiving in on-and-off situations. If the business is a mobile one, a gas or diesel powered mower certainly will be the unit of choice. Some office buildings require noiseless operation near the premium executive space in the complex. If the work is being done around an office park or a recreation center where electrical outlets are plentiful, the job may require an electric push mower.

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**800-537-8233**  
**Circle No. 254**

The F725 Front Mower from John Deere's Commercial Equipment Division, Raleigh, NC is available in 48-inch and 54-inch rotary mower. Designed for small-area commercial operators, it has a two-cylinder 20-hp Kawasaki engine. Cutting height can adjust from 1 to 4 inches with a hand crank.

**DIXIE CHOPPER**  
**800-233-7596**  
**Circle No. 255**

The Suburban Turbine is a 72-inch mowing machine powered by two vertical crankshaft Kohler Command 20 engines. Features an engine oil cooler, hydraulic-drive oil cooler, an Amsoil 1-micron filter, a low-oil warning horn, a Turbinator cyclone pre-cleaner, a Donaldson air filter, stainless steel body panels.



**Exmark Lazer Z has an instant height adjust system.**

**DIXON INDUSTRIES**  
**800-264-6075**  
**Circle No. 256**

Choose from 42, 50 and 60-inch deck options with the ZTR 5022 commercial mid-mount riding mower from Dixon, Coffeyville, KS. Cutting height ranges from 1.5 to 4.5 inches and the low overall weight (615-685 pounds) means it is easy on turf. 1998 model features 22-hp Kohler Command engine.

**ENCORE MANUFACTURING**  
**402-228-4255**  
**Circle No. 257**

The Prowler Front Cut from Encore, Beatrice, NE is available with 52 or 61-inch out front decks with a cutting range of 1 to 5 inches using a single lever. The zero-radius turn machine comes with single or dual tail wheel options and can be powered by a 20-hp water-cooled Kawasaki or 22-hp air-cooled Kohler. Deck flips up for cleaning.

**EXCEL INDUSTRIES**  
**800-395-4757**  
**Circle No. 258**

A new 22 hp Kohler Command engine and a new 60-inch side-discharge deck are available on the ShortCut line of commercial mow-

ers from Excel. ShortCut is the most compact rider on the market, says Excel, shorter than comparable walk-behind mowers. It features zero-turn Hbar Steering, resembling motorcycle steering.

**EXMARK**  
**402-223-6300**  
**Circle No. 259**

The full line of Exmark mowers features floating decks to trace turf contours. The Lazer Z's instant adjust system lets the operator change cutting heights while seated. Made

in Beatrice, NE it runs at 9 mph forward, 4.2 mph in reverse and has true zero radius turning. Four models offer cutting widths of 44, 48, 52 and 60 inches.

**FERRIS INDUSTRIES**  
**315-363-9536**  
**Circle No. 260**

The Z100, by Ferris Industries, Vernon, NY, is the first mower with an independent suspension system. A mid-mount zero-turn rider powered by a 25 hp Kohler, this mower has a 61 inch cutting width, hydro-drive transmission, independent left and right speed control levers, gear-actuated engine kill blade/clutch safety switch, neutral and parking brake safety switch, jumbo 23 inch tires and twin 4 gallon tanks.

**GRASSHOPPER**  
**316-345-8612**  
**Circle No. 261**

With its 28 hp liquid-cooled diesel engine and Gemini2 dual-path hydrostatic direct drive, the zero-radius turn Model 928D2 from Grasshopper, Moundridge, KS provides outstanding maneuverability and productivity for its size. It has



**Grasshopper 928D2 works with all company attachments.**

forward speeds up to 9 mph and accepts the company's complete line of interchangeable decks.

**GRAVELY INT'L.**  
**800-472-8359**  
**Circle No. 262**

The ProMaster 360D front-mount riding mower from Gravelly includes front and rear tie-downs, a transmission brake to secure the unit for safe transport and power steering for ease of operation. It is available with a 22.3 hp Yanmar liquid-cooled diesel and hydrostatic transmission providing speed up to 8.8 mph.

**GREAT DANE**  
**704-846-6617**  
**Circle No. 263**

The zero-radius turn Surfer from Great Dane, Charlotte, NC is just 53 inches long on the 52-inch cut model. Also available are 48 and 61



**Great Dane's surfer cutting height adjusts from 1.5-5.5"**

inch decks made of 7-gauge steel. Units are powered by 16-hp twin cylinder Vanguard, or an 18- or 22-

hp Kohler electric start.

**HOWARD PRICE**  
**314-532-0201**  
**Circle No. 264**

The Turf Blazer 727 features a floatation deck of heavy structural design. Scalping is virtually eliminated with oversized anti-scalp rollers adjusted to your specific cutting conditions. Strength is where you need it, up front, with 11-gauge double wall construction.

**INGERSOLL**  
**920-582-5000**  
**Circle No. 265**

The Grazer 2297K from Ingersoll is a 62-inch front-cut mower. Body is easily removed to expose inner works which include patented chopper screen, hydraulic valve lifters, fan-cooled transmission, Warner Mag-Stop electric clutch and replaceable wear bushings on the push arm pivots.

**JACOBSEN**  
**800-727-JAKE**  
**Circle No. 266**

The HR-9016 Turbo wide-area rotary mower from Jacobsen, Racine, WI has a 16-foot cutting width and 8.5 mph speed, letting it handle 16.5 acres per hour. New this year, the HR-9016 has a 90-hp turbocharged diesel engine and 4-WD which is engaged whenever the mow switch is activated.

**F.D. KEES**  
**402-223-2391**  
**Circle No. 267**

The ZT Max Mid-Mount Rider features a low center of gravity and wide body for hillside stability. The dual-lever, hydraulically dampened operator controls provide smooth and instant steering control. Travels up to 9 mph. Available with a 22- or 25-hp Kohler Command V-twin engine; 52- or 61-inch decks; mulching kit.

**KUBOTA TRACTOR**  
**1-888-458-2682**  
**Circle No. 268**

The Grand L Series is a full line of low-emission, low vibration machines from Kubota, Torrance, CA. Available with E-TVCS (three vortex combustion





**Jacobsen HR 9016 Turbo has a 16-foot cutting width and 8.5 mph speed.**

system) diesel engines in 2- and 4-wheel drive, they come in 32.1, 35.2, 38.5 and 45.3 hp models. Glide Shift transmission features clutchless on-the-go operation through all 8 forward and reverse gears.

**LASTEC**  
800-515-6798  
Circle No. 269

The Articulator is the solution to uneven terrain, says Lastec. The 325E articulates three 25-inch decks to deliver a precision 72-inch cut. The mower rides low, wide and stable so it handles extreme contours without scalping.

**LAWN BOY**  
612-888-8801  
Circle No. 270

The Lawn-Boy 21 inch commercial mowers feature a tough, lightweight cast-aluminum deck, steel wheels with ball bearings, and a cast iron cylinder sleeve for durability. Made by Toro, Bloomington, MN, these mowers feature DuraForce 6.5 hp 2-cycle engine.

**LELY CORPORATION**  
252-291-7050  
Circle No. 271

Rear-mount grooming mowers are designed for estates, parks, golf courses and municipal maintenance. The KRM-60 has a 60-inch cut with a blade speed of 2690 rpm. It requires a 15-30 hp tractor. The KRM-72 is a 72-inch unit cutting at 2290 rpm. The KRM-84 Heavy Duty operates behind a 25-50 hp tractor with a 540-rpm pto.

**LESCO**  
440-333-9250  
Circle No. 272

Both the LCR2200 and the LCR7400 feature two-pedal hydrostatic controls, independent wheel brakes for tight radius turns, and hydraulic weight transfer valve for increased traction on hillsides and in the wet, and vertical tilting deck for easy removal and installation of blades.

increased traction on hillsides and in the wet, and vertical tilting deck for easy removal and installation of blades.

**MTD Products Inc.**  
330-225-2600  
Circle No. 273

The MTD Pro series features two Direct Effect mowers with instant forward and reverse operation with cruise control. The 4815F has a 15 hp engine and 48 inch floating stamped deck, while the 5416F has 16 hp and a 54 inch deck.

**NEW HOLLAND**  
717-355-1121  
Circle No. 274

The CM 222 from New Holland, New Holland, PA has a cutting width of 60 inches and a height range from 1.5 to 4.5 inches. The side-discharge mower is powered by a 3-cylinder liquid cooled 22-hp diesel. Rear weight bracket is standard.

**RANSOMES**  
800-228-4444  
Circle No. 275

The 951 wing rotary mower from Ransomes Cushman Ryan, Lincoln, NE mows at speeds up to 7 mph and transports at up to 14 mph allowing it to cut 59 acres in an 8-hour day. Unit can be equipped with one, two, or three decks for mowing and its zero-turn radius makes for outstanding maneuverability. It operates with a Perkins 4-cylinder, 4-cycle, liquid-cooled engine.

**SCAG POWER EQUIPMENT**  
920-387-0100  
Circle No. 276

The hydro drive system on the

Scag STHM provides smooth, even power to both wheels, controlled by a convenient, single foot-pedal control. The Scag STHM is available with a 52-, 61-, or 72-inch cutter deck and 20- or 22-hp Kohler Command engines. Optional accessories include a 44-gallon capacity grass catcher with auxiliary engine.

**SNAPPER, INC.**  
770-954-2500  
Circle No. 277

The tractor-style Peerless transmission on the SPE1250KW Pro Express mower from Snapper offers five forward speeds from 1.5 to 6.5 mph and one reverse. This



36-inch commercial walk-behind is powered by a 12.5 hp Kawasaki engine. Automatic pistol grip controls, electric PTO, and 16-inch drive tires for superior ground clearance.

**TORO**  
612-888-8801  
Circle No. 278

The Z Master Mid-Mount ZRT (zero radius turn) mower from Toro, Bloomington, MN comes in two models. The Z252 has a 22 hp Kohler engine with a 52-inch deck. The Z255 has a 25 hp Kohler with a 62-inch



deck. Ground speed of 8.5 mph forward and 4 mph in reverse makes it one of the fastest in industry. Twin 9-gallon

fuel tanks.

**WALKER MANUFACTURING**  
972-221-5614  
Circle No. 279

Designed by the Fort Collins, CO firm to do the work of a walk-behind with the increased productivity of a rider. Five models range from 11-25 hp with gas or diesel engines. Also available are five mower decks ranging from 36 inches to 62 inches with grass collection, side discharge or mulching capability.

**WRIGHT MANUFACTURING**  
301-330-0086  
Circle No. 280

The Wright Stander comes in several compact models, with triple-bladed mowers in widths of 48, 52 and 61 inches. Mowers have a 7-gauge steel deck, rounded trim-side for closer trimming and adjustable anti-scalp rollers on the deck nose. A full range from 16 to 22 hp and choice of electric or recoil start available. Cutting height ranges from 1.75 to 4.5 inches in quarter-inch intervals.

**YAZOO POWER EQUIPMENT**  
800-723-9496  
Circle No. 281

The ZT Max midmount rider from Kees, Jackson, MS features a low center of gravity and wide stance. Dual-lever hydraulically dampened operator controls provide smooth, instant steering control. Unit has cutting speeds up to 9 mph and runs for a long time on the 10-gallon fuel tank.

**ZIPPER MOWER**  
888-876-6937  
Circle No. 282

Standard electric deck lift is just one of the many features of the Zipper-TS mowers that make them easy to operate. Made in Augusta, KS, these mowers come with 20 or 22 hp engines, allowing speeds up to 6.2 mph, and in cutting widths from 54-74 inches. The frames on these zero-turn radius machines are 10 gauge steel, the bodies 14 gauge. LM





# 1998 EMERALD AWARDS

**ANNOUNCING:** the third annual LANDSCAPE MANAGEMENT "Emerald Awards". LANDSCAPE MANAGEMENT magazine is offering a \$500 first prize to the winner of a random drawing to be held on July 1, 1998. Second prize is \$300 and third prize is \$200 in cash. To be eligible for the drawing, simply fill out the questionnaire at right and return it to LM's editorial offices.

Answers to the questions will determine our "1998 Emerald Awards" winners, to be revealed—along with the contest winner—in our August issue.

# WIN \$500

**CONTEST REQUIREMENTS:** Contestants must be owners or employees of landscape maintenance companies or lawn care companies; or maintenance employees of a golf course or country club, including superintendents and assistant superintendents; or an athletic field manager or member of an athletic field maintenance crew; or manager or member of a facility landscape management crew.

Product selections must be currently used by entrant.

Employees of Advanstar Communications or their families not eligible.

All questions on this entry form must be completed, and all blanks filled. One entry per person. No more than five entries from any one employer will be allowed. Entry forms will appear in the February-June, 1998 issues of LANDSCAPE MANAGEMENT.

Completed questionnaires should be mailed to: Emerald Awards, LANDSCAPE MANAGEMENT, 7500 Old Oak Blvd., Cleveland, OH 44130. They must be received by noon, July 1, 1998.

A random drawing of all eligible entry forms will be held July 1, 1998. Winners will be notified within 24 hours.

## OFFICIAL ENTRY FORM

### QUESTION:

What is your favorite brand name of...

CHECK HERE IF YOU DO NOT USE

- riding mower?
- walk-behind mower?
- turf fertilizer?
- pre-emergence herbicide?
- post-emergence herbicide?
- turf insecticide?
- turf fungicide?
- plant growth regulator?
- compact tractor?
- turf aerator?
- pick-up truck?
- leaf blower?
- line trimmer?
- chain saw?
- Kentucky bluegrass?
- perennial ryegrass?
- turf-type tall fescue?
- turfgrass mix or blend?
- biological control product?

NAME: \_\_\_\_\_

EMPLOYER: \_\_\_\_\_

CITY/STATE: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

(AC ) \_\_\_\_\_





# Know ornamental disease symptoms

*Three factors make diagnosing ornamental disease problems difficult: the wide host range, the influence of urban environments and varying management practices.*

by JANELL JOHNS, Ph.D., Texas A&M University

**A** systematic approach is a big help in diagnosing disease problems with ornamental plants.

It also guides those intimidated by the sheer number of possible problems.

Knowing whether the problem is cultural or environmental (abiotic) as opposed to a problem caused by an insect, mite or disease (biotic) is essential. The systematic approach to plant problem assessment provides an outline to follow to improve your chances of a correct diagnosis. And, a correct diagnosis starts you on the way to better management.

## **Define the problem**

Does a plant problem exist? Identify and inspect the affected plant and surrounding plants. Is the plant growing normally for this species/cultivar at this time of year and age of plant? Know how the plant looks when it's healthy, because we sometimes mistake normal characteristics as problems. Examples of these include unusually large leaf glands or twig lenticels, variegation or seasonal foliage coloration or synchronous leaf drop from conifers and other evergreen broadleaf plants.

Compare an affected plant with a healthy plant. Describe the symptoms associated with the problem. How is the plant's growth affected? Remember, while symptoms signal something is wrong, they don't necessarily indicate the nature or location of the cause, especially with root damage or improper soil conditions.

## **Check for patterns, time**

Two important clues for distinguishing between biotic factors and abiotic factors include:



◀ Reproductive spore capsules on the underside of a fern, a normal characteristic.

- ▶ recognition of symptom patterns
- ▶ symptom development over time

Start with the individual plant, then the whole planting and finally the surrounding plant community. Get a history of the plant, including what has been done to it and when, and where the plant is. Consider weather data as well as soil and water conditions.

With biotic causes, symptoms usually develop gradually over time on an individual plant, spreading to other similar plants. Most of the biotic agents are host-specific and won't attack multiple kinds of plants or all plant parts, simultaneously.

With abiotic causes, symptoms can appear all at once and usually the injury doesn't continue to spread either on individual plants or onto neighboring plants. Depending on the abiotic factor, damage can be widespread, affecting different types of plants simultaneously.

#### Refine the diagnosis

Distinguishing between the various biotic and abiotic agents requires careful observation of the affected plant or plants. Symptoms are a plant's response to the problem, not necessarily the problem itself. Symptoms may include galls, yellowing, dead tissue and distorted growth. Signs are evidence of, or the actual presence of an organism. Signs may include insect frass, fungal mycelium or spores, bacterial ooze or the actual insects, mites, rodents.

Abiotic factors can include mechanical, environmental and chemical agents. To identify mechanical problems, look for signs such as broken stems, crushed plants or girdling from plant ties. Check for recent changes in environmental conditions or for extreme environmental events such as lightning, hail or freezes.

Analyze patterns of damage on individual plants and across benches, greenhouses or yards. What do the patterns show you about the source and delivery methods of chemical agents? These may include nutritional problems or phytotoxicity from pesticides, pollutants or poor water quality. Because many of these factors may overlap, you must often rely on a careful review of management practices.

#### Reference materials

Sometimes you may need help to identify the specific factor. Become familiar with useful refer-



▲ *Entomosporium* leaf spot with lesions and discoloration on *Photina*.

ence books and know the experts to contact. Learn how to collect a good sample. You may need a laboratory analysis to confirm a diagnosis. Be sure you get a high quality sample. It will directly impact the quality of the diagnostic report.

Once you know the problem, you can develop a management strategy. Get more information on disease management from your county Cooperative Extension Service, university worldwide web sites, reference materials and local experts. **LM**

*Janell Johnk is an extension plant pathologist at Texas A&M University, Dallas.*

▼ Take- all patch on Bermudagrass





# Classy roses without the fuss

*Here's the latest on roses that can give your clients lots of color and interest without a lot of fuss and bother.*

By REBECCA REMBERT

**T**o many landscapers, the word 'rose' induces visions of disease-ridden, cold-damaged, insect-riddled plants. But, like many groups of plants, there are both high-maintenance and minimal-maintenance varieties.

The most commonly available roses belong to the class of Hybrid Tea or Floribunda which are notorious in most parts of North America for being labor-intensive, fussy plants. For those who would like to grow roses but who are unable or unwilling to devote the time and effort necessary to tend a Hybrid Tea rose, many shrub roses offer an alternative. There are certain shrub

roses and climbers which are highly disease-resistant and cold hardy, and they deserve to be considered as an option for landscape situations where a fragrant, colorful, tough shrub is desired.

After a harsh winter, it's certainly disheartening to look at the black canes of a not-so-hardy rose bush. Avoid this by planting cold-tolerant varieties and by installing roses properly. Some roses come as grafted plants, and, unlike most grafted plants, the graft should be buried 1-2 inches below the soil surface in areas where the minimum winter temperature dips below 0°F. Fortunately, many of the cold-tolerant varieties are available as own-root plants, and they do not require the deep planting of their grafted counterparts. The planting hole should be 18-24 inches deep and the soil amended with compost or leaf mold if the drainage is slow. Provide adequate drainage to over-winter roses in harsh climates.

The Rugosa roses embody the qualities of cold-hardiness, disease-resistance and pest-resistance. They require minimal care, and with many varieties comes the added bonus of good rose hip display in the fall. In areas where Japanese beetles can wreak havoc on a summer garden, the Rugosas and many other shrub roses flower most heavily before the adult beetles start feeding. Since most shrub and Rugosa roses are repeat bloomers, only those flowers produced from



**Dortmund thrives under difficult growing conditions. Foliage is disease resistant.**



**New Dawn: famous climber is very fragrant and hardy.**

early July to early September are sacrificed. This amounts to very little bloom loss since the heaviest flower crops are produced in May, June and September.

In general, the shrub roses require the same care as any other flowering shrub. They benefit from fertile soil but will flower well in average garden soil. Spraying for pests and disease can be nearly eliminated if resistant varieties are chosen, and pruning can be accomplished in the spring with very little cleanup required later in the season. To maintain the desired dimensions of any shrub rose, reduce the largest



canes by one-third of their height in spring, just before or slightly after they break dormancy. For repeat-flowering climbers, allow them to reach the maximum desired size before pruning. Thereafter, trim off only the dead tips and reduce the laterals (small branches coming off the main canes) to 3-5 buds per stem (reducing the laterals will promote larger blossoms). Pruning may be kept to a minimum and only done when parts are overgrowing.

Listed below is a selection of cold-hardy, disease-resistant rose varieties that will grow and flower well in full sun or partial shade:

**Ballerina.** This hybrid musk will grow to 4'H x 4'W and produces large clusters of single, apple blossom-like blooms all summer. Even though the blossoms have no scent, Ballerina will produce a good crop of rose-hips if the flowers are not deadheaded.

**Blanc Double de Coubert.** A beautiful Hybrid Rugosa which produces large, double, pure white flowers with a strong clove fragrance. It will grow to 5'H x 4'W and flowers heavily in early summer with a good repeat bloom in the fall. A very hardy and disease-resistant rose.

**Dortmund.** This is a hardy climber that can also be grown as a large shrub. It produces clusters of bright cherry-red, single blossoms with white centers on a plant that will grow to 10'H x 6'W. The flowers have a nice scent and are produced off and on all summer if the earliest crop is deadheaded. Foliage is very shiny and disease-resistant.

**Frau Dagmar Har-topp.** A hybrid Rugosa shrub with papery, single flowers that appear in abundance in late spring to early summer, followed by a good repeat bloom until fall. The

flowers are very fragrant and are produced on a compact shrub of 3'H x 3'W with abundant rose hips in the fall.

**Hansa.** This is one of the hardiest Rugosa hybrids, producing strongly fragrant, purplish-red, double flowers in great profusion in early summer with a lighter repeat until fall and a great rose hip display late in the season. Will grow to be 5'H x 5'W.

**John Cabot.** A hardy climber developed in Canada that produces double, lightly fragrant, purplish-pink blooms in early summer with a lighter repeat until fall. It is disease-resistant and can be used as a pillar rose or on a wall. It will grow to be 6-10'H x 6'W.

**New Dawn.** This is perhaps the most famous climbing rose of all time. Its light pink, very fragrant, double blossoms appear in profusion in early summer and repeat well into fall. This tough hardy



**Ballerina produces large clusters of single, apple blossom-like blooms.**

climber needs room as it will grow to be 10-20'H x 10'W.

**Pierette Pavement.** The pavement series of roses offers tough, hardy shrubs that stay compact and require very little maintenance. This selection produces double, spicy-scented, reddish-pink blooms off and on all summer on a 2.5'H x 3'W shrub.

**Sea Foam.** This is a reliable, ground cover-type rose with small, healthy foliage. It carries an abundance of sweetly scented, double, white blossoms all summer on a 2'H x 3-5'W plant.

**Thérèse Bugnet.** Very fragrant, large double flowers are produced in great quantity on this variety in early summer with a lighter repeat in the fall. This hardy shrub sports colorful maroon-red stems in winter and grows to 6'H x 6'W. **LM**

*The author is retail manager at Art Form Nurseries, Chagrin Falls, Ohio. She formerly owned a nursery specializing in hardy roses.*



**John Cabot is disease-resistant and can be used as a pillar rose or on a wall.**



# Nonseeded grasses

The term 'nonseeded grasses', refers to the type of grass plants which are propagated vegetatively. Most grasses in this category are warm-season grasses which grow in the warm temperate to tropical climates.

By A.D. ALI, Ph.D., Davey Tree Expert Company



**N**onseeded grasses can be established by sodding, plugging or sprigging. Sodding is the most common for establishing an 'instant' new lawn. Plugging is less expensive than sodding, and some homeowners prefer this method of establishing entire lawns or renovating certain sections of the lawn. However, with plugging, weed control is needed until the lawn becomes

established. Sprigging is often used to establish a large area, like an athletic field, using Bermudagrass.

Watering is critical during the early

stages of establishment to prevent desiccation of the sprigs (portions of plant stems, stolons). Again, weed invasion is possible with sprigging until the grass establishes a thick, dense surface.

Five of the most common non-seeded grasses are: St. Augustinegrass, bahiagrass, Bermudagrass, zoysiagrass and centipedegrass. The following is a brief description of their culture, use, pests and cultivars.

**Watering is critical during the early stages of establishment to prevent desiccation of the sprigs**

Hybrid bermudagrass, shown, and common types have a wide variety of uses: lawns, cemeteries, parks, institutional grounds, airfields, athletic fields, fairways, greens, tees, roughs and rights-of way.

## ST. AUGUSTINEGRASS

(*Stenotaphrum secundatum*) is native to the West Indies, but has been widely distributed to Mexico, Africa, Australia and the southern and southeastern US. It is an aggressive, stoloniferous, coarse-textured grass. It grows in a variety of soil types; however, it performs best in sandy loam, well-drained, fertile soils with pH 6.5. St. Augustinegrass has good salt tolerance, fair shade tolerance and poor traffic tolerance.

**Culture:** Mowing height should be between 3 and 4 inches. Mowing at shorter heights stresses the turf and predisposes it to drought and insect problems. Annual fertilization should be 3-6 lb N/1,000 sq ft/yr. In alkaline soils, St. Augustinegrass may suffer from iron deficiency. The yellowing can be corrected with foliar application of chelated iron. Water during dry-spells is important to prevent stand dieback. Apply between .75 to 1 inch of water per week. Thatch can be a problem in St. Augustinegrass lawns. Verticutting (dethatching) will be required if thatch exceeds a depth of 1-inch in order to maintain the health of the turf. Propagation is through vegetative parts such as sprigs, plugs or sod.

**Use:** this grass is the major type of lawn turf in areas of the

cont. on page 41





**We're putting a new spin  
on mowing**



# Introducing the John Deere

It's the new crown jewel of the John Deere commercial mowing line. Designed to improve your productivity, reduce downtime and make maintenance easier, this zero-turn-radius mower is powered by a 20-hp overhead-valve engine.

Because it takes up only 80 inches of length with its deck at 90 degrees, this mower frees up trailer space that

many other machines gobble up. Space that can be used for additional equipment, like walk-behinds and handhelds.

The John Deere Z-machine is a 12-hour-day dream-come-true. The high-back seat has 5 inches of fore-and-aft adjustment and coil-spring suspension to smooth out the ride. Optional armrests provide an additional





TM

# Z TRAK

**JOHN DEERE Z TRAK**

**Z** ZERO TUR

DUAL-HYDROSTATIC LEVERS FOR CONTROL OF TURNING, SPEED AND DIRECTION

REMOVE

**PUTTING A NEW SPIN ON MOWING**



# TRAK™

## Material collection system

Large 9-bushel-capacity system has 16-inch-diameter fan and 8-inch suction hose that handle even damp grass. Door latch operates from seat. To increase stability, the optional dual-rear-wheel kit is recommended.



## New 6

This option  
made of  
piece for  
(48- and  
11-gauge  
a 1- to 5-  
adjusts w  
the drive

measure of comfort. Twin hydrostatic control levers are ergonomically designed for rider comfort, and they feature a positive neutral lock for greater operator safety.

Read more about this amazing new machine on the following pages. Then see your dealer for a demonstration. For more information, call **1-800-537-8233**. Or visit us on-line at [www.deere.com](http://www.deere.com)

## RFS mower decks

Whether you choose the 48-, 54- or 60-inch deck, all have the same great feature — they rotate 90 degrees for easy service. Flip-up decks also save space on your trailer, leaving more room for additional equipment like hand-helds and walk-behinds.



**Nothing Runs Like a Deere®**



**17-inch deck**  
The Z-Trak deck is  
made of 7-gauge one-  
piece steel. Other decks  
(15-inch) are built of  
two-piece steel. All have  
a cutting height that  
can be adjusted with a  
pedal right from the  
seat.



### Engines

The F620 is powered by a 20-hp V-Twin air-cooled gas engine. Overhead-valve design provides more horsepower, torque, and better fuel efficiency. Full-pressure lubrication and standard oil filter for longer life.



### Low center of gravity

provides better stability and traction on hillsides.

### Easiest to service

The hood on our Z-Trak flips up for quick engine compartment access. Combine that with our 90-degree rotating decks and John Deere has the easiest-to-service Z-machine in the industry. Hoods and decks lock into position for safety while servicing.

### Wheel/tire options

The single rear-wheel configuration is standard on the Z-Trak. For greater stability with the material collection system, the optional dual-rear-wheel kit is recommended. Standard turf tires (shown) are well suited for most applications. Optional knobby tires improve traction in wet conditions.



## It's like adding 160 years of know-how to your business.

Every time you buy or lease a piece of John Deere equipment, you get the best of one of the oldest companies in America. The best equipment. The best financing. The best parts delivery. The best service after the sale.

### COMMERCIAL-USE FINANCING

The **John Deere Credit Installment Plan** offers: flexibility in down payment requirements, competitive low rates, up to 60 months to pay, and a variety of payment options. Including a skip-payment plan that helps you match payback schedules to your cash flow. The **John Deere Credit Lease Plan** offers another way to get new equipment on the job site, while providing a way to manage equipment rotation and replacement. The **John Deere Credit Revolving Plan Commercial-Use Account** is a quick and easy way to buy parts, service, and hand-held products.

### PARTS

John Deere is the **only** company that provides after-hours and weekend parts service and next-day delivery. We're ready to process your order 24 hours a day, 7 days a week. And, you get a 90-day warranty on all genuine John Deere parts. Many of our competitors offer nothing. We also have 13 parts warehouses throughout North America, with a storage area equal to 96 football fields. Now that's commitment.

### SERVICE

The biggest advantage of all is your servicing John Deere dealer. With factory-trained technicians doing the maintenance and repair work, your dealer helps keep your down time to a minimum. And the work can be financed on **The John Deere Credit Revolving Plan Commercial-Use Account**. Unlike many of the competitors' dealers, ours provide warranty work for the entire machine, including the engine, transmission, battery, and even the tires, on most models. For qualifying larger customers, dealers can also provide parts on consignment at no additional cost. Take advantage of us today. It's the dollars-and-sense thing to do.



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southeast, especially Florida. Other uses include commercial and industrial parks and street medians. Due to its poor wear tolerance, St. Augustinegrass is not used in play or park grounds. **Pests:** The most destructive insects are the chinch bugs, especially in Florida. Other insect pests include white grubs and sod webworms. St. Augustinegrass is susceptible to such diseases as brown patch, gray leaf spot and rust.

**Cultivars:** Common, Floratam, Bitter Blue, Seville (dwarf), FX-10 and Palmetto

### BAHIAGRASS

(*Paspalum notatum*) is native to subtropical, eastern South America. It is a coarse-textured grass with tufted appearance due to its short and stout rhizomes and stolons. Bahiagrass is grown in Florida for low maintenance purposes. It can

maintain a low level of cultural intensity. Mowing height should be between 1.5 to 2.5 inches. Mowing should be conducted regularly in the growing season to eliminate the long, profuse seed heads. Sharp mower blades must be used to provide a smooth cut of the tough, fibrous leaf blades. Annual fertilization may be as low as 1-4 lb N/1,000 sq ft/yr. Watering is not necessary as Bahiagrass has excellent drought tolerance. Thatching is seldom a problem. Propagation is primarily by sod. Bahiagrass seed is available and germination will be enhanced through scarification.

**Use:** Bahiagrass can be found in home lawns lacking irrigation systems. Its greatest use, however, is in roadside rights-of-way, airports and other low maintenance sites.

**Pests:** The major insect problem is caused by mole crickets. Diseases are not frequently en-

### BERMUDAGRASS

(*Cynodon dactylon*) is native to east Africa, but has been widely distributed throughout the subtropical and tropical regions of the world. It is an aggressive, medium- to fine-textured grass with a creeping growth habit from both rhizomes and stolons. Bermudagrass can grow in a wide variety of soil types and a wide range of pH conditions (5.5 to 7.5). It has good salt tolerance, poor shade tolerance and excellent traffic tolerance.

**Culture:**

Bermudagrass requires a medium to high level of cultural intensity. Mowing should be

conducted with a reel mower, and the recommended cutting height is .5 to 1 inch. Mowing at higher levels results in upright growth, with a tendency for increased thatch accumulation and scalping. The fertilization requirements can be as high as 0.8 to 1.8 lb N/1,000 sq ft/growing month. Bermudagrass has good drought as well as submersion tolerance. If grown under high maintenance conditions, verticutting (dethatching) will be necessary to remove thatch and improve air, water and nutrient penetration to the roots. With the exception of the common variety, which can be propagated from seed, all other improved hybrids are propagated vegetatively by sprigs, plugs or sod.

**Use:** Both common and hybrid types have a wide variety of uses including lawns, cemeteries, parks, institutional grounds, airfields, athletic fields, fairways, greens, tees, roughs and roadside rights-of-way.

**Pests:** This grass can be damaged by a variety of insect pests including mole crickets, sod webworms, grubs, armyworms, fruit flies, Rhodes-

*Watering is critical in the early stages of establishment to prevent desiccation of the sprigs, which are portions of plant stems.*



Bahiagrass can grow in a wide variety of soil types, but does best in droughty, coarse-textured, infertile soils with a pH of 6.5-7.5.

It grows in a wide variety of soil types, but performs best in droughty, coarse-textured, infertile soils with pH 6.5-7.5. Bahiagrass has good to fair salt tolerance, good to fair shade tolerance and superior traffic tolerance.

**Culture:** Bahiagrass can survive with a mini-

imum level of cultural intensity. Mowing height should be between 1.5 to 2.5 inches. Mowing should be conducted regularly in the growing season to eliminate the long, profuse seed heads. Sharp mower blades must be used to provide a smooth cut of the tough, fibrous leaf blades. Annual fertilization may be as low as 1-4 lb N/1,000 sq ft/yr. Watering is not necessary as Bahiagrass has excellent drought tolerance. Thatching is seldom a problem. Propagation is primarily by sod. Bahiagrass seed is available and germination will be enhanced through scarification.

**Use:** Bahiagrass can be found in home lawns lacking irrigation systems. Its greatest use, however, is in roadside rights-of-way, airports and other low maintenance sites.

**Pests:** The major insect problem is caused by mole crickets. Diseases are not frequently en-

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grass scale and Bermudagrass scale. Bermudagrass mites can be a problem on common Bermudagrass. Several diseases infect Bermudagrass including brown patch, dollar spot, Pythium sp., Fusarium patch, Helminthosporium spp., rust and take-all patch. Nematodes also can be damaging to the roots in sandy soils.

**Cultivars:** Common, and several hybrids including Tiflawn, Tifdwarf and Tifway among others.

## ZOYSIAGRASS

(*Zoysia* spp.) is native to tropical eastern Asia, but has been introduced to the warm, humid and transitional climates of the world. It is a medium-to fine-textured grass with a creeping growth habit from both rhizomes and stolons forming a thick dense cover. Zoysiagrass can grow in a wide variety of soil types, but is intolerant of poorly drained soils. It performs best in well-drained, relatively fine-textured, fertile soils with a pH of 6 to 7. It has good salt, shade and traffic tolerance in the growing season.

**Culture:** Zoysiagrass requires a medium level of cultural intensity. Mowing should be conducted with a reel mower, and the recommended cutting height is .5 to 1 inch. The fertilization requirements can be as high as 3 to 6 lb N/1,000 sq ft/yr. Zoysiagrass needs irrigation during periods of drought. If grown under high maintenance conditions, verticutting (dethatching) will be necessary to remove thatch and improve air, water and nutrient penetration to the roots. All improved hybrids are propagated vegetatively by sprigs, plugs or sod. Seeds may be available for one species, *Z. japonica*, however, they must be hulled in order to improve the extremely poor germination.

**Use:** The most common use is for lawns. If the slow growth rate can be tolerated, then other uses may include parks, airfields, athletic fields, fairways, tees and playgrounds.

**Pests:** This grass is less susceptible to insects and disease than other warm season grasses. However, it can be damaged by a variety of insect pests including the hunting billbug, mole crickets, sod webworms and armyworms. Diseases which can be encountered in Zoysiagrass include brown



St. Augustinegrass thrives best in sandy loam, well-drained, fertile soils with a pH of 6.5

patch, dollar spot, *Helminthosporium* spp. and rust. Nematodes can be quite damaging to the roots of Zoysiagrass.

**Cultivars:** The 3 commonly used species include the Japanese or Korean Lawngrass, *Z. japonica*; Manilagrass, *Z. matrella*; and Mascarenegrass or Korean Velvetgrass, *Z. tenuifolia*. Some improved hybrids have been developed such as Meyer, Emerald and El Toro, among others.

## CENTIPEDEGRASS

(*Eremochloa ophiuroides*) is native to southern China, hence the name Chinese Lawngrass. It is grown in limited areas in the southern US. Centipede grass has a medium texture and spreads by short, thick, leafy stolons which have short internodes. It likes acidic soils with pH 4.5-5.5. Centipede grass has poor salt tolerance; good shade tolerance; fair to poor traffic tolerance.

**Culture:** Centipede grass can survive with a low to medium level of cultural intensity. Mowing height is between 1 and 2 inches; although not as frequently required as with other warm season grasses. Annual fertilization may be as low as 1-2 lb N/1,000 sq ft/yr. Iron chlorosis is frequently a problem, especially after a nitrogen application. A

foliar application of chelated iron will be needed to maintain good color. Watering will be needed during periods of drought, as this grass does not tolerate drought stress. If maintained at a high level of cultural intensity, Centipede grass thatches excessively. Propagation is by sprigs, plugs or sod. Seeding is possible, however, the establishment rate is slow.

**Use:** Centipede grass may be used in home lawns with minimal traffic and low maintenance conditions. It is not used in athletic fields or playgrounds due to its poor wear tolerance and slow establishment.

**Pests:** Centipede grass is relatively pest free. Occasional problems with spittlebugs or ground pearls can be encountered. Diseases (brown patch and dollar spot) can cause serious damage, as well as root feeding activity by nematodes.

**Cultivars:** Common and Oaklawn. **LM**

*A.D. Ali, Ph.D., is a technical advisor with the Davey Resource Group, a division of the Davey Tree Expert Company, in Kent, Ohio. He is based in Ft. Meyers, Florida.*





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Chinch Bugs  
Cutworms  
Fleas (Adult, Larvae)  
Imported Fire Ants (Adult, Mounds)  
Leafhoppers  
Mealybugs  
Millipedes  
Mole Cricket (Adult, Nymph)  
Pillbugs  
Sod Webworm  
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# Events

## JUNE

**17: Scotts Company Field Day**, Gervais, Ore. (614) 846-7777.

**17: Seed Research of Oregon Field Day**, Corvallis, Ore. (800) 253-5766.

**18: Turf-Seed, Inc./Pure Seed Testing Field Day 16**, Hubbard, Ore. (800) 247-6910.

**18-19: Turf Merchants, Inc., Field Day and dinner**. (800) 421-1735.

**19: Advanta Seeds Pacific, Inc., Field Day**, Albany, Ore. (800) 288-7333.

**18-20: Super Floral Show**, Columbus Convention Center, Columbus, Ohio. Jim Johnson, 602/998-3992; (602) 998-7838.

**25: Urban Tree Conference**, Univ. of Calif. Extension, Riverside. Call Jan Crump (909) 787-5804.

**25-27: Southeast Greenhouse Growers Conference**, Palmetto Center, Greenville, S.C.; Charles Hall, (800)453-3070; (706) 883-8215.

## JULY

**5-8: Soil & Water Conservation Society Annual Conference**, Hyatt Re-

gency, San Diego; Charlie Persinger, (515) 289-2331.

**6-10: Groundskeepers Management Academy**, Millington, TN. Contact Floyd Perry (407) 363-5965.

**6-11: Perennial Plant Assn. Symposium**, Westin Hotel Copley Place, Boston. Contact Dr. Steven Still, (614) 771-8431; (614) 876-5238.

**15: Maryland Turfgrass Council, turfgrass field day**, at the University of Maryland Turfgrass Research and Education Facility on Cherry Hill and Gracefield Rd., Beltsville, Md. (410) 335-3700.

**16-18: Turfgrass Producers International Summer**

**Convention & Field Days**, Sheraton of Tyson's Corner, Virginia; Tom Ford, (847) 705-9898; (847) 705-8347.

**25-27: International Lawn, Garden & Power Equipment Expo**, Kentucky Exposition Center, Louisville, Ky. Call (800) 558-8767.

**28: Midwest Regional Turf Field Day**, West Lafayette, IN. Call Zac Reicher (765) 494-8039.

**28-30: Penn Allied Nursery Trade Show**, Fort Washington Expo Center, Fort Washington, Pa.; Sandy Seltzer, (717) 238-1673; (717) 238-1675. **LM**

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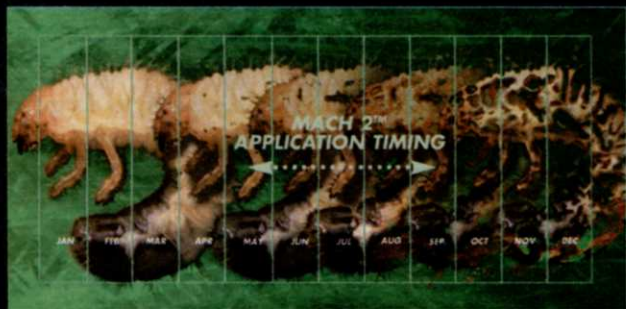
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## SUPPLIERS CORNER

Steve Busash joined Americalist's Lawn Care Marketing division. **Americalist** is a full-service direct marketing company specializing in several industries, including lawn care. The company compiles mailing lists and has full printing, mailing and telemarketing services in-house. Corporate offices are in North Canton, Ohio.

**Fairmont Minerals**, parent company of **Best Sand Corporation**, signed an agreement to form a limited liability corporation with the D.M. Boyd Co., New Wilmington, PA. D. M. Boyd is a producer of high quality topdressing and construction mixes for golf courses and athletic fields. Fairmont Minerals is headquartered in Chardon, Ohio.

**FLOWTRONEX PSI** has named John Swindle product manager for the FLOBOY product line, which features the "plug it in and pump it out" pumping sys-

tem technology. Swindle has experience working the irrigation markets of Florida, Georgia, Alabama and the Caribbean.

**Foley United**, River Falls, WI, presented **Golf Ventures**, Lakeland, FL, with its Outstanding Achievement Award because of its largest percentage increase in the sales of grinding equipment and accessories for 1997. Ron Blodgett and Greg Turner of Foley United made the presentation to Don DeLaney, vp of sales, Golf Ventures, at the GCSAA Show in Anaheim.

Gil Herr, president of U.S. distributor **HAMM Compactors**, Irving, TX, announced **E.F. Craven**, Greensboro, NC, as the latest dealer to carry the line of Schaeff loaders/excavators. The line includes SKS wheel loaders, SKL swing loaders and the new mini excavators. The products are manufactured in Germany.

**Horizon**, Tempe, AZ, promoted Lee Diller to regional sales manager of the metropolitan Phoenix area. He was most recently manager of Horizon's Scottsdale location. Horizon, known formerly as Mesa Sprinkler, is a supplier of turf-care and irrigation products.

**King Machine Company**, Scottsburg, Ind., has formed a Pro Series Products Division to handle sales of its Pro-Chopper and Pro-Crimper mulching and seeding units, which it has made since 1986. Rick King, founder and president, is vice president of the new division.

**Kohler's** overhead camshaft 18 hp engine won the 1998 "New Product Award" in a national competition sponsored by the National Society of Professional Engineers (NSPE).

Andrew Semple is the new midwest sales manager for fer-

tilizer sales for **Nature Safe Natural & Organic Fertilizers**, Cold Spring, KY. Previous to that he was a sales manager for Pursell Technologies.

**Rena OEM Sales** has been formed in Charlotte, NC, as a division of Philadelphia-based **Aquarium Pharmaceuticals**. The new division's focus on the supply of water pumps, air pumps and water quality products to a variety of commercial and industrial users.

**Simplicity Manufacturing, Inc.**, named **Claymore Grass Machinery** as its UK distributor late in 1997. Claymore will provide dealers throughout the UK with the complete line of Simplicity ride-on products and service parts. As a result the company will discontinue its Simplicity Manufacturing (UK) operations, headquartered at the Garden Mechanisation facilities in High Wycombe. Simplicity has provided product to the UK market for more than 35 years.

**Turf and Garden**, a division of Todd Farm Equipment, has expanded into the sod growing business with Southern Belle Turf Farms, a 269-acre farm along the Blackwater River, Southampton, VA. Steve McCulloch, 12 years with the company and a former golf course superintendent, is the farm manager. Turf and Garden is headquartered in Chesapeake, VA. **LM**

# Info center

VIDEOS AND LITERATURE FOR THE GREEN INDUSTRY

**SALT-AFFECTED TURFGRASS SITES: ASSESSMENT AND MANAGEMENT...** 250-page hard-cover book written by Robert Carrow and Ronald Duncan helps turfgrass managers identify and pinpoint salinity problems and gives them the tools to implement effective management strategies. Price \$54.95. Contact: Ann Arbor Press, Inc., 121 South Main St., P.O. Box 310, Chelsea, MI 48118. Phone: 313/475-8787. Fax: 313/475-8852.

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**THE POWER OF HYDRAULICS...** Free, full-color product guide. Contact Stanley Hydraulic Tools, 3810 S.E. Naef Road, Milwaukie, OR 97267-5698. Phone: 503/659-5660. Fax: 503/652-1780. For English the version ask for part #31838. For Spanish version ask for part #31839.



# Do they really care about kids?



*Ron Hall*

**RON HALL**  
Managing Editor

**T**he doublespeak emanating from the nation's capital concerning health risks to America's youth seems to be increasing. Consider the widely disparate actions of our legislators to reduce the health risks to youngsters from two sources—tobacco and pesticides.

This past spring Congress debated tobacco (again), and argued the wisdom of taxing cigarettes out of the economic reach of youngsters. This is logical and appropriate considering the tiny financial cost of addiction compared to the hugely expensive health problems that addiction creates.

So what does Congress do? It poses and postures, and does virtually nothing to keep youngsters from tobacco. It apparently feels that even talking about making America safer and healthier for kids is a sure thing with voters.

So, what's this got to do with the green industry? Plenty.

In August, 1996, President Clinton signed into law the Food Quality Protection Act (FQPA). The Act amends FIFRA and the Federal Drug and Cosmetic Act (FDCA) and went through Congress like a speeding bullet.

The FQPA—one of whose cornerstones is protecting children and infants from pesticides—is a huge piece of legislation. It does no less than replace the pesticide laws we had been working under. It defines how the U.S. EPA will deal with pesticides and, consequently, with many of us. While most of the details are yet to be worked out, there are indications that the Act might be used to eliminate or reduce the use of some of our chemical products.

Contrast the rapid-fire passage of the FQPA, a complicated and problematic measure, with our legislators' contentious wrangling over youth and tobacco where the evidence of risk to youngsters is overwhelming, if not damning. **LM**

**[LANDSCAPE/GROUNDS]**

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Expo '98 celebrates 15 years

**PAGE 6 L ▶**

What's next for LandCARE?

**PAGE 16 L ▶**

Get your field back to grass

**PAGE 18 L ▶**

Quick guide to pre-emergents

**PAGE 22 L ▶**

Proper pruning techniques

**PAGE 24 L ▶**

The benefits of organic recycling

Agree? Disagree? Comments? Questions? Let Ron Hall know at 440/891-2636. Fax: 440/891-2683. E-Mail: rhall@advanstar.com.



**[PEOPLE & PROJECTS]**

## Stano nabs 'healthy' project

Stano Landscaping, Inc., Milwaukee, WI, earned the landscape contract at Waukesha Health Care, Inc.'s, Southside Clinic. The contract calls for Stano's crew to install foundation plantings around the new health clinic. More than 22 trees, 11 evergreens, 100 shrubs, plus ground cover and perennial plants will be planted at the site.

## Scott Byron employee talks trucks

Thomas O'Donnell, fleet & safety manager for Scott Byron & Co., Lake Bluff, IL, addressed a national audience of truck manufacturers and suppliers at the recent Mid-America Trucking Show in Louisville, KY. O'Donnell, 35, spoke about buying and selling equipment, as well as maintenance and repair.



# EXPO '98

celebrates 15 years

*The 15th annual International Lawn, Garden & Power Equipment Expo will be Saturday through Monday, July 25-27, 1998, at the Kentucky Exposition Center in Louisville.*

**S**urveys show that the No. 1 reason visitors attend the Outdoor Power Equipment EXPO is to see new products.

In response to those needs, EXPO '98 will give additional emphasis to new products and how they can contribute to profitability for dealers, retailers and lawn and landscape professionals.



**The International Lawn, Garden & Power Equipment Expo is an open house of new products.**

## **EXPO '98 the international marketplace for new products**

For distributors, agents and buyers from around the world, the International Lawn, Garden & Power Equipment Expo is an open house of new products. Set for Saturday through Monday, July 25-27, 1998, at the Kentucky Exposition Center in Louisville, this is the industry's one opportunity during the year to see the latest innovations from U.S. suppliers, all in one place. About 600 exhibiting companies worldwide are expected to participate.

The trade fair is sponsored by the Outdoor Power Equipment Institute (OPEI). Its members are among the companies that will exhibit and demonstrate their new products and equipment. As of March 20, companies from 8 countries have reserved exhibit space. The countries represented include Australia, Canada, England, Ireland, Italy, Sweden, Switzerland and the United States. Visitors are expected to travel from 60 countries worldwide.

Veteran attendees consider EXPO an open house of new products because it is their one opportunity during the year to see nearly 600 suppliers' latest innovations, all under one roof.

"EXPO 98 is a can't-miss event for every business person in our industry interested in making a profit," said Dennis C. Dix, president and CEO of the Outdoor Power Equipment Institute Inc. (OPEI), sponsor of EXPO.

"It's the only place everyone in the industry can learn smart business practices, whether it's running a profitable dealership, merchandising products or marketing services."

EXPO officials also report that a new technical and O.E.M.-supplier pavilion has sold out of its exhibit space.

Displays are expected to cover 262,000 sq. ft. in the exhibit halls. Products on display will include power equipment and lawn and garden products for consumer,





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<sup>1</sup>Excludes other GM vehicles. <sup>2</sup>When properly equipped; includes weight of cargo and passengers.

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# EXPO '98 daily schedule

## FRIDAY, JULY 24

**Exhibitor Reception**  
7-11 p.m.

**Tour:** "Star of Louisville" dinner cruise; \$45/person (includes dinner; transportation to dock not provided)

**7 p.m.** Dealer Night - Redbirds Baseball

## SATURDAY, JULY 25

**Outside Exhibits: 8 am-5 pm/Inside Exhibits: 9 am-5 pm**

**8-10 a.m.** Technician Testing & Certification; sponsored by the Engine Service Association

**8-10 a.m.** Technician Testing & Certification; sponsored by Kohler Co.

**8-10:30 a.m.** Technician Testing & Certification; sponsored by Tecumseh Products Company

**8 a.m.-12:30 p.m.** Technician Testing & Certification; sponsored by Briggs & Stratton

**9-11 a.m. Free Seminar:** What Impact Will The Industry EDI Guidelines Have On Your Business? sponsored by the Outdoor Power Equipment Institute, Inc.

**10 a.m.-12:30 p.m.** Technician Testing & Certification; sponsored by the Engine Service Association

**10 a.m.** Free Hands-On Dealer Workshop: Make Money In Service

**10-11:30 a.m.** LGDA meeting

**10-11:30 a.m.** TSDA's open forum for dealers on setting goals

**11 a.m.-3:30 p.m.** Tour: A day in the Bluegrass. Lunch at Old Stone Inn with a stop at Labrot & Graham Distillery; \$32/person

**1-3 p.m.** Technician Testing & Certification; sponsored by Kohler Co.

**1-3:30 p.m.** Technician Testing & Certification; sponsored by Tecumseh Products Company

**1-4:30 p.m.** Tour: Louisville Slugger Museum & Joe Ley Antiques; \$32/person

**1-5:30 p.m.** Technician Testing & Certification; sponsored by Briggs & Stratton

**1:30 p.m.** Free Hands-On Dealer Workshop: Make Money In Service

**3-5 p.m.** Make Your OPE Dealership Into A Star!, free seminar for dealers

**3-5 p.m.** Selling Millions Every Year, for lawn care industry & landscape management professionals.

**6:30-10:30 p.m.** Tour: A night of racing at Louisville Motor Speedway; \$15/person (includes picnic, but not transportation)

**7 p.m.** Dealer Night - Redbirds Baseball

## SUNDAY, JULY 26

**Outside Exhibits: 8 am-5 pm/Inside Exhibits: 9 am-5 pm**

**10-11:30 a.m.** Tour: Fashion seminar and makeovers. Coffee and

## Associations plan education tracks

Landscape professionals at the International Lawn, Garden & Power Equipment Expo (EXPO 98) will find more valuable opportunities than ever during the annual trade show, July 25-27, in Louisville. And with the show's successful Saturday start-date, landscape contractors will spend less time away from their businesses.

The Professional Lawn Care Association of America (PLCAA) and the Associated Landscape Contractors of America (ALCA) will sponsor a free seminar program for lawn & landscape pros. The seminars will be 3-5 p.m. Saturday and Sunday, and 9-11 a.m. on Monday.

Landscape professionals will learn how to improve profits and operate more productively with topics including customer service, management, marketing and employee motivation techniques.

The Outdoor Power Equipment Distributors Association (OPEDA) will sponsor a series of seminars for dealers.

soft drinks provided; \$12/person

**10 a.m.** Free Hands-On Dealer Workshop: Make Money In Service

**Noon-4:30 p.m.** Tour: Derby Dinner Playhouse matinee: "Sound of Music." \$40/person (includes lunch)

**1:30 p.m.** Free Hands-On Dealer Workshop: Make Money In Service

**2:45 p.m.** Organic Gardening magazine presents the 10th annual Ultimate Garden Tool Giveaway.

**3-5 p.m.** Managing Your Business for Profit, free seminar for dealers

**3-5 p.m.** Beyond Customer Service, seminar for lawn care & landscape management professionals.

**4-4:45 p.m.** Free International Seminar: Future Perspective of Worldwide OPE Business; sponsored by the Outdoor Power Equipment Institute, Inc.

**5-6:30 p.m.** International Reception for international visitors and exporters; free; by invitation only.

**6-10 p.m.** EXPO Dinner/Concert starring The Four Tops and The

Temptations; \$35 per person; 6 p.m. cash bar / 6:30 p.m. buffet dinner / 8 p.m. concert

## MONDAY, JULY 27

**Outside Exhibits: 8 am-noon/Inside Exhibits: 9 am-3 pm**

**8:30 a.m.-12:30 p.m.** Tour: Backside and front side tour of Churchill Downs; \$31.50/person (includes breakfast)

**9-11 a.m.** Getting Your Message Through, free seminar for dealers and lawn care, landscape management professionals

**11:15 a.m.-2:30 p.m.** Tour: Star of Louisville luncheon cruise; \$36.50/person (includes lunch)

Free seminars for dealers sponsored by OPEDA; co-sponsored by OPEAA & NAEDA.

Free seminars for lawn care & landscape management professionals sponsored by ALCA & PLCAA.

Free workshops for dealers sponsored by NAEDA.

## The Temps, The Tops, racing & Redbirds

The Temptations and The Four Tops will sing at a Sunday evening dinner concert, July 26, 6-10 p.m.

Also on the schedule of entertainment is a night of racing at Louisville Motor Speedway, Saturday, July 25, 6:30-10:30 p.m.

Friday and Saturday nights will be EXPO Night at the Louisville Redbirds Baseball Game. Free tickets to the games will be available to EXPO visitors. First pitch each night will be at 7 p.m. at Cardinal Stadium which is located at the Kentucky Exposition Center.



What's next for

**Participating associations include:**

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- American Society of Agricultural Engineers (ASAE)
- Associated Landscape Contractors of America (ALCA)
- Engine Service Association (ESA)
- Lawn & Garden Dealers Association (LGDA)
- North American Equipment Dealers Association (NAEDA)
- Outdoor Power Equipment Aftermarket Association (OPEAA)
- Outdoor Power Equipment Distributors Association (OPEDA)
- Professional Lawn Care Association of America (PLCAA)
- The Service Dealers Association (TSDA) □



commercial and rental use. In addition, a special emphasis on products that provide opportunities for diversification, such as outdoor living products and Christmas decorations will be evident at this year's show.

The popular outdoor demonstration area will have new products ready for "test drives" or other workouts throughout each of the three days. In the 641,875 net sq. ft.

natural turf area, visitors will drive equipment, kick tires, ask questions about repair and maintenance, and check out the innovations that will benefit their businesses. EXPO is their once-a-year opportunity to check out and compare the innovations that will benefit their businesses in "try- before-you-buy" setting.

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**The outdoor demonstration area gives prospective buyers a chance to try out new equipment.**

mercial end-users, rental equipment dealers, distributors, manufacturers' reps and exhibitors will visit from throughout the US and 60 countries worldwide to compare and assess the newest products on the market; test equipment; and attend dealer meetings, exhibitor-sponsored events and seminars.

It's all free for those who pre-register before July 20. Registration at the show will be \$25 per person. The show is sponsored by the Outdoor Power Equipment Institute. Its members are among the companies that will exhibit and demonstrate their new lines indoors and out at EXPO.

For a preregistration brochure, call Sellers Expositions, toll-free, 800-558-8767, or call 502-562-1962. Web address is: <http://EXPO.mow.org> □



Landscapers can learn how to improve profits and operate more productively with topics including customer service, management, marketing and employee motivation ideas.



# What's next for **LandCARE?**

*LandCARE USA, INC., goes 'public' in its quest to acquire more landscape/tree service companies and become a national player*

By RON HALL/ Managing Editor

**W**hat's next for LandCARE USA, Inc.? Owners of landscape and tree service companies across the United States are wondering this as LandCARE in May took the final steps to become a public company.

As LANDSCAPE MANAGEMENT magazine went to press, LandCARE, headquartered in Houston, TX, prepared to offer for sale 5 million shares of Common Stock. A successful offering means that LandCARE stock (proposed symbol GRW) will be traded on the New York Stock Exchange. It would also complete the merger of the seven founding companies into LandCARE (see sidebar), and provide the framework around which the company hopes to construct a national landscape/tree care empire.

LandCARE says that it intends to expand from its seven regional operations into a national company.

Its operating strategy is to:

► focus on commercial and institutional markets,

► operate on a decentralized basis.

Local management will retain responsibility for the day-to-day operations, profitability and internal growth of the business, achieve operating efficiencies by

adopting "best practices" operating programs for its management information systems, recruiting and training, safety and risk management, sales training and human resource management.

"The company intends to implement an aggressive acquisition program focusing on entering new markets through significant acquisition as well as expanding within existing markets through acquisitions of smaller companies," says the document it filed with Securities and Exchange Commission (SEC). The strategy focuses on "the acquisition of numerous, relatively small companies."

"We're in the process of auditing the best management practices of existing

companies," who may be prospective LandCARE partners, says Roger Braswell, president of Site Work Systems and Southern Tree and Landscape Company, Charlotte, NC.

"Chief Operating Officer Hal Cranston is working through that, to be certain that we're applying the best information across the board," Braswell adds.

"We're a little limited by the SEC [regulations] prior to the initial public offering," says Braswell, "but we've been pleased and excited with responses from the industry, from other entrepreneurs and potential partners."

LandCARE, because of its size, could conceivably have several advantages over

## **The seven founders of LandCARE**

The seven founding members of LandCARE USA generated revenues of about \$116.2 million in 1997 and \$26.6 million the first three months of 1998, says the prospectus that LandCARE USA filed with the Securities Exchange Commission.

About 75 percent of the company's revenues came from maintenance services, installations for about 25 percent.

The founding members, and their 1997 revenues:

Trees Inc., Houston, TX, \$50.1 million (line clearing services in 13 states accounting for 96 percent of the revenues);

Four Seasons Landscape and Maintenance, Inc., Foster City, CA, \$16.1 million;

Southern Tree & Landscape Co., Inc., Charlotte, NC, \$14.2 million;

D.R. Church Landscape Co., Inc., Lombard, IL, \$13.3 million;

Ground Control Landscaping, Inc., Orlando, FL, \$9 million;

Arteka Corporation, Eden Prairie, MN, \$7.4 million;

Desert Care Landscaping, Inc., Phoenix, AZ, \$6.5 million.

For merging their companies into LandCARE the seven founding companies will receive a total of \$27.2 million in cash and 5,162,645 shares of Common Stock, making the owners and officers of these "wholly-owned subsidiaries" the holders of at least 55.5 percent of shares of LandCARE's stock, according to the document filed with the SEC on May 6.

They will be paid out of the proceeds of the IPO of 5 million shares expected to sell for between \$10-\$12 per share. The company estimated the offering to raise about \$55 million. □



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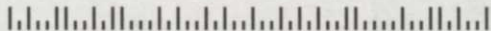
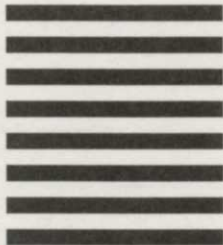
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## Don't fear consolidation, says Ross

Industry financial consultant Frank Ross thinks the consolidation in the landscape industry is "fantastic." He refers to the formation of LandCARE USA by its seven founding members.

"In the next three to five years, we're going to see billions of dollars coming into our industry. Most of it's real estate driven, coming from the public sector. That's great. We need capital," says Ross.

"[The landscape industry] has been a notoriously under-capitalized industry from day 1," explains Ross.

"When I talk to landscape contractors all across the country, it's not an issue of selling more or producing more. It's about cash flow, pricing, tracking, and making a profit."

In effect, says Ross, "business sense" has always been an industry weakness.

"And because the financial side is not on an equal plane with the production side, we tend to be an under-capitalized industry."

LandCARE USA's marketing strategy is to go after national corporate accounts.

"When they do that, don't you think by training those corporate accounts to higher expectations, those accounts are going to demand a higher level of professionalism? And what does that do to all of us? To compete, we have to match it."

All of this money flowing into the industry will bring the larger companies' costs down, according to Ross, who believes industry consolidation will help the industry save money in three areas: interest, insurance, and commodity buying.

"Let's take interest expense. How much is interest expense in relationship to revenue in your company; one percent, two percent? These roll-ups don't have debt, therefore interest goes away. So where does that interest fall? On the bottom line.

"How much does insurance in your organization cost? Eight percentage points of revenue? Do you think national buying of in-

smaller competitors. It would have more negotiating leverage in seeking volume discounts from vendors—everything from trucks to insurance. Its size and growing visibility would also be a plus in attracting new supervisory talent and, perhaps, in hiring and keeping laborers, particularly if it

insurance is going to be able to economize on that? That's probably a savings, as far as revenue is concerned, of one-two percent. Where's that going to fall? On the bottom line.

"What about commodity buying on a national level? Do you think these organizations are just going to go after national accounts generate revenue? They're also going to go after equipment dealers and commodity dealers of material."

That national buying power will give those landscape companies another one to two percentage points on revenue.

"By coming into the roll-up in a profitable manner, and then being able to appreciate savings in three areas of cost will have 6-10 percentage points on sales to their bottom line should they choose to keep it. That's a lot. In many of our organizations, that's as much as we make in profit.

"You don't have anything to fear about anyone coming into your marketplace if you operate as well as they do, or better."

Don't look for predatory pricing from these giants, assures Ross. It isn't part of their mission.

"When I think of predatory pricing, I think of pricing at a loss or a break even, to gain access to a market," says Ross.

"These guys aren't going to be pricing at a loss. They're still going to be pricing at a profit; not only did they have profit to begin with, but now, they've added to it."

Though very few companies will ever become part of a roll-up, Ross says the challenge is clear. Make it work, or make your way out. We've got to be a little bit better.

"We've got to become better business people."

Terry McIver

can improve on the skimpy benefits packages most laborers receive in the industry. The biggest advantage, however, might be the ties a national landscape/tree service company can build with regional and national commercial and institutional property owners or managers.

But, most of this is still ahead of the company. LandCARE, in spite of the hard-earned experience of its founding members, is still far from being a national powerhouse with just seven regional operations scattered across the country.

There are strong independent competitors in every market-

place. But the biggest threat to LandCARE's expansion plans could come from companies like TruGreen/ChemLawn which is now branching into maintenance services and the several other large landscape or tree services that have operations across entire regions of the country.

Even so, Braswell says, there is an "incredible excitement" among the employees of LandCARE. "They've had a positive response to the entire concept, and to the potential to participate" in purchase of LandCARE stock. □

Terry McIver contributed to this story.

*LandCARE could gain a competitive advantage if it improves on the benefits packages most laborers receive in the industry.*



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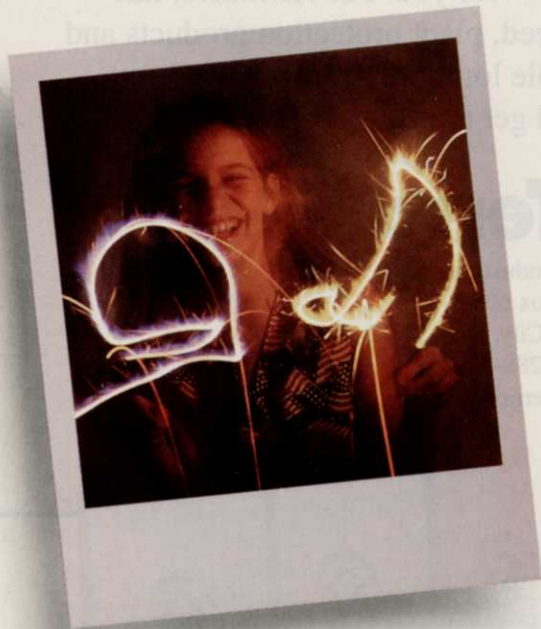
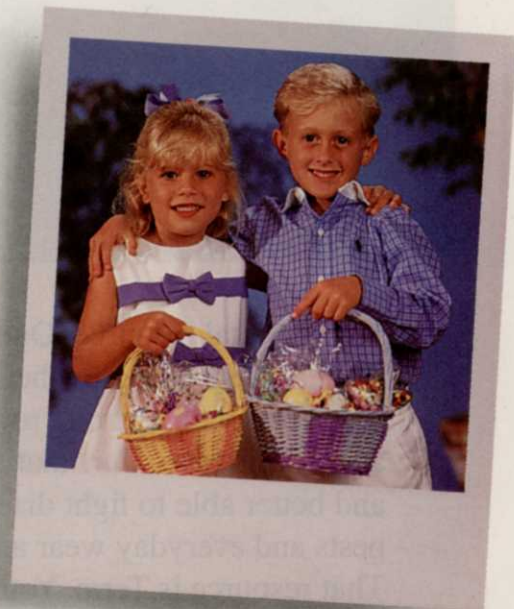
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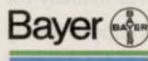
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# Get your field 'back to grass'

*Back to grass is the wave of the present, and the future for athletic fields.*

By MIKE ANDRESEN

**J**ack Trice Field, the playing surface at Cyclone Stadium, and the home of the Iowa State University Cyclones, was converted from artificial turf to a sand-based natural grass surface prior to the 1996 football season. The new field earned the Sports Turf Managers Association's College Football Field of the Year Award for 1996-1997.

The ideal time to make the conversion decision is when the existing artificial turf surface is reaching the end of its effective life. For ISU, that point arrived in 1995,



Rootzone development is crucial to the durability of a turfgrass playing surface.



When Dan McCarney joined Iowa State University as head football coach, he knew he had to land more top prospects, a decision that weighed heavily in favor of natural turf.

the year Dan McCarney joined the University as Head Football Coach. In his meetings with Athletic Director Gene Smith and Associate Athletic Director Elve Everage, McCarney defined the priorities of his program. In order to strengthen the football program within the highly competitive Big 12 Conference, McCarney needed to recruit aggressively. Part of that package was assuring potential recruits that they would be playing on a high quality natural turf surface that was healthy for the body. This decision was supported by the ISU athletic trainers and the medical staff. ISU tied the field conversion into a total package with the construction of the Jacobsen Athletic Building, a facility which would bring the entire intercollegiate athletic program staff, including the coaches, into one building. The internal consensus definitely helped gain acceptance and support for the total project. Additional support was spurred by the presence of Heisman candidate, Troy Davis.

## Maintenance higher but worth it

Commitment to excellence extends beyond the construction process. The conversion to natural turf is senseless without the commitment of resources to adequately maintain it. Obviously, maintenance costs are higher for "real" grass fields, since turf needs attention during, before and after the active growth period. Mowing and weekly painting alone would push maintenance costs higher. With artificial turf fields, surface cleaning is the major maintenance requirement.

It's vital that the proper equipment be available to achieve the quality control necessary for the natural turf grow-in and maintenance programs. The field conversion project budget allowed about \$100,000 for additional equipment.

## Enduring first year stress

In 1996, we had four home games during the field's first six weeks. This put the field under stress entering the dormant season. Scrutiny over turf condition was in-



tense. The season-long question was, "Would the natural turf hinder Troy Davis' ability to achieve a thousand yards rushing?" It didn't.

Then there was the week of rain and the ISU-Nebraska game in yet more rain.

With Nebraska's then Head Football Coach Tom Osborne as one of artificial turf's strongest supporters, media across the nation were watching closely in anticipation of mud pit conditions. The field held up extremely well. Osborne had no complaints.

The winter of 1996 hit early and hard. We aerated, overseeded, topdressed with a half-inch of root zone mix, and covered the field, pounding stakes through a frozen layer of the sand.

#### Second year lessons

Spring of 1997 brought winter kill on the perennial ryegrass we'd used for late-season cover and on the sides of the field not covered with the tarp. We reestablished turf cover in those areas. This was a learning year. We fine-tuned everything, including our fertilization process, extending the first year's 10 day intervals to 14 to 21 days to match the needs of the more mature grass.

Early season home games were spaced out better, allowing for turf recovery, so we entered the dormant period with a good stand of grass.

In 1997, we core aerated the last week of November, scalped the grass before overseeding, topdressed with 1/2 inch of root zone mix and put on the field covers.

#### Dormant seeding in year 3

Following a mild 1997-1998 winter, an excellent field emerged in the spring, with the mid-field filled with immature grass. Dormant seeding has proved effective both years we've used it. We use a gold-tag seed blend of four bluegrass varieties that is high maintenance and high performance, can withstand low mowing and shows excellent ability to repair itself. Early soil

## The process

1) Once the old artificial covering and underlying base were removed, a sub-surface drainage system was installed. This consisted of 4-inch perforated drain pipes placed in gravel-filled slits cut into the field's clay base on 15-foot centers in a her-ringbone pattern.

2) This was topped by 4-inch layer of gravel. The irrigation system was then installed at a 12-inch depth. Dr. Dave Minner and the project's consulting team developed precise specifications for the selection of

materials and monitored them closely throughout the construction process. The rootzone consists of a 12-inch layer of 93 percent sand and 7 percent peat.



3) Bluegrass sod with the same rootzone base was not available. The most workable match was sod grown on an 84 percent sand-base. This was cut thinly enough to avoid capping off the drainage capabilities of the underlying sand, yet thick enough to provide stability.

MA

samples showed roots at 7 and 8 inches. During 1998, we're doing tissue analysis every couple weeks and spoon feeding micronutrients accordingly.

We're aerifying and topdressing very lightly after each game to keep the bluegrasses thriving. We have always collected the cores to work out the soil layer that came in with the sod. As the field gets older, potential for black layer becomes more of a factor. We used deep tine aeration once in the spring of 1997. We'll use

it two or three times prior to the 1998 football season and once afterwards, basically to increase the gas exchange within the soil profile. □

*Mike Andresen is Athletic Turf Manager for Iowa State University, Ames, Iowa. He joined the University in that position during the field conversion, just after the old surface had been removed. He's a past-president of the Iowa Chapter of STMA and serves as Chapter Relations Chair at the national level.*



# Quick guide to pre-emergents

*Avoid costly mistakes in buying and using preemergent herbicides by following a common sense program for their selection and use.*

By THOMAS L. WATSCHKE, Ph. D.

**T**he small profit margin realized from preemergent herbicide applications means lawn care operators can't afford to make mistakes when using these products. This, combined with the fact that the cost for the product is incurred at the beginning of the year when checkbooks may be slim, means the decision on which preemergent compound to use definitely affects the operator's bottom line.

But deciding which 'pre' product to apply isn't always easy since weed spectrums, customer expectations, and turf and environmental conditions change from site to site. Lawn care operators should first determine their overall needs in terms of application methods, efficacy and cost-effectiveness when making their herbicide selection. Consider other factors such as re-seeding intervals, formulation choice and water solubility and volatility issues as well.

The product has to complement the operator's particular application set-up,



whether it is liquid or granular, or both. It also needs to cover the weed spectrums they generally encounter, and satisfy their customers' control expectations and personal feelings towards the type of product being used.

## **Liquid or granular?**

Liquid and granular formulations offer different advantages to lawn care operators. Generally, liquids tend to be more economical and promote more precision application. On the other hand, granular products can help turf professionals address homeowner perceptions about environmental issues since much of the public has a more positive view of materials being applied with a spreader than a spray gun.

But lawn care operators need to be careful when applying granular products, or a preemergence herbicide impregnated in fertilizer, with a spinner-type spreader near ornamentals. They should select a product that can be used in both places and can be safely used over a wide variety of ornamentals. This not only eliminates the potential for ornamental injury; it helps make customers happy since the ornamental bed gets the benefit of the application too. Some products, such as pendimethalin, can be used on well over 300 ornamentals with no injury.

## **Weed spectrum**

Although most lawn care operators use preemergent compounds primarily to control crabgrass, products that offer broad-

spectrum effectiveness of other summer annual grasses and broadleaf weeds provide icing on the cake. They also reduce the potential for profit-stealing callbacks. It's very important for operators to compare product labels for the list of weeds controlled to help determine herbicides' weed control spectrums.

However, just because a herbicide has the broadest spectrum doesn't mean it is the right choice. Lawn care operators need to balance spectrum and price to determine the most cost-effective program for the situation. Products that offer seasonal control of some of the most troublesome weeds return additional value since



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they reduce the expense and time spent on post emergent applications.

#### **Water solubility and volatility**

Two important, but sometimes over-hyped selection criteria for preemergents are water solubility and volatility. Solubility, the measure of the amount of herbicide that can be dissolved in a given volume of water, indicates the product's resistance to leaching out of the weed germination zone. Generally, the lower a herbicide's solubility, the less potential there is for leaching due to rainfall or irrigation.

Volatility refers to a herbicide's tendency to evaporate or be lost to the atmosphere as a gas. Low volatility means a herbicide is less likely to escape as a vapor and more product remains in the soil to control weeds. It also means lower possibility of harm to nearby ornamentals.

Most commercially available preemergent herbicides have very acceptable water solubility and volatility characteristics. In fact, one product being slightly less soluble than another doesn't mean that much, and there is no great difference in volatility between the leading brands. But, since there are differences, lawn care operators should refer to the label and MSDS for the product they are using to determine if there could be a potential problem. Taking precautionary steps to ensure the product not only works but stays in place goes a long way in making sure customers remain satisfied.

#### **Application timing**

Application flexibility is another criteria to consider when selecting preemergent programs. Since improper application timing causes the majority of preemergent weed failures, operators need a product with a wide enough application window to accommodate spring weather conditions. This is especially necessary in northern regions where snow needs to melt before preemergent programs can be applied. Most operators who track call-backs will find preemergent failures clustered around the end of the first application round.

There are only so many days suitable for herbicide application in the spring and

lawn care operators can get caught in a real time crunch trying to get to all of their accounts. Selecting products that have broad spectrum activity and that stretch application timing further into the season reduces call-backs, increases customer satisfaction, and makes life a little easier for the lawn care operator.

Reseeding intervals also affect preemergent decisions. Late fall seedings should not

### ***Most commercially available preemergent herbicides have very acceptable water solubility and volatility characteristics.***

be sprayed with a spring preemergent program other than a product like Tupersan (by the DuPont Company) until the operator is sure that germination is complete. A general rule of thumb to reduce the potential for injury is to mow a newly seeded or overseeded area at least four times before making a preemergent application.

#### **Managing customer expectations**

Customer expectations also affect efficacy considerations. Overall, the accepted minimal commercial standard is 85 percent control of targeted weeds. Some customers who have had problems controlling weeds on their own may be thrilled with that degree of effectiveness. Others, especially those who are used to cleaner turf, may not. Since it is not always easy to determine what the customer wants, operators should function on the premise of 'out of sight, out of mind', and treat with a broad spectrum product for new clients.

Training employees in how to manage their clients expectations enhances customer relations and reduces call backs. Employees need to be up front about the level of control a customer should expect from the application and answer questions re-

garding herbicide activity in a manner that is understandable to their clients. Explaining what kind of results to expect and how long it takes to see activity helps cut down unnecessary call backs since customers can see for themselves that the program is working.

But determining which is the best product for a lawn care operator's total business can be confusion. Conflicting advertising claims can reduce credibility. And, although independent research results provide more objective comparisons, it often seems there are studies to support every claim made by every manufacturer if you look hard enough. To gain the appropriate perspective, lawn care operators should attend university field days and see for themselves how products stack up in side-by-side comparisons. For example, studies at Penn State show that products including Barricade (by Novartis), Dimension (by Rohm and Haas Company), Team (by Dow AgroSciences) and pendimethalin all provide good preemergent activity. By attending local field days, where weather, soil and turf conditions are comparable to those that lawn care companies encounter when servicing their accounts, lawn care operators can make final decisions based on how a particular product fits their specific conditions and needs.

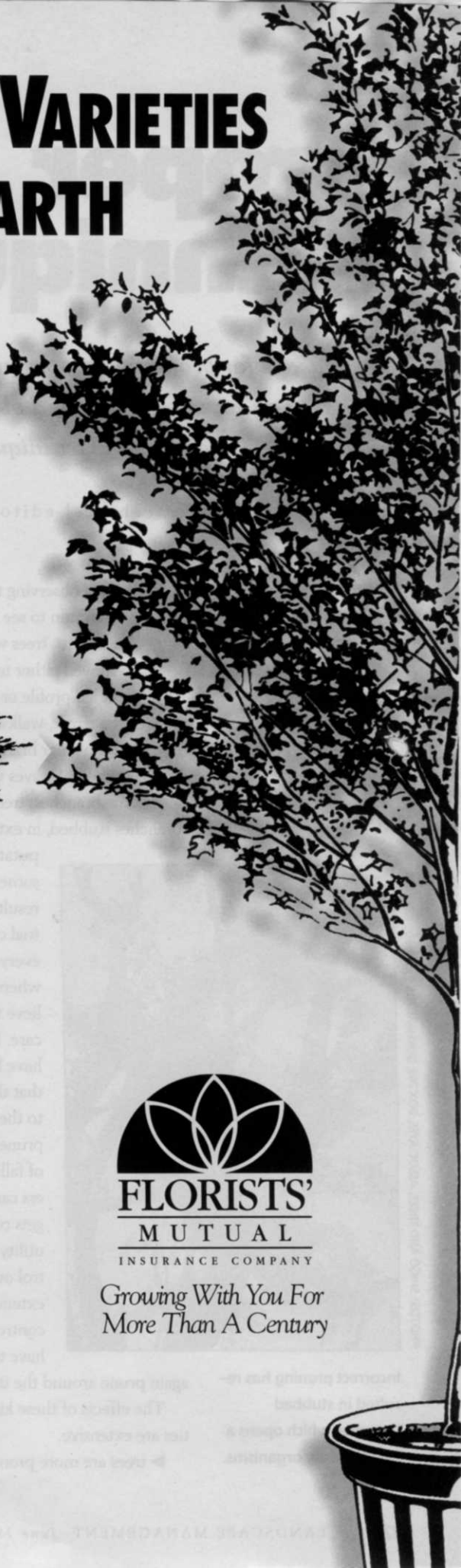
In general, preemergent herbicide selection involves the art of matching circumstances to solutions. Lawn care operators must take into consideration several selection criteria when making their program choices.

The bottom line: select the most cost-effective program for your operation and communicate with customers to set appropriate expectations for the desired result. And, as with any pesticide, always read and follow label directions. □

*Watschke is Professor of Turfgrass Science, Penn State University*



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# Proper pruning techniques

*The reasons for promoting proper pruning techniques are based on research, study and observation of tree response to branch removal techniques.*

by NANCY STAIRS, technical editor

**W**hen observing tree pruning, it is not uncommon to see some severe examples of the craft: trees with the tips of the branches removed either to make an artificially rounded profile or to reduce encroachment over a street, walkway or building; trees which have had the inner branches of the crown removed, leaving a shell of leaves which appear only at the end of the branches; trees which have had the branches stubbed, in extreme cases leaving an amputated skeleton of a tree. In

some cases, these situations are a result of ignorance. There are actual communities where virtually every tree has been topped—and where the residents appear to believe that this is appropriate tree care. In other cases, people may have been told by a company that their tree presents a danger to their home and must be pruned to reduce the possibility of falling limbs. Older homeowners can be particularly easy targets of such tactics. Finally, some utility companies, trying to control outages, severely prune to extend the pruning cycle and control costs, so that they do not have to return soon thereafter to

again prune around the utility lines.

The effects of these kinds of detrimental activities are extensive.

► trees are more prone to decay at these incor-

rect pruning cuts, which are not placed at points where the natural defense boundaries of the tree exist;

► open crowns are exposed to increased light and heat on branches, thus increasing the occurrence of cambium dieback and decay;

► increased sprouting of branches occurs at the pruning points, often defeating the actual reason for the pruning in the first place by vigorous regrowth;

► new sprouts are weakly attached and increase



Decay resulting from improper pruning not only affects the health of the tree but also the structural strength of the branch.



Incorrect pruning has resulted in stubbed branches which opens a tree to decay organisms.



Removing the inside branches of the crown increases light and heat which can wound the tree and open it to decay.





**Sprouting at the end of a stubbed branch results in weakly attached branches and increased weight at the end of the branch.**

potential for breakage and damage;

- ▶ natural tree structure, which extends the weight of branches and leaves throughout the entire tree and along the entire branches, is affected;

- ▶ increased sprouting at the ends of branches places all of the weight of the leaves and new branches at a single point, increasing the potential for breakage and damage.

- ▶ removal of large portions of the tree crown reduces the leaf area available for photosynthesis, and hampers the production of carbohydrates, which weakens the tree; more stressed trees are less able to withstand poor site conditions or additional attacks from insects and disease.

Efforts have been made by the International Society of Arboriculture, the American Society of Consulting Arborists, the National Arborists Association and many state extension offices to make information available to the public regarding the appropriate methods of pruning that will bring about the desired results and limit damage to pruned trees. This information is available in many forms: press releases, reports, standards, research, web pages, pamphlets and photographs. This information does not exist because too many people have too much

time on their hands; the effects of poor pruning on trees are exhaustively documented, as are the benefits of proper pruning.

It can be stated, in a nutshell, that all pruning cuts should be made at the branch bark ridge of the branch to be removed. This technique answers virtually every reason for pruning and every concern of pruning:

- ▶ this point is where the tree is best able to compartmentalize decay and keep it from spreading throughout the tree;

- ▶ reduced sprouting should result at the pruning points so that growth can be directed away from potential conflicts;

- ▶ remaining branches are still well attached;

- ▶ the natural wood structure which extends branch and leaf weight throughout the entire tree and along the entire branch is maintained by reducing sprouting at the ends of branches and minimizing the potential for breakage and damage.

- ▶ by removing no more than 25 percent of the tree crown at any one pruning, the tree retains a significant portion of the crown and is better able to withstand additional stresses from site conditions, insect pests or diseases.

Proper pruning techniques can be used to:

- ▶ lighten the crown of a tree;
- ▶ reduce the resistance to wind and decrease breakage;
- ▶ re-direct growth away from roads, sidewalks, wires, etc. without increased sprouting and repeated pruning treatments at a point of conflict;
- ▶ reduce tree height or raise the crown of the tree while retaining a natural form and growing pattern;
- ▶ remove branches which have increased potential for breakage due to decay, disease or poor branch attachment.

The key is 'proper pruning technique'. □



**The loss of this large limb would not only cause damage to any property or person below at the time of failure but would also affect the tree form and the future of the tree on-site.**





# Organic recycling a full-circle benefit

*Collecting and recycling green waste is a business opportunity for a small but growing number of service companies.*

By MARY BETH JANNAKOS

**W**hile recycling efforts have become a regular practice for many Americans, it's still common to see bags of leaves, grass clippings, brush and tree branches being carted off to landfills.

Many states still do not have legislation for recycling organic materials. Even in those which have passed laws, collected green waste is often transported to designated areas in landfills where it is not put to any good use. Where legislation fails, however, some businesses and private organizations are picking up the slack.

These groups have found that recycling often saves them money in collection costs while requiring minimal extra effort. Com-

panies are also realizing the benefits of preserving natural resources and projecting an environmentally friendly image.

#### **Landfill? What's a landfill?**

Grounds Keepers, a design/build construction and maintenance company located in Parker, CO, recycles its green waste despite the absence of a state law.

"We have always recycled. We don't take anything to the landfills," said Manager Jeff Roth. Grounds Keeper produces "a significant amount" of green waste each year, said Roth. As a result, the company employs the services of Organic Recycling Services, LLC (ORS) to pick up these items on a regular basis. ORS is a new company in the Denver Metro area which collects green waste for recycling. It operates like a waste disposal company by placing roll-off containers on its clients' sites.

"It costs our clients less money to use our services than having their organic material hauled off by traditional waste disposal companies," ORS Manager Joe Tingley said. This is how ORS maintains its

In the best recycling operations, piles of shredded organic waste are converted into compost or other useful products. Here, a CCL Organics tub grinder shreds large tree branches and stumps into material that can be recycled.

competitive advantage and attracts clients which may normally opt to mix organic material with their regular trash.

#### **Beyond landscape companies**

In addition to landscape maintenance companies that produce a large percentage of green waste, ORS is catering to an increasing number of private groups such as homeowner associations. (A report issued to the Colorado General Assembly in 1994 states that yard waste from residential and commercial properties represents the largest single component of the waste stream subject to waste diversion.)

If the national average is applied, then each person in Colorado produces about one ton of green waste per year. About three million tons of green waste are being



produced annually in the state. The U.S. EPA also reports that yard waste and food residue make up almost 25 percent of the 180 million tons of municipal solid waste which is generated each year nationwide.

ORS either provides a one-time collection service for residential organizations, or adds them to its regular schedule depending on the amount of their green waste. In addition, ORS also serves stables, lumber companies and other businesses which produce a large percentage of organic waste.

The company takes the collected material to a recycling facility near Golden, CO, which is operated by AL Organics, Inc., Colorado's largest, fully permitted, commercial organic recycling company. Here the items are turned into fertilizer and compost. ORS also provides the service of returning the recycled material to those clients which have a use for it.

Roth says it takes little or no effort on the part of Grounds Keepers to recycle its green

**Look for more businesses, private organizations, and government agencies to team up with compost companies.**

waste. "As Colorado's population continues to grow, it will become increasingly necessary for businesses to implement environmentally friendly practices," Tingley said.

Colorado isn't the only state in which businesses and private organizations are taking action. In California 50 percent of the waste stream must be diverted from landfills by the year 2000. Many are already employing the services of roll-off companies which transport the material to recycling facilities.

CCL Organics, which is in the East San Francisco Bay area, operates on the same

lines as that of ORS in Colorado.

"By choosing our services over another roll-off company, our clients are ensuring that their organic waste is being put to good use now. They are making a strong statement that the environment counts even in the realm of business," CCL Organics Manager Butch Benson said. In addition, CCL Organics helps its clients communicate this message to the public by providing them with mailing inserts and other public relations materials that help promote the company's environmentally friendly practices.

CCL differs slightly from ORS in Colorado since it handles the recycling process itself. The company's green waste collection site in Benicia, CA, converts the material into usable compost over a six-month period. CCL Organics then sells the compost to companies such as nurseries and landscape maintenance businesses. □

*The author writes about Green Industry issues from her home in the Southwest.*

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## OPEDA elects officers

Tony Troisi, vp of KPM Distributors, Inc., Kenil, NJ, is the 1998-1999 president of the Outdoor Power Equipment Distributors Association. Other newly elected OPEDA officers include: Vice President, Stan Crader, president of Stand Crader, Crader Distributing Co.; Secretary/Treasurer, Ken Taylor, vp Consumer Products, Kenney Machinery Corp.

Newly elected directors include: Lynn Matson, president, Turf Equipment & Supply, Inc.; Mike Medart, president, Medart; Chris Saxon, president, PACE; and Mark DeShetler, president, Florida Outdoor Equipment.

Bill Parsley, president of Carswell Distributing Co., and John Smith, president of Exmark Manufacturing Co., won election for one-year terms. □

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## Underwood earns award

Bob Underwood, owner of AAA Landscape, earned the Lifetime Achievement Award from the Arizona Landscape Contractors' Association. Bob and his brother Richard Underwood started AAA Landscape 23 years ago. It is now one of the leading landscape companies in the state. Bob is a past president of the Arizona Landscape Contractors' Association and currently serves as treasurer of the Arizona Certified Landscape Professionals.

The Arizona Landscape Contractors' Association named Mitch Cluff as its 1997 Landscape Contractor of the Year. Mitch graduated from Arizona State University with a degree in Architectural Landscape Horticulture Design, and established Quintana, a landscape design and installation company, in 1987. □

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## IA show is 'international'

The Irrigation Association has renamed its International Exposition and Technical Conference to The International Irrigation Show.

The event happens November 1-3 in 1998 in San Diego.

"We are attracting more international exhibitors and attendees to the show each year," says Denise Stone, IA meetings and exposition director.

"We wanted to demonstrate that in the the [show] title."

Stone reports that 58 countries were represented at the 1997 IA conference.

The International Irrigation Show is produced for irrigation buyers, specifiers and contractors, and is reported to be the largest irrigation-specific trade show in the world.

For registration information, contact IA at (703) 575-3551. □

## SC show a hit

The South Carolina Contractors Turfgrass Management & Grounds Maintenance Conference was a "rewarding experience for everyone who attended," reports the association. The state's leading research authorities shared information on the latest management technology and updated attendees on a variety of issues.

In a special luncheon presentation by Clemson University's Dean of Agriculture, Forestry and Live Sciences, Dr. W.H. Wehrenberg, members were brought up to date on the changes in the department. Dr. Wehrenberg thanked the department for its dedication.

Scholarships were awarded to John Eppelsheimer, Horry-Georgetown Technical College and Matt Swartzmiller, a student at Spartanburg Technical College.

Clemson University Turf Trials are held Sept. 15, 9 am - 12 noon at Walker Golf Course, Clemson University, Cherry Rd., Clemson SC. An afternoon golf tournament benefits the SC Turfgrass Foundation. □

## Gallup survey good news

According to a recent Gallup survey, more than 22 million U.S. households spent \$14.6 billion on professional landscape/lawn care/tree care services in 1997. This represents an increase by one million households from 1996 and a \$600 million increase in spending. The numbers are expected to continue to rise with estimates of 24.2 million households planning to purchase these services in 1998.

Older homeowners (ages 50 and above) represent the largest client group and account for nearly half of the money spent on horticulture services. The study also shows that that homeowners spent an average of \$647 in 1997.

The tree care category showed the largest increases in spending (50%), average amount spent (38%) and household participation (21%). Meanwhile, lawn and landscape maintenance accounted for the largest dollar volume of spending (\$7.6 billion) and the greatest household participation (14.3 million). □

## Fularczyk leads GMAW

The Grounds Management Association of Wisconsin (GMAW) elected officers for 1998 during the Wisconsin Landscape Federation annual convention.

The new officers are: President, Tom Fularczyk, River City Landscape, Onolaska, WI; President Elect, John Crossmock, Tru-Green-ChemLawn, Park Ridge, IL; Secretary, Bill Vogel, Spring Valley Turf Products, Jackson, WI; Treasurer, Kathy Kurth, Lawn Care of Wisconsin, Inc., Madison, WI; Immediate Past President, Lou Wierichs, Jr., Pro-X Systems, Appleton, WI. □



# Today's super must know about \$\$ as well as turf

**T**urf schools are graduating increasing numbers of potential golf course superintendents. The GCSAA web site discussion forum is "hot" regarding the topic of job security. One of the more popular seminars is entitled "Enhancing Your Value as a Golf Course Superintendent". The bottom line is that there is a growing sense of uncertainty in an industry that was once known for long-term employment.

Getting that first superintendent's job is going to be increasingly difficult. Keeping the job will take more than knowledge of agronomy and years of experience. Golf course owners and club committees want "golf course managers" who can deal with turf conditions, employees, customer relations, equipment maintenance, and financial situations.

The golf business is very unique. Each golf course is different in physical layout and composition. The financial resources needed to operate each course vary accordingly. Comparing operating expenses and budgets among golf courses is meaningless except on a general level. Recognizing this "uniqueness", owners and committees would rather consult with their employees than with outside "experts".

- Consult on what? Well, how about:
- ▶ leasing versus purchasing of equipment,
  - ▶ comparing the costs of different leases,
  - ▶ identifying areas in need of "cost controls",
  - ▶ expense versus depreciation "gray areas",
  - ▶ the tax ramifications of new construction and capital improvements,
  - ▶ contract labor versus employee classification,
  - ▶ employee fringe benefits,
  - ▶ inventory management.

These are just some of the financial issues that have serious importance in the golf business. A



**CLEVE CLEVELAND,**  
CGCS  
Superintendent/owner,  
Newark Valley Golf Club

GOLF

PAGE 4 G ▶

Sahalee is PGA primed

PAGE 10 G ▶

New driving range a winner

PAGE 13 G ▶

Cultural cures for wet greens

PAGE 16 G ▶

Sub-surface technology shines

PAGE 20 G ▶

Vargas touts 7-day spray program

PAGE 22 G ▶

Work on bio controls still active

superintendent who can demonstrate knowledge in these areas will be a VIP at his or her golf course. He or she will also be attractive to golf operations that value such knowledge.

The superintendent's profession is changing rapidly. Without the acquisition of new skills and knowledge, today's "Old Tom Morris" could be posting a job search tomorrow. **LM**

[SUPERS ON COURSE]

## NGF fetes Watson, and Dye family

Tom Watson earns the 1998 Graffis Award from The National Golf Foundation (NGF). "While Tom is undeniably one of the great players of our time, he's also quietly become one of the game's most giving people," said NGF Chairman Bob Maxon. The award presentation will take place June 17 during the U.S. Open.

The NGF also named the family of Pete and Alice Dye, including sons Perry and P.B., its Golf Family of the Year for 1998. Between them, the Dye family members have designed more than 150 golf courses in the U.S. and overseas.



[ *Poa annua* ]

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[ Pythium ]

[ Dollar Spot ]

[ Goosegrass ]

[ Summer Patch ]

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Dollar Spot  
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[ Fire Ants ]

[ Anthracnose ]

[ Dutch Elm Disease ]

[ Take-All Patch ]

[ Crabgrass ]

[ Weak Turfgrass Root System ]

[ Oak Wilt ]

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- Subdue® MAXX®



# Sahalee

## IS PGA PRIMED



*Learn how this club in the Pacific Northwest used topdressing and upgraded its irrigation and bunkers to land the 1998 PGA Championship.*

By LESLEE JAQUETTE

**M**icrosoft put Redmond, WA, on the map. This August Sahalee Country Club, the site of the 1998 PGA Championship, will further enhance Redmond's reputation as a trend-setting Seattle suburb.

A private, 27-hole, "golfers" club, Sahalee not only defines quality golf in the Pacific Northwest but the club's landscape falls under constant scrutiny and modification. By committing to "nothing but the best" since the club's opening in 1969, membership has in actuality been preparing for this event for three decades.

While continuing a normal, rigorous maintenance schedule, Sahalee Superintendent Tom Wolff and Assistant Superintendent Rich Taylor have stepped up a number of programs to enhance the course beyond PGA specifications. Over the past seven years they have managed a number

of special programs that include: fairway topdressing, irrigation system replacement, bunker renovations and tree trimming as well as tee leveling and over-seeding roughs.

Still, says Taylor, "we feel the course is in good condition and we didn't have to do anything out of the normal. The tournament isn't a far stretch because we make continuous improvements. The PGA hasn't demanded very much and, in fact, it has been a totally cooperative effort in terms of maintenance."

In 1990 a local agronomist, Dr. Roy Goss, helped members visualize what an aggressive fairway top-dressing program could accomplish. Goss suggested that Sahalee, designed by Ted Robinson and located on the Sammamish Plateau about 20 miles from Seattle, could develop beyond a soggy, shoe-eating course to a beach model. While water would still exist, the sand would eventually build up, allowing



winter players to walk the course without wearing hipwaders.

After a successful trial of topdressing wet areas in fairways and roughs, membership budgeted two years with topdressing as the club's top maintenance focus. Tackling priority areas that made up about 30 percent of the fairways, the staff top-dressed a quarter of an inch of sand every 7 to 10 days during the summer growing season of May through September. Using 5,000 tons of sand a year those first two years (30,000 tons to date), the course was raised one inch by the end of 1992.

Despite the program's success, the membership wearied of the weekly sanding. Wolff notes, "each divot became a political nightmare," to the point that the topdressing program was modified to once in the spring and once in the fall over the entire course. Despite the slowdown, Taylor reports that these days the program



Fulltime members of Superintendent Tom Wolff's staff average seven years experience at Sahalee Country Club near Seattle.

## Sahalee's only fear a wet June

Sahalee Country Club Golf Course Superintendent Tom Wolff and Assistant Superintendent Rich Taylor have one fear about hosting the 1998 PGA tournament in Redmond, Wash. "A wet June!"

If the Northwest enjoys an all-to-typical rainy June, it will make it just that much harder for the course to sustain "TV perfection" in the face of move-in and construction. With an economic impact of \$60 million to the region, the supers' fears are well founded.

While the weather is beyond their control, their management style is comfortable and successful by the looks of the course and the lack of employee turnover. Of the 21 full-time, year-around staff, one employee has been working at the course for 17 years; the average runs around seven years.

Capitalizing on complimentary styles, the two superintendents see their employees as clients and the goal is to continue to engender loyalty, responsibility and career development. By rejecting the "boss" mentality and nurturing education and cross-training, everyone simply does their job. "With our solid, experienced crew we can run on autopilot," says Taylor, who admits Sahalee does not pay the highest wages in the area. "It also helps when it comes to training new people."

For the most part Wolff, who has been superintendent for nine years, operates on a "laid-back" philosophy. He is soft-spoken, a natural empowerer who teaches by example. "I believe in letting people do their job, give them the tools and let's all take responsibility," says Wolff.

Taylor manages the crew and admits to being a bit of a perfectionist. Both superintendents also admit they have a hard time playing golf for focusing on maintenance issues. However, the crew consists of excellent golfers who are invited to use the course three days a week.

In addition to this perk, staff takes great pride in the continual development inherent in the club. As professionals they enjoy challenges, new projects and an open invitation at the club's cost to participate in further education through seminars and community college programs. "Education isn't an extra, it's a continuing endeavor and our employees embrace the opportunity," says Taylor.

Wolff recalls years ago during the PGA's first visit to Sahalee, a representative asked what was contained in the green boxes scattered about the course. Wolff gulped. The boxes held the original irrigation system's sprinkler valves, an obvious eyesore as well as a nuisance to playability. In an effort to demonstrate the old system's weaknesses, irrigation supervisor Scott Larson filmed a video to show the membership examples of how the heads were off-spaced. Conversely, the video showed how a more modern system works in terms of coverage and control. In response to the PGA query and the video, the members initiated a year-long, irrigation replacement program in 1990, installing

still works with priority areas measuring four inch accumulation and others up two inches. Another huge benefit of the program has been an increase in the root zone such that the course hosts stronger plants and sees improved growing conditions.

—L





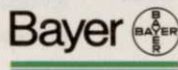
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A third project stimulated by the upcoming PGA Tournament was a bunker renovation on the north and south nines. The last nine will be finished after the August event. Wolff recalls that upon evaluation, the PGA only required that Sahalee change the contaminated sand out of the

*The goal was to bring the bunkers closer to the greens to enhance play.*

bunkers. Still, in keeping with the standards of the course, members decided a complete renovation was in order.

Redesigned by Rees Jones and installed



Members were apprehensive when workers began trimming and removing some trees, but they're happy with the results.

in 1996, the bunkers were moved much closer and grass was rolled down more on the green side. The bunkers were kept as deep as possible. Continuing an "aesthetics first" priority, Wolff admits the new bunkers are just as high maintenance as the old ones. Staff still hand rakes and hand trims the new bunkers, which are all now filled with tan bunker sand from Ravensdale, WA.

The bunker redesign entailed tree trimming and further landscaping. For the redesign to be successful and decrease tree litter from the courses' forests of 50-year-old cedars, firs and hemlocks, many trees demanded trimming, root removal or complete removal. At first members were skeptical about limbing up, but the results have received good reviews. Now the trees show increased contrast with more bark showing, the fairways receive more sun and spectator viewing is improved.

Over the past few years in keeping with Sahalee's Northwest woodland style, the maintenance staff of 21 fulltime (40 in the summer) is adding 84 large landscaped areas. Using no bulbs, annuals or wildflowers but rhododendrons, azaleas and heather, these gardens demand tremendous attention in terms of weeding and raking.

In addition, in preparation for the PGA Championship the staff has been occupied with an in-house, tee-leveling project. Undersized to begin with, the tees will all be leveled and expanded by summer. The process involves lifting off the sod, expand-



The Sahalee preparation has been a totally cooperative effort.

ing and leveling the tees, checking drainage and relaying the sod.

During the past two years the staff has overseeded the roughs to meet PGA requirements. In both September of 1996 and 1997, the crew spread 300 pounds per acre of a three-way blend of rye grasses. Next spring another 300 pounds will be spread in an attempt to increase the consistency and density of the roughs to a 3.5 to 4-inch cut. Despite this seed blitz, Wolff and Taylor are still concerned balls will get lost in the roughs. □

*Writer/photographer Leslee Jaquette writes for LM out of Edmonds, WA*



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# New range plays as good as a round

*Commonwealth National Golf Club in Cranberry, NJ, has reworked its driving range into a practice area with variety.*

By JOHN CALSIN, JR.

**S**uperintendent Larry Schlippert, CGCS, says he's wanted to do something like this for years, and finally got the money to make it happen. His range is ready! The new driving range at Common-

wealth National Golf Club, Cranberry, NJ, is a model practice area for visitors to this 400-acre course. Schlippert hopes Commonwealth's new range will give other superintendents an idea of what they can accomplish with a small piece of land.

"We've done a lot here, and we didn't get involved with a whole ton of reconstruction. Existing features were made to stand out and work for us."

Golfers love to visit the secluded, quiet range to relax and practice with no interruptions.

#### **Economical use of space**

"With the amount of space we had to work with, it is a well-designed plan that

accomplished many different things in the practice area," says Terry Tumolo, Commonwealth general manger.

"For clubs that don't have 50 acres to work with for their ranges, it is a great model to come and see."

Amelia Rorer, teaching pro in her first year at Commonwealth says the driving range was a deciding factor in her decision

to join the team.

"To be able to teach the whole game, you need to hit every shot," says Rorer. "Most [driving ranges] do not have a short game practice area. It was a wonderful design."

#### **From 'blah' to a blast**

The original range was a four-acre parcel in the middle of the golf course. It consisted of a 7500 square-foot, two-tiered practice tee. The remaining turf was a maintained area of about 3½ acres of ¼-inch bentgrass, with mounded turf targets.

The range is about 100 yards wide, and is no longer a dull and lifeless piece of ground.

"The range was kind of blah" says Schlippert. "It was like a driving range. The golfers wanted more of a target, something they could hit shots to."

Members originally wanted to move the facility to a different area, says Schlippert, who persuaded them to adapt to a short game practice area.

Most finish work was done in house.

That 'range of dreams' would also have to be versatile enough for golfers to use a variety of clubs. Ideally, says Schlippert, golfers could practice shot placement as well as distance.

Jim Blaukovitch was chosen to be range architect. He came up with a plan to enhance the four-acre area, one that would allow golfers to use every club in the bag. The target areas range from 35 to 240 yards. Bunker shots are now possible, to the fairway and greens.

Golfers also have a choice of matted or grassy tee areas.

#### **Use existing turfgrass**

The total project cost about \$75,000, including labor and in-house materials. Schlippert and his crew moved all the sod and did all the final grading. An earth moving company did the earth work, and installed the irrigation and drainage. All the soil and bentgrass came from the site or other locations around the course.



Looking down the range from the tee area, the bunkers and flags are clear targets.



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Superintendent Larry Schlippert, CGCS surveys the range. Grass tees are at right; chipping bunker and putting green are behind.

The only imported materials were the fescue sod and the seed bed mix for the tees.

Fescue sod covers an area of 42,000 square feet. It was installed around the target greens and around the traps.

All bentgrass was recycled from other areas around the course. Schlippert wanted to save as much bentgrass as possible from the fairways, to use on tees. Traps were marked off; sod was stripped from areas where bunkers were to be placed and saved so the traps could be built over winter.

The sod was put in the woods next to the range, on top of four-mill plastic, so it wouldn't take root. Schlippert covered the sod with a geotextile material so it would not desiccate through dehydration. The sod sat in the woods from December of 1997 to March 18, 1998, and survived without irrigation.

"The ironic thing was, we started this project in late November of 1997 in anticipation of heavy earth work and trap construction during freezing weather, which we never got."

Thanks to an unseasonably warm winter, rain was the chief weather annoyance, and resulted in piece-meal work.

On Commonwealth's first range, the



Concrete under each mat keeps the mats from getting that spongy, sinking feeling. Drain pipe runs under each slab.

tee was behind the trap. Now, it is located in front. "You never want to put mats in front of a tee, because while the golfers are using the grass tee, they are blowing the dirt and debris up on the mats, which contaminates them."

The mat area is totally drained underneath. "My previous experience with mat-

ting is you've got to have drainage underneath, otherwise it will never stay level."

The entire length of the matted area has a trench cut through the middle, one foot wide and up to two feet deep, with perforated pipe laid in the trench for the main drain. This is covered with stone.

The stone area serves as a drain field during heavy rain. The grassy tee area slopes back toward the stones, which channels rainwater to the drains.

The tee boxes are surrounded by six inches of crushed stone. Wood frames outline each matted tee area. The mats are set on four inch concrete slabs to keep them solid and level.

Granite yardage markers will be placed at different distances from target areas. Schlippert will laser the distance from each marker to the nine different colored flags on the range. Marker #1 therefore, will have nine different yardages; marker number two will have nine more, etc.

A score card will give the distance from each marker to each flag. The tee is 250 feet wide. With the specific yardage from each stone, a golfer will be able to sharpen his or her accuracy. This should help a golfers short range game.

Each day, certain areas of the tee will be roped off for maintenance and to give the turf a rest.

Commonwealth is owned by Matrix Development, specialists in golf course management and hospitality. □

*John B. Calsin, Jr. writes for LM out of West Chester, PA*



# Cultural cures for wet golf greens

*Consider irrigation management, tree effects, traffic and drainage.*

by JAMES T. SNOW, USGA Green Section

There are many factors that can contribute to a green being considered poorly-drained, and there are many things that can be done to shift a green from the "poor" to "satisfactory" category.

## Irrigation management

Many greens diagnosed as having poor drainage are actually over-watered.

A new superintendent at a course is often able to eliminate poor drainage symptoms from certain greens by instituting a different irrigation program or by redesigning or remodeling the irrigation system.

Over-watering can be due to improper irrigation practices, poor irrigation system design or both.

## Trees may block air

Poorly-drained greens are often located in a pocket of trees. Trees block air circulation through the area and may cast shadows on the turf, preventing the soil in the greens from drying as quickly as other greens on the course.

### Possible solutions:

- ▶ remove or thin out a few of the nearby trees
- ▶ adjust the irrigation program
- ▶ traditional methods of drainage or reconstruction may have to be used.

## Traffic leads to compaction

Many greens that exhibit adequate drainage characteristics under light to moderate use can develop poor drainage symptoms when subject to heavy traffic. The

cause of the problem in this situation is compaction in the upper part of the root zone.

Possible solutions include:

- ▶ Core cultivation, followed by core removal and topdressing with a sandy, compaction-resistant material
- ▶ Deep-tine cultivation may be needed on soils affected at a greater depth.
- ▶ Green design sometimes impacts the effects of traffic. For example, heavily-trafficked greens that lack adequate cupping area can show severe symptoms of surface compaction and poor drainage in the most common hole locations.

▶ When traffic problems occur on walk-on and walk-off areas, redesigning the green or the nearby sand bunkers can sometimes relieve the symptoms.

## Clues to poor drainage

- ▶ Thin turf
- ▶ Shallow roots
- ▶ Compacted surfaces
- ▶ Greater disease
- ▶ Increased traffic injury
- ▶ Mower scalping
- ▶ Algae encroachment
- ▶ Foot printing
- ▶ A predominance of *Poa annua*.

▶ Walk-behind mowers for part or all of the time can reduce traffic effects.

## Poor drainage solutions

If drainage symptoms persist, it could be:

- ▶ poor surface drainage
- ▶ poorly-drained soils
- ▶ layering problems.

**Poor surface drainage** is often recognizable by the surface puddling that occurs after light to moderate rainfall or irrigation.



Deep-tine aerification can be incorporated into a core cultivation program for faster results.

▶ Low spots can be eliminated by selectively topdressing the area on a light, frequent basis.

▶ Where a broader area is involved, sod may have to be removed, the subsurface regraded and the sod replaced. The entire surface may have to be stripped, regraded and resodded, or be rebuilt completely.

**Layering problems** caused by poor construction, topdressing inconsistencies or some other factor can sometimes be overcome by regular core cultivation or deep-tine cultivation, depending on the location of the layer. If the coring holes are filled with sand, real progress can be made in overcoming the effects of the layer. In a more severe case, it may be necessary to add drainage tile.

Greens that do not respond to these techniques should be rebuilt to USGA specifications. □

*Adapted from an article by James T. Snow, national director of the USGA Green Section. An expanded version originally appeared in the January/February 1991 edition of the USGA's Green Section Record.*

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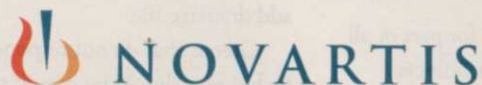
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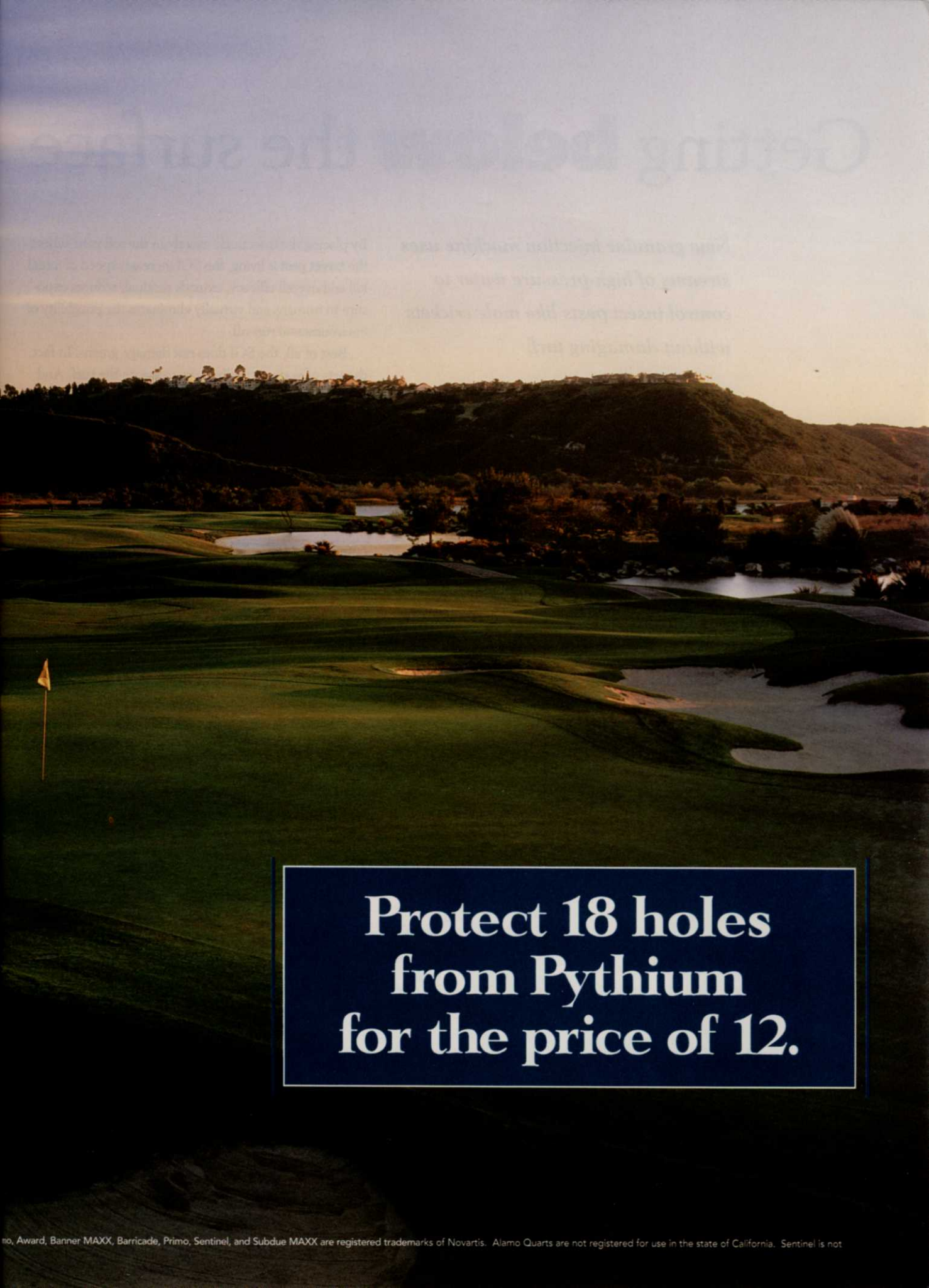


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# Getting **below** the surface

*New granular injection machine uses streams of high-pressure water to control insect pests like mole crickets without damaging turf.*

By ROGER STANLEY

**T**he steady "dunk-dunk-dunk" beat is music to the ears of Chuck Barclay, golf course superintendent for the Twisted Oaks and Pine Ridge Country Clubs in Beverly Hills, FL. Sounding like a muffled air hammer operating at a slow speed, a new SGI (Subsurface Granular Injector) sweeps back and forth over one of Barclay's greens as it injects granular insecticide below the turf surface.

Last year several greens on both of Barclay's courses were treated with an SGI, a self-propelled applicator specially designed to use high-pressure water to inject granular insecticides into the soil. It is manufactured by LIS, Inc., in Crystal River, FL.

In March 1997, the SGI was field tested with Talstar GC Granular Insecticide on Barclay's two courses. A single subsurface granular application resulted in zero mole crickets on the treated greens for the entire season.

**The Subsurface Granular Injector (SGI™) uses high-pressure water injection to apply Talstar GC granular insecticide at Twisted Oaks CC in Florida.**

By placing the insecticide exactly in the soil zone where the target pest is living, the SGI increases speed of initial kill and overall efficacy, extends residual, reduces exposure to humans and virtually eliminates the possibility of environmental run-off.

Best of all, the SGI does not damage greens. In fact, the jets of water actually serve to aerate the turf. And golfers can play greens immediately after, especially if a greens mower follows behind the SGI. A typical golf green can be treated in three to four minutes.

Don Taylor and his son Tom invented the patented SGI. The Taylors' company, LIS, Inc., specializes in industrial use of high-pressure water. The company has developed technologies using high-pressure water to cut metal or concrete, for industrial cleaning, and to inject salt-inhibiting chemicals into soil. When an avid golfer suggested that their technology might be useful in turf pest management, the Taylors began to experiment. They developed and patented a liquid sub-soil injection unit in 1994. They began working on the Subsurface Granular Injector in 1996.

While some industrial applications require up to 35,000 pounds per square inch (PSI) of water pressure, the SGI requires a mere 4,000 psi. Still, that relatively low water pressure is powerful enough to inject a granular product six to 12 inches into the soil, depending on the soil type and moisture level.

By regulating the travel speed of the SGI and selecting one of three pressure accumulators (a 6-, 20- or 60-cubic inch unit), the SGI injects granular materials to precise depths ranging from one-half inch down to the maximum of six to 12 inches. In their initial field tests, the Taylors targeted mole crickets for control and injected the insecticide to a depth of  $\frac{3}{4}$ -inch. At that injection depth the SGI's application ground speed is about 5 mph.

Licensed to control turf pests, they tested their prototype SGI unit in 1996 in a nearby park heavily infested with mole crickets. They selected a pyrethroid insecticide formulated on sand. They treated one-half acre at a depth of  $\frac{3}{4}$ -inch.

"Within days we found dead mole crick-





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developed not only to facilitate absorption by the leaves and roots, but to increase mobility of the calcium within the plant as well.

Quelant™-Ca is normally applied as a foliar spray and may also be applied through fertigation. Either way, it is tank-mix compatible with herbicides, soluble fertilizers, insecticides, fungicides and plant growth regulators. It will even help improve the efficiency of most of these treatments by increasing their absorption and translocation within the plant.

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ets all over the place," says Don Taylor. "We came back for more than a month and saw no signs of mole cricket activity on the treated area. We also learned from the treatment that Talstar granular did not damage our equipment."

They sent a video of the treatment and results to Geri Cashion, a Florida-based technical representative with FMC Corporation, the insecticide manufacturer. Cashion met with the Taylors in early 1997 to arrange field tests on Twisted Oaks, Pine Ridge and several other sites with complementary product. For the Twisted Oaks and Pine Ridge SGI applications, the product was applied at the 140 lbs./acre rate on several of the greens. All other greens on the two courses were either left untreated as controls or treated with a standard insecticide used for mole crickets.

By May 1997, two months after the field tests began, Barclay had to treat the



**Don Taylor, president of LIS, Inc., Crystal River, FL, developed the SGI after years of working with high-pressure water for industrial uses. He says SGI can be used to apply granular or liquid.**

untreated greens because they were being chewed up by mole crickets. But his treated greens were free of the pests.

"I did not have a single mole cricket on one of my treated greens for the season," says Barclay. "There were a few fly-ins late in the fall, but I slept real good throughout the entire season."

FMC's Cashion says this study and oth-

## *The cost savings possible in reduced insecticide use and other cultural benefits could offset the SGI's \$32,000 price tag.*

ers done since with the insecticide on turfgrass, commercial turf and athletic turf show that the SGI application increases both efficacy and residual.

Cashion says subsurface application of the granular product has extended residual control of mole crickets in our field tests. Cashion says. "In others, where we would have only expected suppression due to the application rate or conditions, we have seen control."

With 45 holes on two courses to care for, Barclay says that the cost savings possible in reduced insecticide use and the many other cultural benefits could quickly offset the \$32,000 price tag for an SGI.

"An SGI can be purchased as a multi-purpose turf tool. We have used it to apply granular products, to aerate greens and to treat localized dry spots in turf. It can be used to make granular applications without concern about rainfall or during the day while golfers are using the course. It even elimi-

nates the need to water-in some products. We could use an SGI throughout the year."

Taylor says LIS began commercial production and sales of the SGI this year. Sales are already outstripping production, so LIS is moving production to a larger factory in Florida this summer.

Additional field tests with this granular

product and other granular and liquid products are also being done. Most tests are being done on golf courses along the eastern seaboard but SGIs are also being used on sports and commercial turf, parks and rights of ways.

Cashion says more research is needed to quantify the enhanced efficacy and residual gained with Talstar through an SGI application. One interesting application to explore is the use of an SGI to apply the product in flowable and granular form at the same time.

The benefit: a flowable might provide and enhanced initial kill of mole crickets, while the granular provides longer residual control.

Don Taylor says success with the SGI is proving that granular injection will be important in commercial turf management. Now the company is working on a smaller version of the SGI for use in residential lawn care.

"Subsurface granular injection in residential treatments could mean lower environmental impact and reduced exposure to people and pets," he says. "It could also require fewer applications since the residual control can be extended. Those are important benefits and we are working with several companies to test the concept.

"We feel very good about our results with the SGI. The feedback we are getting from commercial applications shows that subsurface injection is effective and meets environmental requirements." □

*Roger Stanley is a writer living in Milwaukee, WI.*



**Superintendent Chuck Barclay liked results of treatment.**



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# Disease control research finds more is...less

*A seven-day disease control spray program reduces product use and keeps pathogens from getting a hold of golf course turf.*

**N**ew research by Dr. Joe Vargas at Michigan State University shows that spraying greens, fairways and tees with a fungicide—in this case, Daconil Ultrex—as often as every seven days promotes healthier turf and saves money on product.

Tests at MSU show that a seven-day program can help solve thinning out problems on golf course turf.

Dr. Vargas, a turfgrass pathologist with the Department of Botany and Plant Pathology at the University's East Lansing campus, says his studies have indicated that turf disease control is excellent at low

rates, however, the spray program has to be carried out every seven days rather than on the usual 14-21 day schedule.

"What we found," reports Vargas, "was that using Daconil Ultrex with Super Weather Stik at a rate as low as .88 oz. per 1000 square feet on greens and .44 oz. on fairway-length



Vargas: golf course superintendents will welcome the low-rate, seven-day cycle as a means of promoting good plant health, once they try it.



Dense green turf on a research plot (left) at Michigan State University shows the beneficial effects of Dr. Joe Vargas' low-rate fungicide program. The control plot at right was not treated, and shows substantial thinning due to summer heat stress.

turf, applied at seven day intervals, gave us every bit as good disease control as applying 3.8 oz. of Daconil per 1000 square feet on a spraying cycle that has 14-day intervals between sprays."

It's all about simple math, says Vargas.

"Using less of a substance over a measured time period will cost less. The great thing about the low rate/higher frequency spray cycle is that it's not only more economical, but you also get the same disease control that you would at higher application rates that are separated by 14 days or more. In fact, the disease control achieved with a low-rate cycle may even be superior."

#### Keep the pathogens at bay

Vargas says the seven-day system may be superior to longer sprays because it just doesn't give the disease pathogens a foothold.

"Soil and thatch are just beneath the

turf canopy and contain many pathogenic fungi," says the well-known pathologist.

"If the temperature is ideal for their development, they attack the turf, and cause diseases such as leaf spot, dollar spot, brown patch and Pythium blight.

"And when the temperature is not ideal, minor infections are constantly taking place in the turf canopy, which can lead to an undesirable thinning of the turf throughout the season."

Vargas says the low-rate, seven-day program is particularly useful in treating bentgrass turf so it remains dense enough to fight off *Poa annua* invasions.

#### New growth picks up on disease

A key to understanding why the seven-day cycle works lies in the act of mowing grass.

Vargas observes that when greens and fairways are mowed, leaves that carry resid-



ual amounts of fungicide are replaced by new growth leaves which are not protected by the fungicide. This cuts the effectiveness of the treatment right along with the turf.

"So if you make frequent applications, you can put the e fungicide on the newer grass that is coming up as the older blades are mowed off."

Spray equipment might bring added stress to the turf, adds Vargas. "But with today's lightweight mowing equipment, the turf's stress should be minimal; and, you're assuring yourself of more seamless protection against the diseases that can badly thin and damage turf. That's what really counts."

Dr. Vargas warns that the program is most effective as part of a solid cultural and spray program, starting in spring.

"I think some superintendents think that when they spray on a seven-day schedule, they're over-spraying, and perhaps damaging the environment.

"In fact, when you examine most curative programs, you will find that by the time disease has become apparent, you're going to have to apply just as much fungicide, or even more than you would have used if you had been on a low-rate, seven-day program.

"I think this is just as environmentally sound as waiting to see the disease develop and then dumping a whole lot of product on the turf all at once."

*"When the temperature is not ideal, minor infections are constantly taking place in the turf canopy, which can lead to an undesirable thinning of the turf throughout the season."*

#### It's part of good health

Vargas counters those who say fungicides do not promote good plant health.

"The implication that fungicides do not promote plant health is just dead wrong. The key to the sound health of any organ-

### DOLLAR SPOT/LOW RATE FUNGICIDE COMPARISON, GREEN-HEIGHT TURF

Treatment	Rate/1000 sq. ft.	Interval	% area infected	*Tukeys
Daconil Weather Stik	4.00 fl. oz.	14 days	0.00	a
Daconil Ultrex	1.76 oz.	7 days	0.13	a
Daconil Ultrex	3.80 oz.	14 days	1.00	a
Daconil Ultrex	.88 oz.	7 days	1.10	a
Daconil Weather Stik	2.20 fl. oz	14 days	8.30	b
Daconil Ultrex	.44 oz.	7 days	15.30	c
Untreated control	—	—	36.30	d

\* Treatments followed by the same letter not significantly different from each other.

### DOLLAR SPOT: LOW-RATE FUNGICIDE COMPARISON, FAIRWAY-HEIGHT TURF

Treatment	Rate/1000 sq.ft.	Interval	% area infected	*Tukeys
Daconil Ultrex	3.80 oz.	14 days	0.00	a
Daconil Ultrex	.44 oz.	7 days	2.50	a
Untreated control	—	—31.30	b	

\* Treatments followed by the same letter not significantly different from each other.

ism is to prevent it from being attacked by disease, and that is what fungicides do for plants in much the same way that preventive medicines play an important role in maintaining human health.

"I think fungicides are critically important in the highly artificial conditions under

which plants exist on a golf course, especially for the turf on golf greens," says Vargas.

"Frequent mowing [at such low heights] is extremely stressful for plants, so they need all the help they can get to stay healthy and resist disease. Plant health

depends on a variety of good horticultural practices that include frequent spraying to avoid fungal attack, aeration, sand top-dressing and proper vertical mowing."

#### Lower exposure for golfers

Vargas notes a further advantage to the

program: low rate spraying means golfers are exposed to proportionately less fungicide.

"When you use lower rates," says Vargas, "even if the fungicide is applied on a more frequent basis, there is less exposure for golfers than when you use high rates, and they go out on the course right after application."

But Vargas cautions superintendents to start the cycle early.

"When superintendents call me in July and August in a panic because the turf on their courses is thinning, it's too late to go out and start applying fungicides. A sound preventive program has to start in the spring and continue throughout the season. You cannot wait until you see the disease developing. That's why the prevention of minor infections that you get from the low-rate, higher-frequency application cycle is so beneficial; but only if you start soon enough." □



# Are biological controls in your future?

*Research has improved our ability to use biological controls to manage pests. Landscape managers and golf superintendents have more options than ever for pest control, and the next decade will undoubtedly bring new ones.*

By: R. L. BRANDENBURG, PH.D., North Carolina State University



**Biological control agents are often quite sensitive to environmental conditions and like their conventional counterparts may be less effective in providing acceptable control of soil insect pests.**

**W**ith so much talk these days about the next millennium and predictions or changes we can expect, one can't help but wonder what awaits the Green Industry. Numerous changes will occur in the next few years and hopefully many of them will be technological advances that help us do our job better, more economically, and more efficiently. Most likely, however, many of these changes will be spawned by new or modified regulations that affect our industry.

Regulations on the turfgrass industry encompass many areas including labor and worker protection standards and, in some areas, noise regulations. Some of the most prevalent regulations, on both state and federal levels, involve pesticide use. These regulations have a dramatic impact on which pesticides we have available for us and how we use them. As a general rule, the regulation of a pesticide benefits us all, although sometimes many question how regulations are conceived.

In light of these regulations and consumer demand for pest management strategies other than conventional pesticides, biological control has gained popularity. During the past few years, research has improved our ability to use biological control to manage all types of pests. Some companies have sought to take advantage of new effective products and a growing market.

#### **Bio-control of turfgrass insect pests**

Since my expertise focuses on the management of insect pests of turfgrass, I will stick with that topic in this article. However, keep in mind that the concepts behind biological control are similar for other pests in other settings and the progress in

developing similar products for other pest types has been successful and shows promise for the future.

Biological control in turfgrass is not a new concept. One of the earliest uses was the application of milky spore. These bacteria, *Bacillus popilliae*, were first used many years ago for control of Japanese beetle grubs. This was a naturally-occurring bacterial disease of the Japanese beetle white grub that could be grown in grubs in the laboratory and the spores harvested. These spores could then be packaged and sold as a biological control of this species of white grub.

While milky spore has been used for many years and many testimonials have been given as to its long-term suppression of grubs, its availability

today is still quite limited. The product is also limited in that its greatest effectiveness, at least as shown by laboratory studies, is against the Japanese beetle grub, although some other species appear to have some susceptibility to this disease. While its use has declined, this is an example of an early biological control product successfully commercialized and used in the landscape industry.

More recently, the use of another bacteria, *Bacillus thuringiensis* (B.t.) has become more common in both agriculture and turfgrass management. There are various strains of B.t. and each strain varies in their effectiveness against different insects. In turfgrass, most strains are directed against

*Milky spore availability is limited, but has become more common.*



many of the various caterpillars that feed on turf. B.t. was first discovered in Japan in 1901 and has been researched extensively. The bacteria actually produce a protein crystal that is toxic. These bacteria must be ingested by the insect and the toxin attacks the gut lining. New technology has permitted the actual production and encapsulation of the toxic crystal to further improve the effectiveness of many products.

These products usually don't kill the insect immediately, and have short residual activity, a trait common to many biological control products, but feeding and damage usually decrease soon after treatment. This slower activity is frustrating to some landscape managers, but again it is important to understand that the key element, plant damage, does slow soon after application.

#### **Endophytes reduce feeding**

A somewhat different concept of "biological" control is the use of endophytes. Endophytes are fungi that reside within the turfgrass plant and can significantly reduce insect feeding. These endophytes are found in some commercial cool-season turfgrass varieties of perennial ryegrass, tall fescue, and fine fescue and will be indicated on the seed label. Endophytic cultivars reduce above-ground pests such as chinch bugs, green bugs, sod webworm and cutworms, but little effect is observed on below-ground soil pests.

#### **Nematodes, pathogens**

Two types of biological control that have received a lot of commercial attention in recent years include entomogenous nematodes and fungal pathogens such as *Beauveria bassiana*. Fungal pathogens are quite common in nature and their commercial use has been limited our ability to produce large quantities of a high quality product for a reasonable price. Now, however, at least two companies are producing a *B. bassiana* product and one company, Troy Bioscience, has a product labelled for turf use. Many above and below ground pests are listed on the label and a lot of independent testing is underway on this product. Like many biological materials that are very sensitive to the environment, the ultimate

level of control obtained will likely depend upon environmental conditions which favor its performance.

The production of various entomogenous nematode products has been limited in the past two years. Problems with production, shelf life, formulations, and the consistency of results seem to plague this approach to pest management. The concept of using such nematodes is still a good one. The nematodes themselves don't actually kill the insects, but rather death is caused by a bacteria the nematodes introduce when they invade the insects' body. Several companies are aggressively pursuing the development of new strains and formulations of nematodes that may serve us quite well in the near future.

#### **Oils, spinosads**

Natural products, while not true biological controls, have also received attention of late. One of the original products, azadirachtin, the oil from the neem tree, acts as a growth regulator that disrupts normal insect development. It has been marketed under a number of trade names including Azactin® and Turplex®. A more recent addition of a natural type of product is the insecticide Dow Agrosience called Conserve SC®. This is the first insecticide in the spinosad family which is derived from a naturally-occurring soil organism. This product has a novel mode of action and works by ingestion or contact against caterpillars. Conserve must be applied against small worms and is being used commercially with good success.



**Conventional pesticides pose little threat to our environment, when used properly in the landscape; however, in combination with soil erosion can cause negative environmental consequences.**

Technological advances are enabling scientists to synthetically produce the active ingredient in many of these natural controls found in nature. In addition, bio-technology is allowing genetic engineering to be used as a tool to genetically incorporate some toxins directly into the turf plant. The future of pest management in turfgrass never looked brighter or more exciting. **LM**

*Brandenburg is a turfgrass entomologist at North Carolina State University.*



## EETC's first year sees start of certification program

Schools across the United States are excited about the prospect of gaining certification from the Equipment and Engine Training Council (EETC). At the council's meeting in Milwaukee, WI, in May more than 120 participants received copies of the new "Outdoor Power Equipment Technology Program Certification" publication.

For a school to become certified it must meet the industry's standards for providing professional training facilities and tools; ensuring instructor competency; and teaching industry-specified and desired subjects.

Each of the three levels of certification will require compliance with specific standards for the facility, instructor qualifications, and curriculum competencies.

Level 1 covers two and four-stroke engine competencies.

Level 2 covers electrical, driveline, hydraulics, and hydrostatic competencies.

Level 3 covers compact diesel & generator competencies.

Bruce Radcliff, incoming president of the EETC, said that "one of the primary goals of the EETC for the coming year is to provide accreditation to six to 10 schools in North America. The first school accreditation should be complete by early June."

A second goal outlined by Radcliff was for the EETC "to see a measurable increase in the participation of OPE dealers." He said the involvement and experiences of OPE dealers are needed for the success of EETC.

EETC wants to develop strategies to provide servicing equipment dealers with a continuing flow of qualified service technicians, and improving training and educational opportunities.

Nine speakers addressed the audience

## Georgia supers meet with club managers

Members of the Georgia Golf Course Superintendents Association and the Georgia Club Managers Associated met April 13 at a Superintendent/Club Manager Seminar and Golf Tournament. More than 100 superintendents, managers, golf pros and members of the golf course industry were welcomed by hosts Jimmy Geter, CGCS, and Joe Carter, GM of the Marietta Country Club where the event took place.

The morning's seminar featured a panel discussion concerning golf course maintenance budgets. Panel participants included Mark Esoda, CGCS, Atlanta Country Club; Dick Schulz, owner, The Oaks Course; and Bill Stewart, GM, Atlanta National Golf Club.

While the seminar focused on duties and responsibilities held by superintendents and managers, the GGCSA opened the seminar and tournament to all association members.

For more information on the GGCSA, contact Karen White at 706/769-4076. □

of about 120 at the EETC meeting at Briggs & Stratton. Andy Kuczmar, outgoing EETC President and Director of National Service/Training for Echo, Inc., set the positive tone for the meeting. Other speakers included: Curt Larson, VP of Distribution Sales & Service for Briggs & Stratton; John Rainone, VP of Service for MTD Products; Tony Saiia, VP Quality & Customer Support, Textron Turf Care; Dave Haeck, Training Manager, Commercial Products, John Deere; Jerry Bernhardt, Director of Career & Technology Education, Texas Dept. of Criminal Justice; Clifford Korkowski, President, Anoka-Hennepin Technical College; Judy Fuller Wood, Fuller's Power Equipment, an OPE dealer located in Lansing, MI; and Jim Starmer, President, Dixie Sales Company, a distributor located in Greensboro, NC.

The 1999 EETC annual meeting will be at the headquarters of Husqvarna Forest and Garden in Charlotte, NC, on May 2 and 3. For more information about the EETC, contact Virgil Russell, Executive Director, at 512/442-1788 or E-Mail at opecert@io.com. The EETC's web site is [www.opecert.com](http://www.opecert.com). □

## Seminar topic: pesky mole crickets

More than 70 golf course superintendents and industry members from Georgia and north Florida learned first hand about how to deal with turf-damaging mole crickets. They attended a seminar at The Island Club on St. Simons Island sponsored by the Georgia and North Florida Golf Course Superintendents Association.

Dr. Will Hudson, USGA Extension Entomologist; Ken Hopkins, Chipco; Geri Cashion, FMC; and Dr. Leon Stacy, Coastal Consulting, all spoke at the seminar. Completing the event was an on-site demonstration of a subsoil injection machine. Afterwards, participants golfed at the Island Club, hosted by Norm Pilote, director of golf maintenance, and Scott Lomis, superintendent.

This event is held annually through the cooperative efforts of the Georgia and Florida GCSA's. For further information, contact Karen White, executive director, GGCSA, at 706/769-4076, or Bill Plante, CGCS, Orange Park CC at 904/276-7660. □



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- 01  250 GOLF COURSES (Also fill in questions #3 & #4)
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  - 03  260 Lawn Care Service Companies
  - 04  265 Custom Chemical Applicators (ground and air)
  - 05  270 Tree Service Companies/Arborists
  - 06  275 Landscape Architects
  - 07  280 Land Reclamation and Erosion Control
  - 08  285 Irrigation Contractors
    - Other (please specify) \_\_\_\_\_
  - 09  290 Sports Complexes
  - 10  295 Parks
  - 11  300 Right-of-Way Maintenance for Highways, Railroads or Utilities
  - 12  305 Schools, Colleges, Universities
  - 13  310 Industrial or Office Parks/Plants
  - 14  315 Shopping Centers, Plazas or Malls
  - 15  320 Private/Public Estates or Museums
  - 16  325 Condos/Apartments/Housing Developments/Hotels/Resorts
  - 17  330 Cemeteries/Memorial Gardens
  - 18  335 Hospitals/Health Care Institutions
  - 19  340 Military Installations or Prisons
  - 20  345 Airports
  - 21  350 Multiple Government Municipal Facilities
    - Other (please specify) \_\_\_\_\_
  - 22  355 Extension Agents/Consultants for Horticulture
  - 23  360 Sod Growers/Turf Seed Growers/Nurseries
  - 24  365 Dealers/Distributors/Formulators/Brokers
  - 25  370 Manufacturers
    - Other (please specify) \_\_\_\_\_
2. Which of the following best describes your title? (fill in ONE only)
- 26  10 Executive/Administrator- President, Owner, Partner, Director, General Manager, Chairman of the Board, Purchasing Agent, Director of Physical Plant
  - 27  20 Manager/Superintendent- Arborist, Architect, Landscape/Grounds Manager, Superintendent, Foreman, Supervisor
  - 28  30 Government Official- Government Commissioner, Agent, Other Government Official
  - 29  40 Specialist- Forester, Consultant, Agronomist, Pilot, Instructor, Researcher, Horticulturist, Certified Specialist
  - 30  50 Other Titled and Non-Titled Personnel (please specify) \_\_\_\_\_

3. Is your golf course:

- 31  A Public 32  B Semi Private 33  C Private 34  D Hotel/Resort 35  E Municipal

4. If you work for a golf course, how many holes are on your grounds?

- 36  1 9 37  2 18 38  3 27 39  4 36+

5. How many acres are maintained at your facility? \_\_\_\_\_

6. SERVICES PERFORMED (fill in ALL that apply)

- 40  A Mowing 45  F Turf Fertilization 50  K Paving, Deck & Patio Installation
- 41  B Turf Insect Control 46  G Turf Disease Control 51  L Pond/Lake Care
- 42  C Tree Care 47  H Ornamental Care 52  M Landscape Installation
- 43  D Turf Aeration 48  I Landscape/Golf Design 53  N Snow Removal
- 44  E Irrigation Services 49  J Turf Weed Control 54  O Other (please specify) \_\_\_\_\_

7a. Do you specify, purchase or influence the selection of landscape products?

- Yes  No

7b. If yes, check which products you buy or specify: (fill in ALL that apply)

- 55  1 Aerators 62  8 Herbicides 69  15 Sweepers
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- 57  3 Chain Saws 64  10 Line Trimmers 71  17 Truck Trailers/Attachments
- 58  4 Chipper-Shredders 65  11 Mowers (reel/rotary) 72  18 Trucks
- 59  5 De-icers 66  12 Snow Removal Equipment 73  19 Turfseed
- 60  6 Fertilizers 67  13 Sprayers 74  20 Utility Vehicles
- 61  7 Fungicides 68  14 Spreaders

8. Do you have a modem?  Yes  No

101	113	125	137	149	161	173	185	197	209	221	233	245	257	269	281	293	305
102	114	126	138	150	162	174	186	198	210	222	234	246	258	270	282	294	306
103	115	127	139	151	163	175	187	199	211	223	235	247	259	271	283	295	307
104	116	128	140	152	164	176	188	200	212	224	236	248	260	272	284	296	308
105	117	129	141	153	165	177	189	201	213	225	237	249	261	273	285	297	309
106	118	130	142	154	166	178	190	202	214	226	238	250	262	274	286	298	310
107	119	131	143	155	167	179	191	203	215	227	239	251	263	275	287	299	311
108	120	132	144	156	168	180	192	204	216	228	240	252	264	276	288	300	312
109	121	133	145	157	169	181	193	205	217	229	241	253	265	277	289	301	313
110	122	134	146	158	170	182	194	206	218	230	242	254	266	278	290	302	314
111	123	135	147	159	171	183	195	207	219	231	243	255	267	279	291	303	315
112	124	136	148	160	172	184	196	208	220	232	244	256	268	280	292	304	316



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## Windfoil sprayer for the landscape market

The Yardwalker SC Pro Series Sprayer is a professional spray applicator from Rogers Innovative Inc. of Saskatchewan, Canada. Redeveloped from the Windfoil Sprayer used in the golf market, this sprayer allows applications to be sprayed in the wind without drift since the spray is applied inside a moveable container. The sprayer is convenient to transport through gates and narrow spaces and comes in 50 and 70 inch spray widths. A 5 US gal tank, wheel driven pump, cross handle on/off valve and nozzle flow monitor all contribute to ease of use and productivity.



Call Rogers Innovative at 888/9975-8294 or fax 306/975-0499 for details and information about their complete line of Turf Sprayers, or

Circle No. 283

## Guide helps control turfgrass diseases

ProStar® Tank Mix Solution Central quick reference guide from AgrEvo shows golf course superintendents exactly which programs they should tank mix, along with



ProStar Fungicide, to control most of the diseases they would encounter.

According to George Raymond, Marketing Manager, AgrEvo Green Industry, "ProStar Fungicide is the ideal basis for providing broad spectrum control of a wide variety of turfgrass diseases, including brown patch, fairy ring, red thread, Southern blight, yellow patch and other infestations that can be difficult to identify and even harder to suppress. But by mixing ProStar with other fungicides according to this guide, the superintendent can control most any disease on his golf course, and there's no guesswork involved."

The reference guide is a 22" x 28" four-color poster that lists which products can be mixed with ProStar, and the diseases that each program combination is designed to control. To obtain this free poster, call AgrEvo at 800/843-1702.

Circle No. 284

and management support for a complete maintenance program or for special needs. For technical advice or specific questions, superintendents and their staffs may contact Scotts at 800/543-0006. Mention LM when you call, or

Circle No. 285

## Control more than a dozen diseases with these

For golf course superintendents who like to stay two steps ahead of the game, The Scotts Company introduces Golden Eagle fungicide and Golden Eagle plus Scotts fertilizer. Golden Eagle is a systemic fungicide containing the active ingredient myclobutanil to prevent, and control, turfgrass diseases. The combination product uses Scotts Contec fertilizer technology to feed all types of turfgrass while controlling diseases with one application. Golden Eagle is effective at combating more than seven turfgrass diseases including dollar spot, brown patch, summer patch, and anthracnose. It provides all-weather control, even when temperatures and humidity rise and disease pressure is highest.

Penstar Flo, a convenient liquid turf fungicide for control of pink and gray

snow mold, leaf spot, and damping-off is another new Scotts product.

This sprayable control product can also be used for dollar spot or brown patch on warm climate grasses. Penstar Flo contains PCNB, an excellent contact fungicide. Its concentrated flowable formulation provides optimum turf coverage for both warm and cool season grasses. Penstar Flo offers a choice of application rates depending on the type and severity of infestation and kind of protection desired. Penstar Flo is offered in two packing configurations — a unique four-gallon container for treatment of one acre of fine turf, and a 30-gallon drum for high-volume applications.

Scotts Tech Reps provide agronomic



## AquaScape fountain has four spray patterns

The AquaScape Surface Aerator/Fountain has a new Multinozzle on the 1 and 2 HP Fountains. To change spray patterns among the four easily interchangeable disks, simply unscrew one bolt, exchange a disk and tighten the bolt. An optional light system and colored lenses are also available.

The Surface Aerator/Fountain increases dissolved oxygen levels and provides circulation which helps control pollutants and limit algae growth. For more information contact AquaScape at 800/569-1345; fax 612/521-1455, or

Circle No. 286

## Make a concrete impression!

Classic Imprint Systems has developed a concrete impression roller with interchangeable patterns. The patterns include brick, cobblestone, herringbone, slate and tactile

warning and come in several sizes: 8", 16", 32" and 48". Custom patterns can also be manufactured.

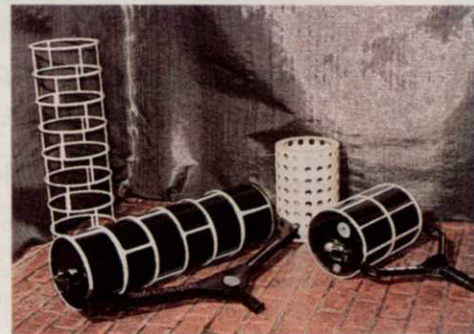
## Attacking fungal enzymes works

In recent test comparisons by Rohm and Haas of their Dithane® dry flowable formulation, researchers found that, among Mancozeb-based fungicides, Dithane had the smallest mean particle-size. Using a Coulter particle-size instrument which measures and calculates the size and distribution of thousands of particles, researchers determined that the mean particle size of the other Mancozeb products was from 60 to 90 percent larger than that of Dithane and that the maximum particle size was at least three times larger.

Mancozeb fungicide formulations inactivate fungal enzymes, ultimately causing the fungi to die. The effectiveness of the fungicide is dependent on the proximity of the fungicide to the particle. Correctly applied, small particles result in more uniform coverage and reduce the possibility of fungi spores landing in a fungicide-free location. According to Jim Walter, Rohm and Haas product development manager for Turf and Ornamental Products, the Rohm and Haas researchers concluded that "a given dose of Dithane provides more uniform coverage to a greater surface area, providing greater efficacy for the user."

For more information, contact Rohm and Haas at 215/592-3000 and mention LANDSCAPE MANAGEMENT, or

Circle No. 287



The units are powder coated with a durable finish and attach easily to a bull float handle. The patterns can be changed and ready to use in 3 minutes. All rollers come with an instructional video. For more information contact Classic Imprint Systems at 888/550-1999, check their website at: [www.concreteroller.com](http://www.concreteroller.com), or

Circle No. 288



## EPA Approves New Protect T/O Labeling

EPA has approved the most recent amendments to the label of Cleary's Protect T/O, a micro-ground 80 percent mancozeb fungicide. Recent label improvements include: the addition of a 1 to 2 pound/100 gal use range to increase user flexibility in disease situations and residue management; the expansion of the disease list to over 70 pathogen species; the expansion of the host list to over 155 host plants or plant groups; and the incorporation of research to support the cut fern industry. Protect T/O is packaged in pre-measured 12 ounce water soluble bags and 50 pound bags for larger use needs.

For further information contact Cleary Chemical at 800/524-1662, your local Cleary distributor, or

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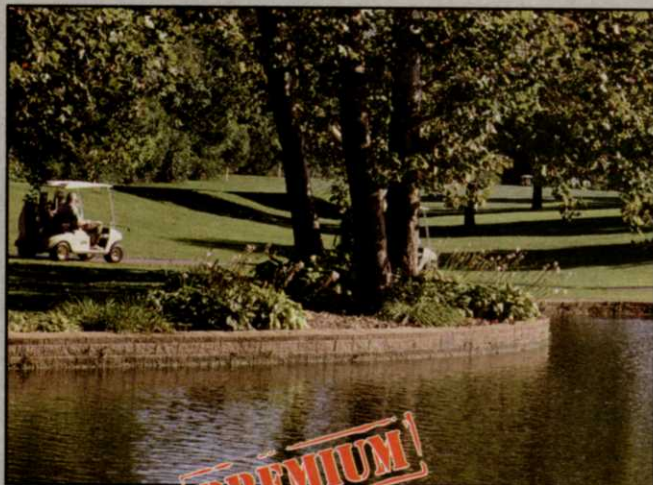
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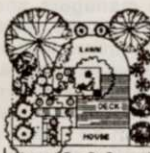
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# Grab Bag

## Fade to the right

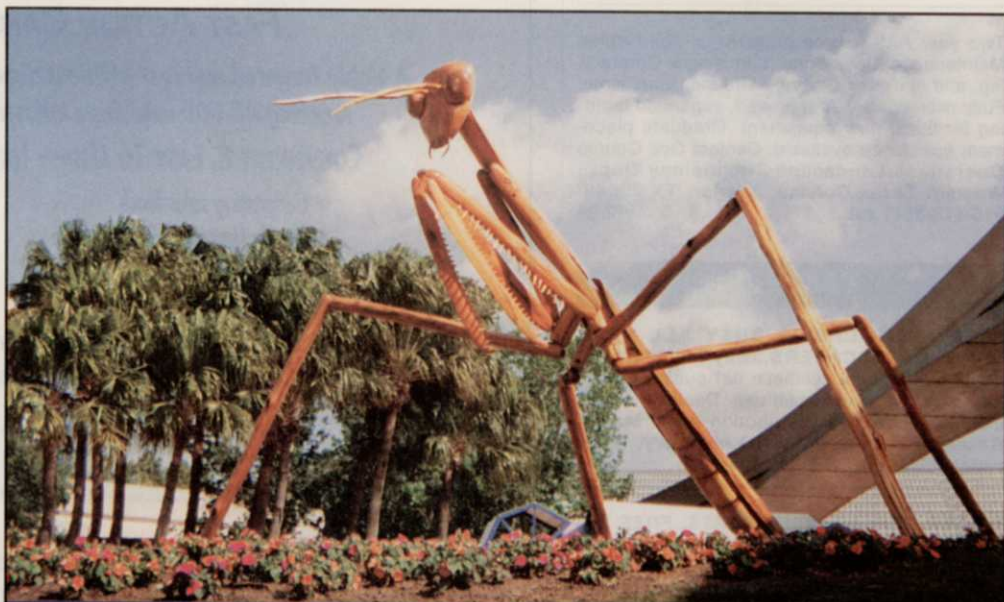
A survey by "Golf in America" online finds a great majority of US golfers are Republicans. Fifty-three percent of the 600 golfers surveyed said they share Republican points of view. Independents made up 24 percent of those surveyed, and the Whigs came in last with 18 percent. President Clinton's reported love of golf hasn't helped the game either, says the survey. More than 90 percent of those surveyed said the publicity surrounding Clinton's golf hunger has contributed little or nothing to golf's popularity. The survey was conducted over the National Golf Foundation/USA Today websites.

*cont. from Hot Topics page 19*  
the TOCA annual meeting in May. The 1999 meeting will be held in Orlando.

TOCA, nearing its 10th anniversary, is comprised of editors, writers, photographers, public relations practitioners and others involved in Green Industry communications. The TOCA administrative office is based in New Prague, Minn.

TOCA offers a newsletter of association activities, interaction with industry peers, an annual meeting with a writing/photography/design contest.

To learn more about TOCA membership or to obtain an entry form for the award, contact the association at 612/758-6340.



## 'Big Bugs' exhibit a fun feature at Epcot

American Cyanamid was a participant in the Fifth Annual Epcot International Flower & Garden Festival, April 17-May 31. Visitors to the theme park enjoyed special exhibits and workshops designed to provide information and advice on various gardening and horticultural topics. Cyanamid was featured in "Gardening for Tomorrow," which included the "IPM Garden" and "Big Bugs" exhibits. Integrated Pest Management was a key topic.

## Jake, Ransomes deal combines resources

Since news of the sale of Ransomes to Jacobsen Division of Textron, Inc. in January 1998, the two companies have been combining resources, facilities and people, and have named the company Textron Turf Care and Specialty Products.

Peter Wilson, president of Ransomes, has been named president; Phil Tralies, president of Jacobsen Textron, is president of the Textron Turf Care and Specialty Products Americas.

The company formed by the buyout markets products to the golf, professional lawn

care and industrial markets. Brands include: Jacobsen; Ransomes; Cushman; Ryan; Bob-Cat; Brouwer; Bunton; Steiner.

Textron Turf Care and Specialty Products Americas now has manufacturing plants in Wisconsin, Nebraska, North Carolina, Kentucky and Florida. Steiner-Brouwer is based in Orville, Ohio.

"We have combined two sales and marketing teams," says Harold Pinto, new senior vice president of sales and marketing, "to create an 'all-star team' focused on staying competitive and satisfying our customers' needs."



Phil Tralies



Harold Pinto

Grab Bag features brief observations and prognostications throughout the green industry. If you have an unusual photo or comment you'd like to share with us, please send it in...



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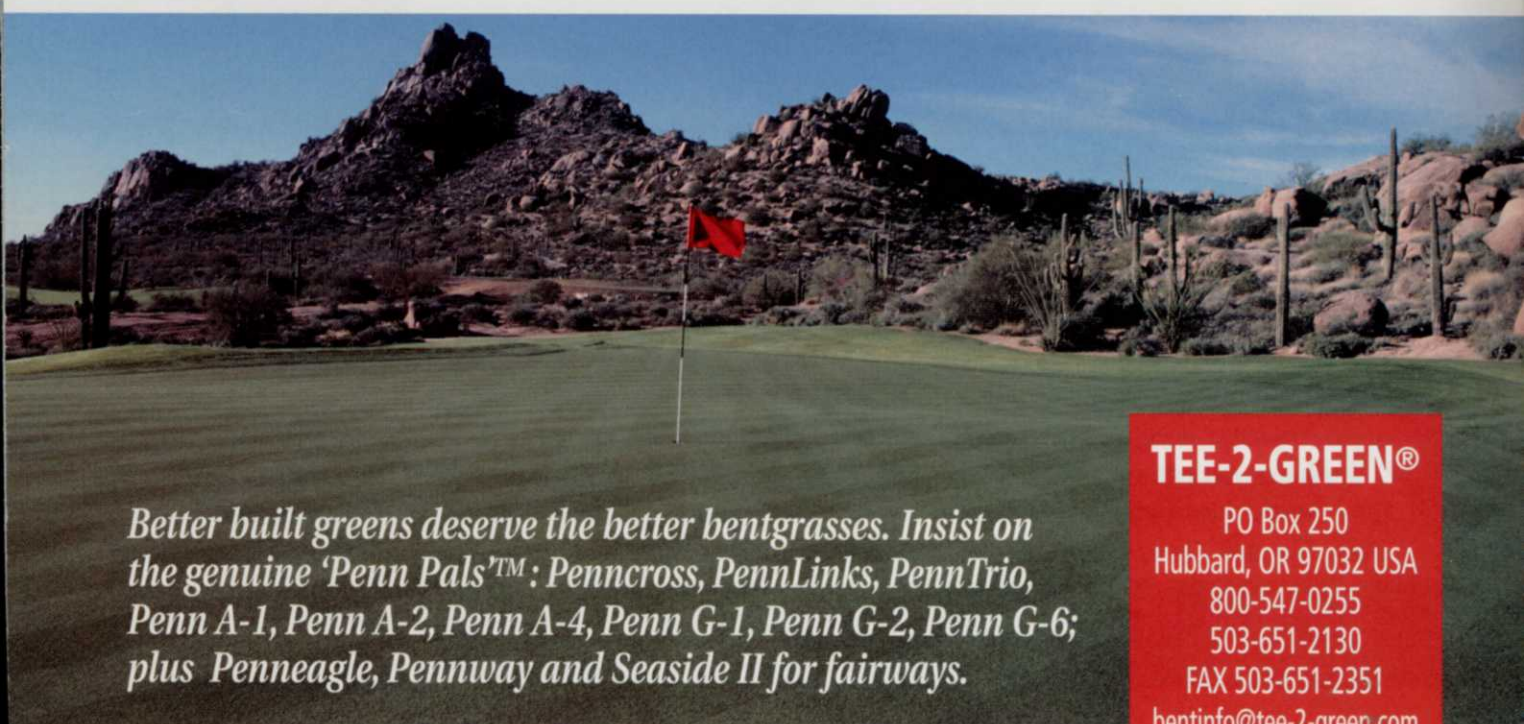
At \$4 to \$7+ per square foot, a 6,000 foot green can cost \$24 to \$50 thousand. No matter how you figure it; design, grading, tiling, gravel, sand and manpower, building a green is the most important part of any course. It would be foolhardy to plant an unproven bentgrass on a whim, or because it's a few cents a pound cheaper. Of course you're going to be cautious when your reputation's on the line. You're going to insist on the stellar new Penn A and G series bents from Tee-2-Green®, developed by Dr. Joe Duich, then tested—and selected—by some of the best superin-

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