SERVING THE AMERICAN LAWN APPLICATOR AND MAINTENANCE PROFESSIONAL

# ALA

JUNE 1987 • $2.00

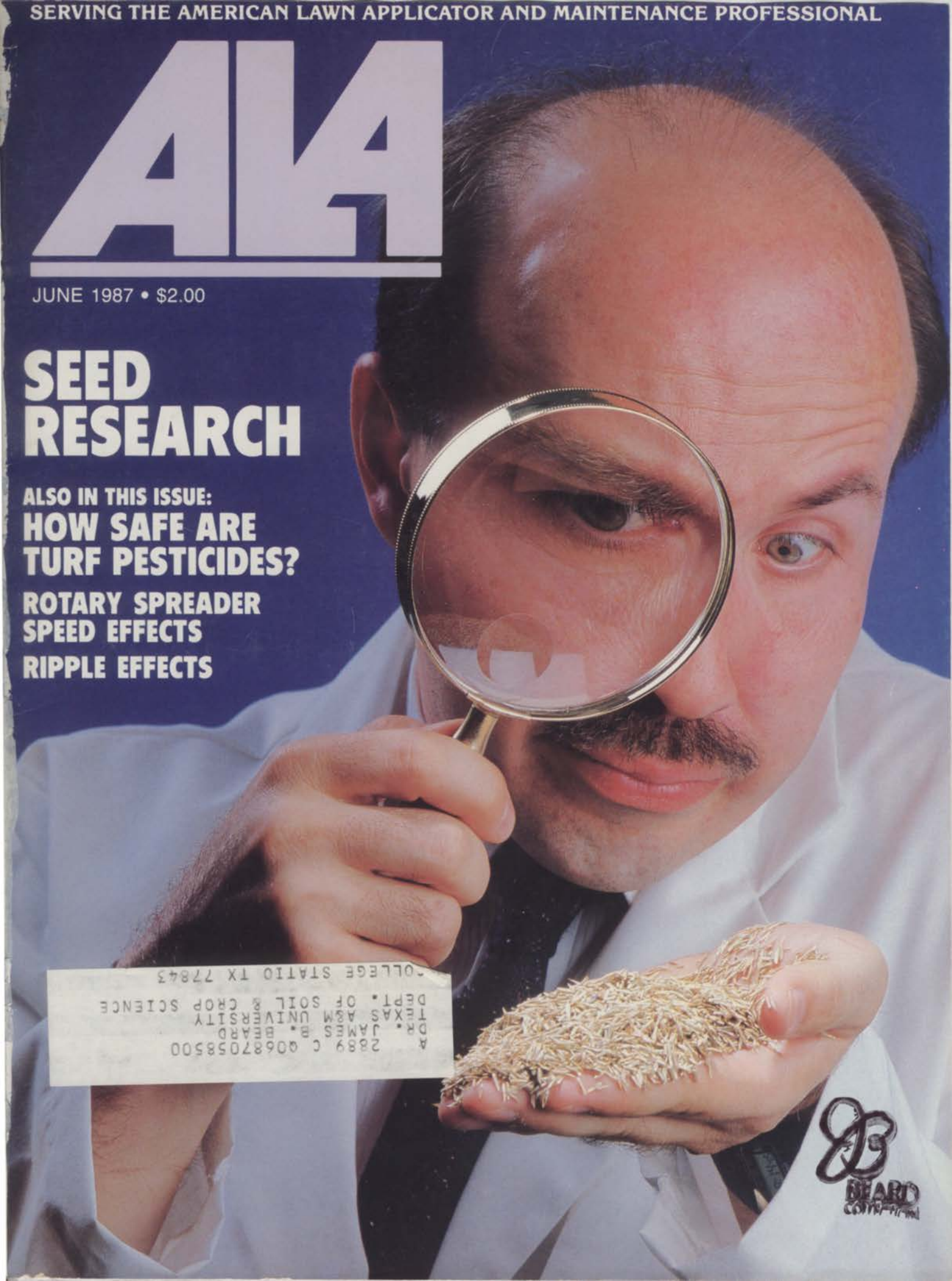
# SEED RESEARCH

ALSO IN THIS ISSUE:

## HOW SAFE ARE TURF PESTICIDES?

## ROTARY SPREADER SPEED EFFECTS

## RIPPLE EFFECTS



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JUNE 1987
VOLUME 8 NUMBER 6

ALA

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# TABLE OF CONTENTS

## BUSINESS FEATURES

**Seed Research**
The basic goal of turfseed research is always the same: Improve existing varieties. But every year new trends in desired characteristics develop.....**14**

**Home Lawn Seeding**
Offering a home lawn seeding service requires a good deal of knowledge about turfseed germination and establishment.....**17**

**Ripple Effects?**
Many expected a backlash this spring from the adverse media reports of last summer, but so far nothing has materialized.....**20**

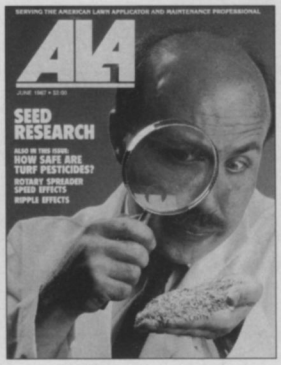
## TECHNICAL FEATURES

**How Safe Are Turf Pesticides?**
A lot has been made of the supposed toxicity of turf pesticides in local and national media reports. This is just the article to rebut those reports.....**26**

**Rotary Spreader Speed Effects**
Does the speed at which the applicator walks while pushing a spreader affect the distribution of material? Read on and find out!.....**35**

## DEPARTMENTS

Advertiser's Index.....**41**
Calendar.....**7**
Classifieds.....**39**
Inside Story.....**6**
News in Brief.....**8**
People.....**13**
PLCAA Update.....**13**
Products.....**37**
Views Across the Industry.....**7**




## COVER

We scrutinize the latest fruits of turfseed researchers' efforts. (Cover photo by Barney Taxel)

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|---|---|---|
| SEED | | SE |
| TYPE | BRAND | 5 |
| BENTGRASS | PENNEAGLE | .4 |
| | PENNCROSS | .2 |
| KENTUCKY BLUEGRASS | ASPEN | |
| | RUGBY | |
| | PARADE | |
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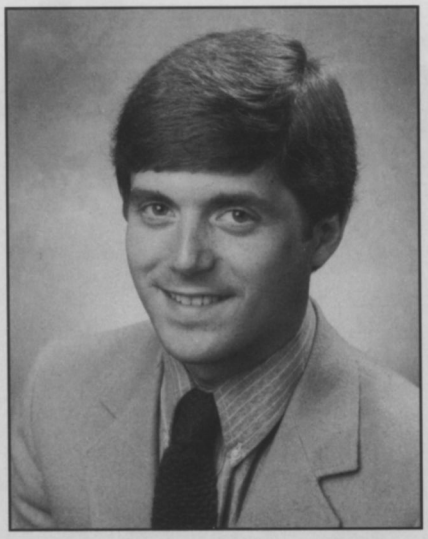
# INSIDE STORY

Turfseed research is a topic we usually deal with in the September issue in conjunction with a report on the turfseed market. This year we have taken that one big combined story and split it up into two shorter, more condensed articles. In this issue we will discuss the turfseed research situation and then bring you the turfseed market report in September.

As you might have guessed, turfseed researchers continue to improve the characteristics of existing turfgrass varieties. That's the bottom line on turfseed research, but there really is more to it than that. Every year an intensified pursuit of certain turfgrass attributes can be identified as a "trend." For example, many turfgrass varieties that are being developed now for introduction in the next year or so are being selected for dwarf growing habits. There are even varieties in the works that are referred to as "double dwarfs," meaning that they exhibit unusually low growing habits. So turfgrass isn't simply becoming



agronomically better, it's also becoming cosmetically *different*.

Many of you may want to incorporate these new and improved turfgrasses into your customers' lawns. For you, we have an article titled "Home Lawn Seeding."

Those of you already performing a lawn seeding service have found out that it involves a special knowledge of turfseed germination and establishment. But for those of you who have yet to get your feet wet, we have outlined some rules of the game.

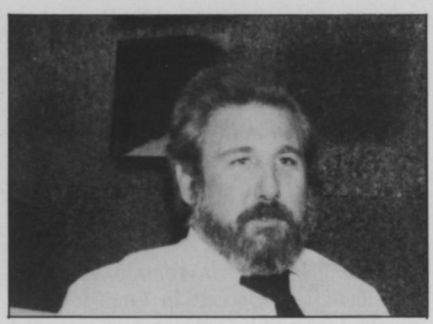
The "Ripple Effects" that many lawn care businessmen expected to emanate from last summer's adverse media coverage really didn't come to pass. But Assistant Editor Vivian F. Rose tells us that the industry realizes how quickly the media could turn on it again and this time it is prepared for the worst. Remember, what goes around comes around!

And as always, we have an informative selection of technical articles for you, this time from Dr. Richard J. Cooper of the University of Massachusetts at Amherst and Richard L. Parish of Louisiana State University. Read on!

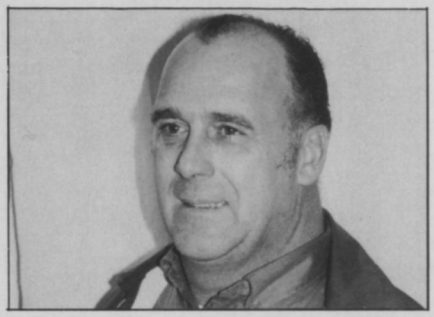
Tim Weidner

# VIEWS ACROSS THE TURF INDUSTRY

## DO YOU OFFER HOME LAWN SEEDING?



"Yes, we've had a lot of demand for it because several lawns thinned out from last year's drought. We just started it this spring. I wouldn't say that we've really made any money with it yet. We did run into problems when people wanted to overseed but also wanted to make sure they didn't get any crab grass. Overseeding and putting down preemergents just wouldn't work. There are a lot of customers who are sort of holding off to see how well their lawns will thicken up. I foresee more of a potential for doing it in the fall than into the spring." — *Glenn Scherzinger, Scherzinger Lawn Care, Cincinnati, Ohio*



"There probably is a market for it here but we're strictly into spraying. I've done three or four in the spring and we do a couple in the fall, but usually I just turn it over to someone else that's got an overseeder. I don't even own an overseeder, I just rent one if there's a need for it. In general, there is a need for overseeding with the lawns as bad as they are this spring. A lot of lawns really just haven't come through the winter as well as they have in previous years. There is a need, there's no doubt about it, but I don't do it as a regular job." — *Glen Howling, Evergreen Lawn Spray, Kitchener, Ontario*

"Yes, we do offer it because it's an additional service to help the customers and it's an extra source of revenue for us. It's money in the spring for us, although we kind of limit how much we do in the spring. We have done a lot of it traditionally in the fall and it's a real extra shot of revenue. So far it's worked out well. We've been burned a few times on it. But we try to really educate the customers as to what they have to do and what they can expect as far as how fast the seed will germinate, how soon they should take the straw off, and things like that." — *Anthony Sabin, Advanced Lawn Care, Cincinnati, Ohio*

# CALENDAR

**CALENDAR**

**June 16-19**
New England Cemetery Association, Sea Crest Resort, North Falmouth, Massachusetts. Contact: Frederick R. Laffond, 15 Riverton Street, Keene, New Hampshire 03431; 603/352-7655.

**June 21-24**
OPEI Annual Meeting, Monterey, California. Contact: Outdoor Power Equipment Institute, 1901 L Street, NW, Suite 700, Washington, D.C. 20036; 202/296-3484.

**June 25**
Turf Research Field Day, University of Massachusetts Turfgrass Research Center, South Deerfield, Massachusetts. Contact: Dr. Rich Cooper, Department of Plant and Soil Sciences, Stockbridge Hall, Amherst, Massachusetts 01003; 413/545-2353.

**June 26-30**
Mid-Atlantic Nurserymen's Trade Show, Virginia Beach, Virginia. Contact: Mid-Atlantic Nurserymen's Trade Show, Inc., P.O. Box 314, Perry Hall, Maryland 21128; 301/256-6474.

**July 27-29**
OPEI Expo '87, Kentucky Fair and Exposition Center, Louisville, Kentucky. Contact: Outdoor Power Equipment Institute, 1901 L Street, NW, Suite 700, Washington, D.C. 20036; 202/296-3484.

**July 29-31**
American Sod Producers Association Summer Convention and Field Days, Westin Hotel, Seattle, Washington. Contact: Doug Fender, Executive Director, ASPA, 1855-A Hicks Road, Rolling Meadows, Illinois 60008; 312/705-9898.

**Aug. 27-30**
ALCA Exterior Landscape Contracting Division Conference, Red Lion Inn, Portland, Oregon. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

**Aug. 28-30**
Farwest Trade Show sponsored by the Oregon Association of Nurserymen, Portland Colosseum, Portland, Oregon. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

**Sept. 22-23**
Virginia Tech Turfgrass Research Field Days, Virginia Tech, Blacksburg, Virginia. Contact: J.R. Hall, III, Virginia Polytechnic Institute, Virginia Cooperative Extension Service, Blacksburg, Virginia 24061; 703/961-5797

**Oct. 24-29**
ALCA Interior Plantscape Division Conference, Hyatt Regency Crystal City Hotel, Arlington, Virginia. Contact: Rebecca Crocker, Associated Landscape Contractors Association, 405 North Washington Street, Falls Church, Virginia 22046; 703/241-4004.

**Oct. 25-28**
1987 International Irrigation Exposition and Technical Conference, Orlando, Florida. Contact: Irrigation Association, 1911 North Fort Myer Drive, Suite 1009, Arlington, Virginia 22209; 703/524-1200.

**Send your calendar notices to: ALA Magazine, 4012 Bridge Avenue, Cleveland, Ohio 44113.**

# NEWS IN BRIEF

## ONTARIO LIFTS 2,4-D MORATORIUM

The use of new products containing 2,4-D will be allowed in Ontario, according to an announcement made by Ontario's Environment Minister Jim Bradley on April 16. The minister removed the moratorium on the introduction and use of new products containing 2,4-D after a detailed review of toxicological information by a panel of international experts.

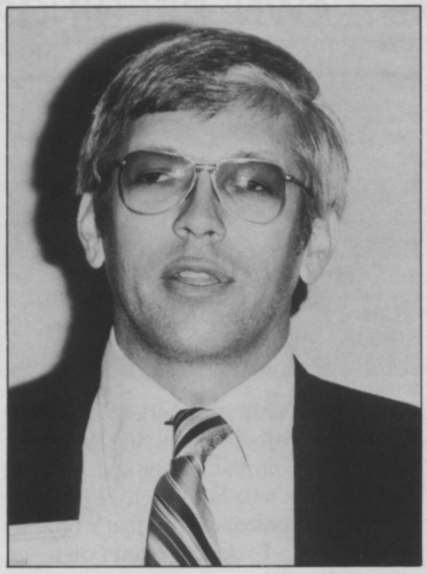
The five-member panel, chaired by Dr. Ian Munro, Director of the Canadian Centre for Toxicology, found that there is insufficient evidence to conclude that 2,4-D is a carcinogen or that existing uses of 2,4-D in Ontario pose a significant human health risk. The report was reviewed for the Ontario Pesticide Advisory Committee (OPAC) by Dr. John Doull, of the Department of Pharmacology, Toxicology, and Therapeutics, University of Kansas.

Based on the conclusions of the expert panel, OPAC advised the Minister that "no changes be made to current provincial regulatory requirements governing the use of 2,4-D at this time." OPAC also advised the Minister to lift the ban on new 2,4-D products. OPAC is an autonomous advisory committee that reviews information on federally registered pesticides prior to their classification in Ontario. The committee reports directly to the Minister of the Environment.

The Minister has requested that OPAC and the pesticide industry develop a program to reduce 2,4-D exposure of users. Formal conditions for use are being reviewed, as well as an education program aimed at minimizing overall exposure of home users and commercial and agricultural applicators.

Minister Bradley instated the 2,4-D moratorium on October 31, 1986 until unfavorable reports on the health effects of 2,4-D could be reviewed. The panel of international experts, including toxicologists from the United States and Canada, an epidemiologist, a statistician, and a cancer specialist, reviewed all current studies, including the United States National Cancer Institute and the State of Kansas epidemiological studies, and a study completed by an industry task force.

Panel members included: Professor Robert Squire, Johns Hopkins University School of Medicine; Professor Marion Anders, Department of Pharmacology, University of Rochester; Dr. Kenneth Crump, Executive Vice President and Director of Clement Associates, Ruston, Los Angeles; and Professor Anthony Miller, Director, Epidemiology Unit, National Cancer Institute of Canada.



*John Wright*

"When the review of 2,4-D was initiated," says John Wright, President of Lawn Spray Service, Bloomingdale, Ontario, "the Ministry of the Environment had little information as to its use by our industry. We asked the industry to write to the Minister directly and tell him what 2,4-D meant to their businesses." Wright is also Chairman of Landscape Ontario's Sprayers Commodity Group. He commented on the situation in the April issue of *Landscape Trades* magazine.

He was concerned about the role politics could play in the Minister's decision making process. "At one point," says Wright, "the Minister had received more than 200 letters from environmental groups telling him to ban 2,4-D. We wanted to ensure that the Minister's decision was based on scientific research and not a knee jerk reaction to environmentalists."

Some 280 products containing 2,4-D are classified for use in Ontario. The material is used by farmers, commercial applicators along right-of-ways, and by homeowners on lawns.

## FERMENTA CONSTRUCTS NEW HEADQUARTERS

Fermenta Plant Protection Company has announced the construction of new corporate headquarters at Heisley Centre located in Mentor, Ohio. The new 30,000 square-foot facility will house corporate staff and upper management personnel. Construction of the facility is being handled by JTO, Inc., Mentor, Ohio.

"The move is indicative of our commitment to strengthen and expand our position in the business," said Richard L. Urbanowski, President and C.O.O. of Fermenta Plant Protection. Fermenta is involved in the production and worldwide sales and marketing of chemicals for the agricultural, turf, and ornamental markets.

*(continued on page 10)*


*(Left to right) J.T. Osborne, JTO, Inc.; F.O. Hicks, Fermenta; D.E. Krueger, Mayor, Mentor; R.L. Urbanowski, Fermenta; and F.S. Barry, SDS Biotech.*

# This Is What PGMS Is Doing For The Grounds Manager

If you haven't checked out the Professional Grounds Management Society recently, then you're in for a surprise. We're offering a bundle of new benefits that make joining PGMS more rewarding than ever! Here's what we've been up to and how you can benefit:

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**NEWS**

*(continued from page 8)*

## NEW JERSEY ENACTS RIGHT-TO-KNOW LAW

The New Jersey legislature has passed a worker and community right-to-know act affecting lawn care companies, according to a recent report in The Alliance For Environmental Concerns' newsletter. The law requires a survey of the workplace for listed substances, training of all employees in the safe handling of these substances, and the notification of all safety personnel (fire, police, etc.) in the community where these substances are stored. The Department of Health has already issued citations for non-compliance.

A complete list of the 2,051 hazardous substances identified by the state are available by calling the Department of Health's hotline number at 609/984-2202. Common pesticides which appear on this list include diazinon, chlorpyrifos, 2,4-D, and dicamba. The state Department of Environmental Protection also has a list of 154 hazardous substances, including captan, carbaryl, chlordane, chlorthalonil, lindane, maneb, trifluralin, and zineb. The DEP's hotline number is 609/292-6714.


## ARBORISTS RECOGNIZE LIVING WITNESSES

The only living witnesses to the signing of the Constitution of the United States are trees which are 200 years old or older. The National Arborists Association and the International Society of Arboriculture are providing their members with an opportunity to recognize some of these trees with specially-designed bronze plaques.

This program is officially recognized by the Commission on the Bicentennial of the United States Constitution as part of our living legacy. Tree selection and recognition is subject entirely to the discretion of local members of each of the organizations.

## LESCO, CIBA-GEIGY CONTRIBUTE TO RESEARCH

LESCO, Inc., in conjunction with Ciba-Geigy Corporation, has contributed to three university research programs through an industry allowance plan. Funds were provided for support of turfgrass insect and disease research to the University of Massachusetts, Pennsylvania State University, and Michigan State University.

Dr. Patricia Vittum, University of Massachusetts and Dr. Paul Heller, Pennsylvania State University, received funds to support continuing research on turf insects. Dr. Joe Vargas' work on several turfgrass diseases received funding at Michigan State. The grants are part of an annual program to further research. ■

# PEOPLE

Lynn Brookhouser has been appointed Vice President, Marketing and Sales for Fermenta Plant Protection Company. His new duties include overseeing all the company's sales and marketing efforts worldwide.

Brookhouser has held various management positions with Fermenta, including his prior post as Vice President, Marketing. He received a bachelor of science degree in plant pathology and a master of science degree in forestry and plant pathology from the University of Nebraska. Brookhouser also earned his doctorate in plant pathology and biochemistry from the University of California at Berkeley.

Fermenta has also named **Richard Urbanowski** President and C.O.O. of the company. In his new position, he has overall responsibility for the firm's agricultural chemicals business on an international basis.

Prior to the position, Urbanowski was involved for more than 29 years in the agricultural chemical businesses of Diamond Alkali, Diamond Shamrock Corporation, and SDS Biotech Corporation. Most recently he served as Vice President, International for Fermenta.

*Sharon McGuire*

Urbanowski received his bachelor of science degree in chemical engineering from the Carnegie Institute of Technology.

**Sharon McGuire** has been chosen as Executive Director of the California Landscape Contractors Association (CLCA). She succeeds Michael Leeson, who recently resigned after 14 years of service.

Since joining the Sacramento-based association in 1980, McGuire has headed several areas, including public relations, meeting planning, *California Landscape Magazine*, budget planning, the Landscape Industry Show, and CLCA Trophy Awards Program. She was promoted two years ago to Associate Executive Director, with overall responsibility for the daily operations.

**Send your "People" press releases to: ALA Magazine, 4012 Bridge Avenue, Cleveland, Ohio 44113.** ■

# PLCAA UPDATE

Regional chairpersons of the Professional Lawn Care Association of America are now contacting speakers for the 15 PLCAA-sponsored regional seminars held throughout the summer and early fall. Though the seminars will be held in various cities across the United States, the formats will be standardized in order to promote a central theme.

According to Gary Clayton, PLCAA's Director of Technical Services, all seminars will include an afternoon session (1 to 4 p.m.) which covers assessment of operational and business risk management. Regional chairmen have been given a menu of about 12 possible topics, he adds. Suggested topics include presentations by regulatory agency personnel on risk management and assessment to business and financial considerations of risk management, such as hiring practices.

From 4:00 to 5:30 p.m. there will be exhibitor visitation, outdoor demonstrations, and a Tex-Mex taco buffet in the spirit of the upcoming San Antonio Conference and Show. An applicator training session (5:30 to 7:30 p.m.) will be set up in stations in a field day format. Each station will be devoted to one aspect of applicator training, depicting scenarios which involve hands-on role play. A station might include such things as a mock spill; demonstrating control, containment, clean-up, and reporting procedures for both liquid and granular operations. Another station would be dedicated to operator technique, independent of the delivery system the company uses.

Still another exercise will involve borders designated with marking paint and physical barriers such as gardens and ornamental plants. "White paper will be placed around these border areas for a role play situation to determine the migration of spray droplets or granular particles," says Clayton.

No events will be scheduled in the morning because in many cases there are state and regional lawn care associations that currently exist or are being formed and this time provides an opportunity for them to have a meeting of that organization or group. ■

**PLCAA REGIONAL SEMINARS**
Preliminary 1987 Schedule

Atlanta, Georgia • June 11
Washington, DC • June 18
Philadelphia, PA • June 23
Hartford, CT • June 25
Rochester, NY • June 30
Cleveland, OH • July 2
Detroit, MI • July 14
Cincinnati, OH • July 16
Chicago, IL • July 23
Oklahoma City, OK • July 28
Dallas, TX • July 30
St. Louis, MO • August 11
Kansas City, MO • August 13
Minneapolis, MN • August 18
Boulder, CO • August 20

# SEED RESEARCH

*Seed researchers are working to improve existing turfgrass varieties, but they are also pursuing certain trends in turfgrass characteristics.*

Every September we bring you a report on the condition of the turfseed market and current turfseed research, but this year we are going to do things a little bit differently. We will report on the turfseed market in September, as always, but now you can get the low-down on research a little earlier — in this issue.

On the surface, turfseed research seems to be nothing more than a continuing effort to enhance the same turf attributes that turfgrass managers have always sought after. Although turfseed producers continue to select for varieties that exhibit superior color, drought tolerance, disease resistance, and other basic qualities, certain trends in turfgrass breeding emerge from year to year. For instance, one turfgrass quality that seems to be "in vogue" with breeders this season is dwarf growing habit. Low-growing grass that requires less mowing has always been sought after, but more dwarf varieties are in the pipeline and scheduled for introduction in the next year or so than ever before.

In sharp contrast to the dwarf trend, is Huntsville Kentucky bluegrass from Jacklin Seed Company. Huntsville is a tall, dark green variety. It forms a moderately dense turf with an upright growth habit. It is not adapted to a short mowing habit, which may stress it, according to Jacklin's Director of Research Dr. Douglas Brede.

It has shown moderate resistance to stem rust, leaf rust, and powdery mildew. It has performed well in blends with turf-type tall fescues.

This plant was discovered in an old lawn-type turf in northern Alabama by Cyril R. Funk, Jr. during the late winter of 1974. Seed yield trials were established in northern Idaho at Jacklin Seed in 1975 under the experimental designation H75-2499.

Turf-Seed, Inc. of Hubbard, Oregon will debut a very dark blue, moderately dwarf tall fescue variety called Monarch this fall. This new variety has also exhibited improved disease resistance and heat tolerance, according to Dr. Bill Meyer, Turf-Seed's Vice President and Research Director. Two other dwarf tall fescues that are as yet unnamed will also hit the market soon. These varieties are extremely dwarf in growing habit and have a dark color and very fine leaves. Meyer reports that there will be more dwarf varieties to come from Turf-Seed.

Other tall fescue varieties that will be available this fall are Jaguar II (tentative title) and Fine Lawn 5GL, co-sponsored by Fine Lawn Corporation. Fine Lawn 5GL "is a selection from our Georgia breeding program that has shown improved density and heat tolerance, especially in the lower transition zone tests," says Meyer. "We are primarily breeding for darker color, improved disease resistance, and more dwarf growth habit."

Turf-Seed will also be marketing Sunrise Brand (246) ryegrass this fall. Meyer says this variety has shown outstanding overseeding performance in the South and has shown the darkest color of any ryegrass.

A new Turf-Seed composite Kentucky bluegrass should be named soon, but for now it is referred to as CB-1. Meyer explains that "composite" means that there is more than one parent plant in the variety.

LESCO, Inc of Rocky River, Ohio also has a dwarf tall fescue up their sleeve called Trailblazer. It is the first of the dwarf tall fescues with significantly improved density and leaf texture compared with the other turf-type tall fescues, according Art Wick, LESCO's Vice President, Research, Development, and Technical Training. Wick indicates Trail Blazer seed will be readily available this fall. Wick says this variety will look more like a bluegrass than any other tall fescue presently on the market and it is an excellent companion grass in mixtures with Kentucky bluegrass.

LESCO will also be releasing Wrangler turf-type tall fescue. Wrangler, which will be in limited supply this fall, is jointly marketed by LESCO, Jacklin Seed Company, and Turf Merchants, Inc. Wick notes that Wrangler performed extremely well in the turf trials at Rutgers University this year. Regency, a new turf-type perenial ryegrass, is dark green, early maturing, and will primarily be used in mixtures.

LESCO, Inc. will be marketing a new perennial ryegrass variety called Commander that was developed by Pure-Seed. This ryegrass has improved heat tolerance, medium green color, and a high endophyte content.

LESCO will also co-market Shademaster creeping red fescue with Turf Seed, Inc. "It should be one of the finest red fescues ever released," claims Wick. Finally, the medium-dark green, medium-textured bluegrass Dawn will also be available this fall from LESCO.

Jonathan Green seed company of Farmingdale, New Jersey will also debut a new Kentucky bluegrass this fall. There will be about 100,000 pounds of Destiny Kentucky bluegrass available according to Barry Green, Jr., Jonathan Green's Vice President/Sales. In the 1984 and 1985 turf trials at Rutgers University, Green says Destiny ranked number six and number two overall, respectively, out of a field of 100 contenders. "It is unusual to find a bluegrass that will rank that high, and yet will also yield grass seed," says Green.

Green describes Destiny as a dark green, semi-dwarf variety. Its other attributes include good cool-weather color retention, attractive spring growth, good heat tolerance, and good resistance to *Fusarium* blight, leaf spot, stem rust, and dollar spot.

Jonathan Green will also have a perennial ryegrass entry called Allaire. It is as dark green as any Kentucky bluegrass currently on the market, according to Green. "There isn't any ryegrass that is even close to it on the market right now,"

claims Green. He notes that this ryegrass will blend well with bluegrasses because of its dark color. Allaire will establish rapidly on a wide range of soil types, is persistent in hot or cold weather, stands up to traffic, and is particularly strong against *Pythium*, brown patch, and leaf spot, according to Green. He hopes to have about 300,000 pounds available this fall.

Although not available until next year, Jonathan Green expects to market another ryegrass called Sherwood that Green says has been outranking Allaire in the Rutgers turf trials. It will be distributed by Jonathan Green's West Coast division, Cascade International Seed Company, in conjunction with Normark Seed Company. This ryegrass features extremely fast germination, has a very aggressive root system, and is resistant to *Pythium*.

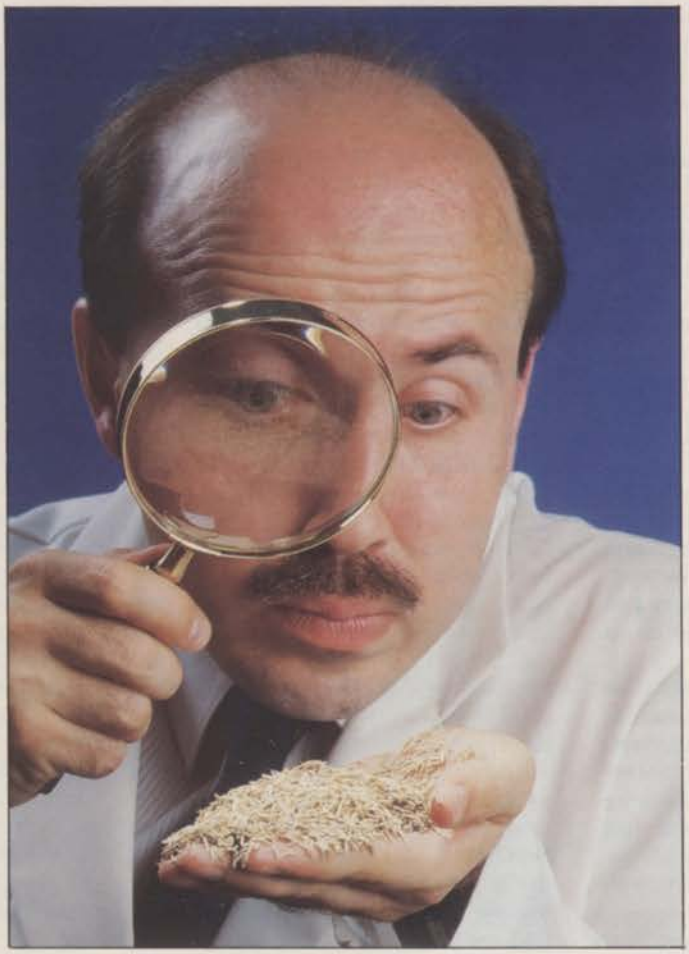
Green can't say enough good things about their new semi-dwarf, turf-type tall fescue Mesa. He says it is "definitely the best grass available in its category so far." In Rutgers' 1985 tests, Green says Mesa ranked number one overall. The tubular tap root that this grass inherited from its K-31 tall fescue ancestor gives it excellent drought resistance even though its leaf canopy has been shortened to improve its appearance.

This fall Jonathan Green will also be marketing another turf-type tall fescue called Richmond, although there may be as little as 60,000 pounds of seed available. Richmond is actually a more disease-resistant version of Houndog tall fescue. Houndog was particularly good in the South, however, it had some problems with brown patch disease. The new grass is dark green, very drought tolerant, and much stronger against brown patch disease.

Tall fescues seem to be in vogue this year and every turfseed producer has at least one new variety to debut in the fall. Available for a September introduction, Rebel II turf-type tall fescue from Lofts, Inc. of Bound Brook, New Jersey is an improved version of the earlier Rebel. Its leaves are darker green, finer-textured, and more dense than Rebel. Its resistance to leaf spot is also superior to Rebel.

Also available this fall, but in limited quantities, is Lofts' Tribute turf-type tall fescue. This fescue is best adapted for use in full sun or shade, and performs well using less fertilizer and water compared to Kentucky bluegrass turfs. Its characteristics include close-cut tolerance, heat tolerance, improved drought tolerance, and no thatch build-up.

Normark, Inc. of Tangent, Oregon also has a couple of turf-type tall fescues in the works, but President Joe Jacob says they won't be available for a couple of years. Jacob says they will have dwarf characteristics. Normark is also working on a creeping turf-type tall fescue, but that is seven years down the road.



Two new perennial ryegrasses will be available from Normark in 1988, one of which is a highly-ranked release from Rutgers. Although as yet unnamed, the Rutgers ryegrass is dark green, low-growing, low-tillering, and very high in endophyte.

International Seed, Inc. of Halsey, Oregon will have a limited supply of a new perennial ryegrass ready for the market this fall. Lindsay is a dwarf, fine-leaved, rust-resistant variety. It will work well as an overseeded grass, according to Craig Edminster, International's Research Leader. Another perennial ryegrass called Troubadour was developed by International's European division. It is a cross between Manhattan II and Elka producing an aggressive turfgrass. "It seems to be a little greener than most of the European types," says Edminster. "We are pretty excited about that."

Houndog is the predecessor of International's new turf-type tall fescue Pacer. It is a semi-dwarf. Cornet fine fescue will also be released this fall for southern mixtures and is a "strong creeper," according to Edminster. Another fine fescue, Cindy, will also be used in turfgrass mixtures. A chewings fescue called Enjoy will also be released this fall.

Like Normark, Northrup King Company, Minneapolis, Minnesota, is also working on a couple of perennial ryegrasses and tall fescues which probably won't reach the production stage for a couple of years. In the meantime, they do have two new bluegrasses that will reach the market this fall. Joe G. Churchill, Product Manager, Medalist Turf Products Division, says Aspen and Trenton bluegrasses are both releases from Dr. Reed Funk's program at Rutgers University.

"We received them in a kind of rough form a few years ago and our research people have basically refined them and made them a commercial variety," explains Churchill. Aspen requires a moderate to upper fertility level, has a dark green color, excellent disease resistance, produces little thatch, and is very adaptable from the North to the mid-South. Trenton's attributes are similar, however, this grass will withstand a somewhat lower fertility level. It also has very good disease resistance and traffic tolerance.

Not to be outdone, O.M. Scott and Sons of Marysville, Ohio also will introduce two new bluegrasses this fall, according to Eugene Mayer, Research/Marketing. Abbey is dark green in color, very dense, has excellent leafspot resistance, a low growth pattern, and is a good general performer for full-sun use. "Cov-

entry's main claim to fame is that it is more shade-tolerant than many other Kentucky bluegrass varieties," says Mayer. This variety also has good leafspot and powdery mildew resistance. Mayer notes that Coventry will probably be limited in availability until spring of 1988. He says that within the next three years O.M. Scott and Sons will probably release another two Kentucky bluegrass varieties.

Bronco is the new Kentucky bluegrass to be released by Pickseed West, Inc. of Tangent, Oregon. This variety was developed for mixing with turf-type tall fescue, according Director of Research Dr. Gerry Pepin. "It has a very broadleaf for a bluegrass, so it blends in with the tall fescue," says Pepin.

"We are also replacing our major perennial ryegrass Fiesta with Fiesta II," notes Pepin. The new Fiesta has a darker color than the original Fiesta, a lower growth habit, improved density, and less stemmy growth in the spring.

New tall fescues and a new ryegrass are being evaluated at E.F. Burlingham and Sons in Forest Grove, Oregon. The emphasis at Burlingham is on development of grasses that are drought, wear, and shade tolerant, and exhibit good disease resistance, according to Mike McCarthy, Burlingham's Research Director.

"There is quite an emphasis on water-use efficiency these days," says McCarthy. There is also still a good deal of importance placed on inclusion of the endophyte organism in turfgrasses. "We have re-done the Pennant variety and selected it for very high endophyte," says McCarthy. "That is important for long-term success of the planting where you get into some specific types of insect pests."

Joe Jacob of Normark agrees that building insect and disease resistance into turfgrass varieties is very important. "Color and tillering is important, but we are hoping that both of the new ones we have developed will have some rust resistance," says Jacob. "If you get one that is rust-resistant, it will grow well almost anywhere."

Rust resistance is a prime directive at Northrup King Company in the breeding of ryegrasses. "Rust becomes becomes a critical problem on the production end because a stem rust problem can cause a poor yield," notes Joe Churchill. "We are doing some breeding work out west to make some varieties that are less susceptible to the rust problems. It will hopefully increase our yield potential and make less cost to the end user."

Winter hardiness is also a trait that Northrup King selects for, especially in adapting perennial ryegrasses to colder climates. Color and shade tolerance are also sought after attributes in Northrup King's ryegrass program. When it comes to tall fescue, Churchill says his company looks for any possible improvements — texture, color, disease resistance, broader adaptability, etc.

At Garfield Williamson Company, researchers are looking for improvements in disease resistance and dwarf growth habit. John Zajac says they are also looking for grasses that can take a fair amount of abuse and still look good without extraordinary amounts of maintenance. "We have been marketing Jaguar tall fescue now for a couple of years," says Zajac. "Its ability to thrive in a hostile environment without super maintenance makes it more and more popular all the time."

But Zajac notes that there will never be a given attribute that will be so important that other attributes can be sacrificed to perfect it. Turfseed producers are trying to make the different types of turfgrasses more similar in appearance so they will blend together better when planted in mixtures. "We now have ryegrasses that are germinating pretty quickly," says Zajac. "We are trying to make them grow a little slower and look a little darker." To match the growing habits of the ryegrasses, since the bluegrasses are already dark and slow-growing, he says breeders are selecting for bluegrasses that will establish a little more quickly. That way, such a bluegrass/ryegrass blend will be more uniform in its overall growth rate and growth habit.

But Zajac doubts that a type of grass will ever be developed that can replace the bluegrasses. Bluegrasses still have better color, texture, and density than other types of grasses. "The days are gone when you see people using 100 percent bluegrass mixtures," admits Zajac, "but they will continue to be a part of a good lawn mix, especially in the cool-season areas."

There was also a time when turfseed producers tried to tailor grasses for adaptation to specific regions of the country, but O.M. Scott's Eugene Mayer says that day is long gone. "At one time we did market regional grasses, for example Vantage for the transition zone," says Mayer. That isn't done any more primarily because of the added expense in developing and marketing region-specific grasses. "What we prefer to do is have a wide genetic background," explains Mayer, "a broad base for these grasses so they can go any place, for example, a bluegrass that can go from coast to coast. The regional grasses are nice, but they are more difficult to handle logistically and economically."

The pursuit of dwarf grasses has created a somewhat regional group of turfgrasses. Dr. Bill Meyer of Turf-Seed points out that by developing dwarf varieties, they may be inadvertently limiting the plant's geographic distribution as well. "None of us are trying to develop turfgrasses just for one region," says Meyer. "We are trying to make them more widely adapted."

However, it might seem as though regional grasses are being developed because more seed companies are developing smaller volumes of individual varieties. "More companies are coming out with their own product and have their own proprietary varieties," says Meyer. "That lends itself somewhat to site-specific regional type stuff, but that is based more on the geography of the companies."

Art Wick of LESCO sees grasses being developed to solve specific problems. Sometimes those problems are regional in nature. "Varieties are released for specific growing condition adaptation," says Wick. "Whether it be warm, more arid portions of the country where humidity isn't a problem and some diseases aren't a problem, or conversely, an area where warm, humid diseases are a problem."

Grasses are even being developed to suit the requirements of the planting situation. "Grasses that are developed for overseeding dormant bermudagrass are very unique types," says Wick. "They don't lend themselves necessarily to permanent turf as much as they do to overseeding conditions."

To isolate turfgrass varieties that are suited to specific growing conditions, International Seed and Dr. Dave Sleper of the University of Missouri have developed a "selection index." This system is being used currently on fescues to track the leaf expansion rate. It was originally developed by Sleper to identify the tallest- and fastest-growing fescues for forage purposes, but International is using it to identify the opposite characteristics for turf applications, namely, low-leaf expansion rate.

"As plant breeders," says International's Craig Edminster, "we are always looking for fast ways to throw away junk that is of no use to us in our breeding program." This new quick selection index will allow International to identify improved turfgrass varieties much faster.

Turfseed research and development is exploring more and more avenues of turfgrass diversity every year. Turfgrass is being developed to grow in hostile arid and shady environments. It is also being molded to make our lives a little easier by requiring less mowing and maintenance. There's no telling what next year's turfseed research will uncover, but you can be sure that we will be one step closer to the perfect turfgrass plant! — *Tim Weidner* ■

*The author is Editor of ALA* magazine.

# SEEDING HOME LAWNS

*Many lawn care operators have found home lawn seeding a viable sideline, but it may be one of the most difficult services to perform.*

For many years, turfseed producers considered the golf course and retail homeowner markets as their prime outlets for turfseed sales. But just as they are becoming more and more prominent consumers of other professional products, lawn maintenance professionals are becoming more attractive to turfseed producers as consumers of premium turfseed varieties. Garfield Williamson Company of Fairfield, New Jersey knows a good thing when they see it and Vice President John Zajac has perceived a growing demand for home lawn seeding by lawn care companies.

"Spring has been very strong and the indications are that seeding is becoming an important part of the lawn service program," says Zajac. He notes that revitalizing a lawn by reseeding it is an environmentally sound approach to lawn care in this era of chemical lawn care phobia. "There is more and more concern all the time in the home service area about pesticide use," says Zajac. "More and more people are realizing that one way to get a better lawn is to reseed it on a more regular basis, using some of the newer varieties that are insect and disease resistant."

The homeowner's demand for a professionally seeded lawn has in turn created a demand for better turfseed and better commercial seeding equipment. "I have maintained for a long time that one of the biggest problems we have is the lack of an economical way to overseed into a reasonably good turf," says Zajac. "Once that is overcome, and some of these newer machines are going that way, I think you are going to see more seeding done on a regular basis. These slit-type seeders that actually present a trough or a channel that the seed can lodge into, may not change the germination rate, but they certainly help the establishment rate down the road because the success ratio per seed is so much higher."

Zajac says the time has past when lawn maintenance operators selected turfseed based upon price rather than quality. Today professionals realize that the new varieties can establish faster and produce a longer-lasting lawn. "If they are more resistant to disease, he doesn't have to come back and do fungicide treatments," reasons Zajac. "They don't need as much fertilizer or chemical control, they don't need to be mowed as often."

When seeding a lawn, Zajac says the old rule of thumb is to plant the seed in the fall. While that may be the easiest time of year to establish grass plants, it isn't necessarily the only time of the year seeding can be performed. He says a lawn could be planted in July, but it would then require a lot of watering and protection from the sun with some type of covering, like straw.

But all turfgrasses are not equal when it comes to the optimum time of year for seeding. "The tall fescues don't like wet feet," says Zajac. "They are a little slower to get established, so I tend not to recommend them for establishment early in the spring. Wait until the ground warms up more." He says tall fescues respond pretty well to mid- to late-


*(Above) Salsco's SS-35-20 slicer-seeder and (below) Olathe's Model 84 Aero-Seeder.*


*Jacobsen's 524-100 slicer-seeder.*

summer applications.

"For bluegrasses, fall is nice or very early spring dormant type seeding because they take a relatively long time to germinate and it is tough to keep the moisture on them for such a long period of time," says Zajac. "If you get them started at a time when more moisture is available, you stand a better chance of getting them started."

Ryegrasses are the work horses of turf-seed mixtures because of their speed of germination, according to Zajac. "Once the soil temperature gets above 55 degrees, you spread them around, put a little water on them, and stand back." Because of changing weather conditions, early spring seed mixtures contain larger quantities of ryegrass seed, while fall seed mixtures contain larger quantities of bluegrass seed.

Many experts still believe fall is the best time of year to seed lawns. "For the northern area, it is usually from the last week in August to the last week in September," says Eugene Mayer, Research/Marketing, O.M. Scott and Sons, Marysville, Ohio. "The first three weeks in September is best. After October 1 your risk factor goes up in getting it established."

The secret of seeding success is good soil/seed contact, so Mayer says bare soil seeding is best, followed by slit seeding to get the seed down into the soil. Mayer recommends seeding the lawn at right angles with a slit seeder and thorough watering. For companies that work up the soil with an aerator and then broadcast seed over the lawn, there is a risk getting germination only in the holes made by the aerator. This is especially true if you use a perennial ryegrass or tall fescue since they will not spread by tillering like a bluegrass, says Mayer.

When broadcasting seed, Mayer recommends seeding bluegrass at 1-1/2 pounds per 1,000 square feet or a bluegrass/ryegrass mixture or a bluegrass/fine fescue mixture at 1-3/4 pounds per 1,000 square feet. When seeding with ryegrass only, Mayer recommends 2 to 4 pounds per 1,000 square feet. With tall fescue, he advises 5 to 8 pounds per 1,000 square feet. To calculate the rates for overseeding with a slit seeder, Mayer says you can simply halve the spreader rates.

Art Wick, Vice President of Research, Development, and Technical Training at LESCO, Inc. in Rocky River, Ohio says professionals should put down 12 to 15 seeds per square inch in an effort to strive for a six to seven plants per square inch survival rate. Unfortunately, Wick says that broadcasting seed into the thatch of undisturbed turf will result in a much higher mortality rate and poor establishment. When overseeding into a lawn killed with glyphosate, the operator should be aware that even the dead grass plants will still compete with the grass seed for soil contact.

# SEEDING SURVEY

In conjunction with the article on home lawn seeding, we conducted a survey to gauge the industry's interest in lawn seeding as a service. We surveyed 500 of our readers and got some interesting answers. When asked if they offered lawn seeding to their customers, 65 percent responded "Yes," while 35 percent responded "No." Of those who said they didn't offer the service, the majority cited lack of interest and lack of manpower as their reasons for not offering a seeding service.

Those who responded to our survey indicated that 5.29 percent of their total gross revenues are derived from overseeding, 5.50 percent from renovation, and 4.60 percent from new lawn construction. Seeding is an optional service for 83 percent of the respondents who indicated that they did offer lawn seeding, while only 17 percent indicated that seeding is a feature of their standard service.

Ten percent of our readers reported that they use only as much as 100 pounds of grass seed per year, while 47 percent reported that they use 100 to 1,000 pounds, 29 percent use 1,000 to 5,000 pounds, 10 percent use 5,000 to 25,000 pounds, and 2 percent use 25,000 to 100,000 pounds. When asked to list the types of equipment they use to seed lawns, 44 percent said they use slit seeders, 9 percent use hydroseeders, 58 percent use plugger/aerators, 16 percent use spiking equipment, and 43 percent use spreaders. (Most respondents indicated that they use more than one type of equipment.)

Thirty-three percent said that they did intend to purchase seeding equipment this year, while 67 percent said they did not plan to purchase seeding equipment. For *ALA* readers, Kentucky bluegrass comprises 42 percent of all the types of grass seed they use in their lawn seeding programs, while tall fescue comprises 22 percent, perennial ryegrass 23 percent, fine fescue 9 percent, and other types, such as annual ryegrass, 4 percent.

For the bottom line, respondents reported that they earn an average of $13,395 in gross annual income from lawn seeding. Not bad for an add-on service.

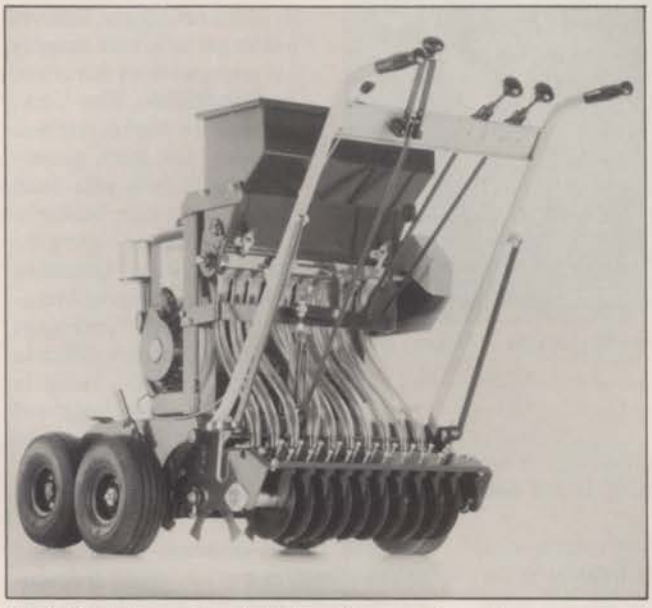
We would like to thank everyone who responded to our seeding survey. Keep an eye out for our September issue when we bring you a market report on the turfseed industry. — *Tim Weidner*

"All the techniques that don't put the seed in contact with the soil are asking for short-term success and long-term failure," says Wick. Generally speaking, he has found that the turfseed will establish just as well whether it is put down before or after the soil is opened up. "We want to get the seed covered with 1/8- to 1/4-inch of soil," advises Wick. "Anything less than that will cause reduced results."

Cool-season grasses should be planted when summer temperatures begin to drop. "In upstate New York we are probably looking at late August, the optimum time for say, southern Pennsylvania would be mid-September," says Wick. "Optimum time for North Carolina would probably be late September."

When Ted Durchik, Branch Manager of Leisure Lawn in Beachwood, Ohio takes on a lawn seeding job, his primary concern is maintaining customer satisfaction. "When we are simply trying to incorporate improved bluegrass cultivars or something like that into an existing lawn, the profit is not that great," says Durchik. "In some circumstances, we are trying to pretty much just cover our costs and provide the customer with a little better turf and hopefully keep them as a customer."

Before taking any seeding job on, Durchik does a soil test to determine whether the soil could support new grass plants. Because thin or patchy lawns are often found on steep slopes or dense shade, he says has to turn down about two-thirds of all the renovation or overseeding requests he gets. He knows from experience that he won't be able to get satisfactory results.



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He admits that he does charge a premium to do complete renovation jobs to re-build a lawn devastated by disease, for instance. "We have taken some patch disease lawns and incorporated some improved bluegrass cultivars into it with fungicide applications and tried to get a different bluegrass competing," says Durchik. "For a complete renovation, I would like to walk away with 50 cents on the dollar (in profit)."

For the average seeding job, Bruce Karas, Owner of Custom Lawn Care in Ronkonkoma, New York charges $30 per 1,000 square feet. He estimates his cost to do the job at $20 or less per 1,000 square feet, depending on the job. "You have to figure in the cost of the aerator and how many jobs you can do with that aerator before you have to have it repaired," notes Karas. "I may have to price it as much as $40 per 1,000 square feet if it is very difficult." — *Tim Weidner* ■

*The author is Editor of* ALA *magazine.*

# RIPPLE EFFECTS?

*Last summer's media attack on the lawn care industry may be gone, but has it been forgotten? Turf professionals examine the ripple effects of last year's bad publicity by local and national news mediums.*

The power of the press has truly been recognized by the lawn care industry, which fell victim to a series of biased turf chemical reports that appeared last year on the nation's three major television networks, specifically, the CBS "Evening News" with Dan Rather, NBC's "Today" show, and ABC's "20/20" television news magazine. Many lawn care operators immediately felt the repercussions of the broadcasts, which aired in May and July, in the form of cancelled contracts, temporary "holds" on accounts, and a barrage of telephone calls from concerned customers. If it was this bad in the middle of the season, wondered many lawn care operators, what would the following spring be like?

*Jay Feldman, Coalition Against Misuse of Pesticides, debates 3PF's Dave Dietz on NBC's "Today Show."*

Well, we are happy to report that this story has a happy ending. It appears that the fallout from the unfavorable media coverage has been quite minimal for lawn care and mowing/maintenance operators throughout the country. Lawn Doctor, Inc. of Matawan, New Jersey, one of the industry's largest firms, reports that last year's bad publicity caused very few of its customers to cancel their lawn service this year. "We experienced some of that," admits President Russell Frith, "but I can't say that it's been significant — less than a couple percent."

While he imagined the repercussions would be worse, Frith believes the academic community has been able to help thwart continued media abuse. "The academic community has had an opportunity to review some of the data," he explains. "I think we are getting a fairer shake at the moment because we do have some people in academia coming to the forefront and saying, 'Wait a minute, this data is flawed. This methodology is not correct. This interpretation is not correct.'"

Nonetheless, last summer's run-in with the press has alerted the industry to the prowess of the media. "It has put us on notice as to the power and the potential effect that a report and a reporter can have on our business, regardless of the facts involved," Frith observes. But that awareness is not necessarily bad he adds. "I definitely think there were some industry-wide, short-range problems," he says, "but I think the concern and/or the media's ability to create a concern, whether it's predicated on fact or sensationalism, has caused everyone in the industry to raise their level of awareness as to the potential concerns of the general public. There's been a raising of professionalism across the industry and I think that's good."

While Frith believes the long-term effects of the media blasts will be positive, he does not want his feelings to be interpreted as condoning "some of the blatant abuses of the first amendment right" that were evidenced last year. "Why does a reporter discount 33 studies and promote nationally one study that's not in harmony with the other 33?" he asks.

At any rate, Frith, like many of his colleagues, believes a stronger lawn care industry has emerged from this crisis. Even in Buffalo, New York, a lawn care market that was probably the most heavily battered by a hostile local media, lawn care businessmen feel optimistic about the industry's future. According to Jim Foote, District Manager of the Davey Tree Expert Company's branch office in suburban Buffalo, being in the public eye has improved the industry overall. "The credibility (of the business) has increased, and the degree of professionalism has increased," he says.

Heavy media coverage of the lawn chemical controversy last spring and summer triggered proposed legislation to regulate lawn care services and two public hearings in April and May of 1986. Up until the first hearing, the Buffalo lawn care market was flourishing. "We were going crazy with business up until April 16, 1986," Foote says. "We were setting records, then the estimates stopped and it was pretty rough."

He says that the local market lost between 5 and 10 percent of its customers because of the bad publicity created by local television stations and newspapers. "Those national programs did not adversely affect our business," Foote explains, "because the damage had already been done."

However, Davey has bounced back this spring. "Our retention rate is up and we're getting back some of the people who cancelled last year. And ironically," Foote adds, "this year there are 10 (anti-

lawn care) bills before the State Assembly. There have been various press conferences in Buffalo by State Assemblyman Portham that have been very negative to the lawn care industry.'' Despite this renewed negative coverage, the western New York market has not felt the negative bottom line impact it felt last year.

Could this be because the media has diverted its attention from the issue to focus on headlines that link religious leaders and presidential candidates with sex scandals? Or is it because the lawn care industry has taken a proactive stance this year in response to last summer's media blitz? The answer is probably both.

''The media is not necessarily interested in publishing what is fact. I think they're more interested in selling Nielsen ratings,'' Foote says. ''And as a result, since it is a chemical issue, they're going to sensationalize it. That's why we have to be proactive.''

And that is exactly the position Buffalo lawn care operators took this year. ChemLawn held an area press conference in February and the lawn care industry in general had one in March, according to Foote. ''Both of them went over well and both resulted in positive publicity for the industry. Instead of sitting back and waiting for something to happen this year, we took somewhat of a proactive approach versus last year's reactive approach.''

''The more proactive the industry can be, the better,'' says Foote. ''It's a political issue. Facts can be distorted in any direction. So the more unified, the more professional, and the more proactive we can be, the more difficult it will be for a politician to gain recognition through sensationalism of a so-called chemical issue.'' Foote forecasts much smoother sailing this year without a repeat of last year's nightmare.

In Michigan, another hotbed of pesticide legislation with media appeal, very few lawn care markets were affected by unfavorable media coverage, according to Tim Doppel, owner of Atwood Lawnspray, located in Sterling Heights, just outside Detroit. The activity in Michigan has been quite localized, he says, primarily in the Village of Milford and in areas near Lansing.

''I had half a dozen or fewer responses to the '20/20' program and others,'' says Doppel. ''And of the people who even commented on them, I would say that half of those people commented on how one-sided the reports were and that obviously they weren't telling the whole story. The customers weren't sure what the whole story was,'' Doppel notes, ''but they were very sure that they weren't getting the whole picture. Therefore, they had totally discounted it.''

Perhaps the public is better informed or less influenced by the media than we might have thought. ''I think that's part of it,'' agrees Doppel. ''But the biggest thing is that people really don't care. They don't perceive lawn care as a danger. It might generate some conversation every once in a great while, but that's the full extent of it. Customers don't care how you kill weeds, or control insects, or fertilize grass — within reason — as long as there are no weeds, no brown spots, and the grass is green.''

Instead of being disturbed by the use or types of chemicals, Doppel finds that customers are more disgruntled with the type of service they receive. ''I've been finding that people in this area are upset not so much because of any perceived

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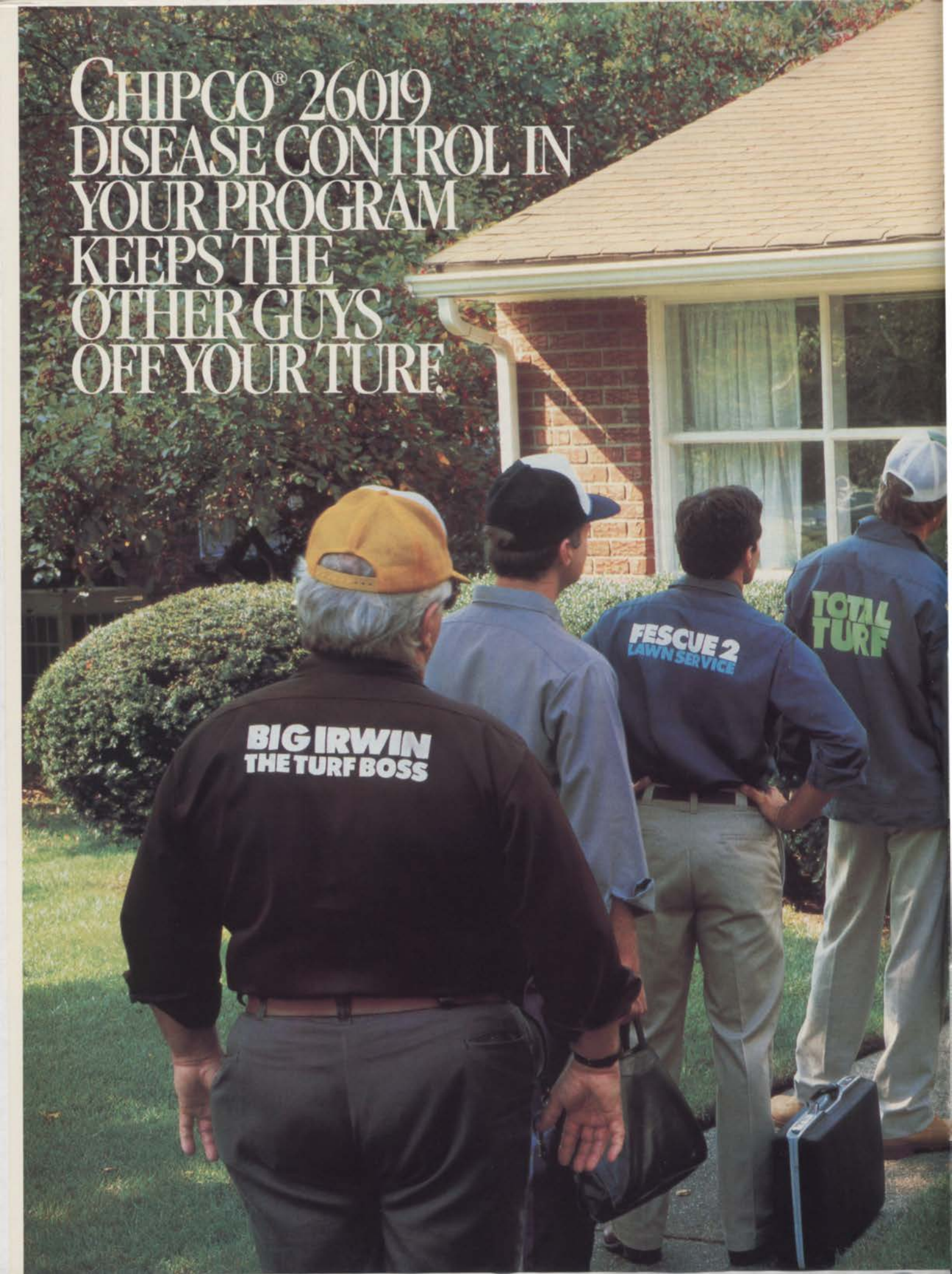
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*(continued from page 21)*

danger in the materials that we're using, but just from the professionalism and workmanship that is going on out there." The industry needs to continue improving its image

In the South, where pests pose serious problems, turf chemicals are rarely criticized, according to Nick Dennis, owner of Pro-Lawn, Inc. in Jacksonville, Florida. "The unfavorable media coverage had no effect on us whatsoever," he says. "Florida is different. The bugs are too bad down here — you've got to have lawn service. We've got people screaming because we *won't* put certain materials on their yards."

While ripple effects have been minimal in Minnesota's Twin Cities, it's not because residents share the same "the more toxic, the better" attitude that is found in Florida. After a posting ordinance kicked into gear last year in St. Paul, there was a sudden flurry of activity among surrounding communities that were proposing regulation of a similar nature, according to Thomas Mann, President of the Minnesota Lawn Care Association and General Manager of The CareTakers, Inc. But this spring, "all is quiet on the western front."

"The industry has got to get on a public relations kick and we've got to stick with it," he says. The industry needs a regular, systematic way of getting information out to the public. "We need to convey that lawn care is a viable industry and that it has a lot to offer the homeowner and the industrial/commercial sector. And this cannot be only one burst of activity," Mann explains. "This has got to be done on an ongoing basis."

"The power of the press is there," he adds. "As soon as the press pulls the weight of its presence out from behind an issue, it basically goes away." But don't be fooled, it can come back. The turf chemical issue may be old news in the media today, but reporters and television crews always go back to old stories when they run out of new ones. And when that happens, the lawn care industry will be ready for them. — *Vivian F. Rose*

*The author is Assistant Editor of* ALA *magazine.*

# PLCAA DEFENSE FUND

The most broadly proactive entity in the lawn care industry is the Professional Lawn Care Association of America via its Defense Fund projects. The association reports that several Defense Fund projects are up and running thanks to the participation of 40 percent of its members who have contributed over $50,000 to the Fund. The goal of the regular member portion of the assessment is to reach $125,000 by year's end.

The "Media's Lawn Care Scare" brochure was produced through the Fund and a media training session was sponsored, utilizing the expertise of Ford Rowan, PLCAA Media Consultant. The Fund also made possible a 30-second television commercial, which may be used by PLCAA members in market areas. PLCAA is also producing a public service announcement.

Over 1,500 media personnel were contacted by the PLCAA's public relations agency, Marcomm Marketing Communications, Inc., in preparation for distribution of the media kit. PLCAA, through the Defense Fund, supported the efforts of the Western New York Lawn Care Association at the May 29 Buffalo hearing.

To support the Defense Fund's efforts, contact the PLCAA at 1225 Johnson Ferry Road, N.E., Suite B-220, Marietta, Georgia 30068; 404/977-5222.

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# HOW SAFE ARE TURF PESTICIDES?

*The public is becoming increasingly wary of anything bearing the label "pesticide." It is up to lawn care professionals to help discourage this pesticide phobia.*

Public opposition to the use of pesticides has become increasingly commonplace and vocal in recent years. Pesticide applications to home lawns have become a major target for anti-pesticide activists because of the high visibility of these applications as well as a perception that turf is a nonessential (i.e., non-food) crop. Informed individuals realize that, rather than causing health and environmental risks, turfgrass areas actually provide numerous environmental benefits. Some of these benefits include: erosion control, noise and dust abatement, and absorption of toxic emissions and atmospheric pollution. Research results indicate that when properly used, turfgrass pesticides do not pose a threat to the public or the environment.

During the past year, adverse newspaper, magazine, and television coverage have become quite numerous. These reports have generally been emotional appeals (usually based on isolated cases of chemical sensitivity) rather than reports of scientific research findings. Unfortunately, emotional stories have a greater impact on most people than cold, statistical fact. News media reports generally tend to be of a sensational nature and safe usage does not make the news. Thus, because of the nature of the media, there exists a built-in bias against the notion that pesticides can be used safely.

Opposition to turfgrass pesticides (often referred to as *potentially toxic* pesticides) is increasing rapidly. If you have not yet had to defend your use of pesticides, you will in the future. The safety record of turfgrass pesticides is good. We need to convey this information to the public. Lawn care operators must understand the facts concerning the turf pesticide controversy and be able to present these facts to the layman.

**PUBLIC PERCEPTIONS.** We live in a society which is extremely health conscious. As life expectancy has increased, people have become increasingly concerned with maintaining their health and quality of life. Manufacturers of many products are aware of this desire for "healthfulness" and have used advertising to convince the public that anything labeled natural or organic is a safe, healthy, and desirable material. Consumers are likewise cautioned to avoid "chemicals" which are artificial and not healthy.

In reality, everything we come in contact with is made up of "chemicals." The public needs to be made aware that *the toxicity of any material is dependent upon its chemical structure, not whether it is natural or man-made.* Some of the most toxic substances known to mankind exist naturally in the environment.

Virtually every common beverage contains agents known to cause cancer (Table 1). Nonetheless, the public happily consumes many of these products every day, unaware or unconcerned of their potential hazard. People are willing to consume these products without question, but are afraid to allow even the least toxic pesticide to be applied to their property. Why? Because these common products are perceived as safe and acceptable and pesticides are perceived as unsafe and unacceptable.

Public overestimation of the risk associated with pesticides has been demonstrated in a previous public opinion poll (7). Thirty sources of risk were tabulated along with their actual annual contribution to the number of deaths in the United States. Three different groups of individuals were then asked to rank the sources according to their own *perceptions* of how risky the sources were. All groups of individuals perceived pesticides to pose a much greater risk than they actually do.

Pesticides actually ranked 28th of the 30 sources of risk, contributing less to the number of annual deaths than vaccinations, scholastic football, and lawn mowers, for example. However, the individuals ranked pesticides ninth in their

| SUBSTANCE | CARCINOGEN | CONCENTRATION | COMMENTS |
|---|---|---|---|
| tap water | chloroform | 93 ppb* | from chlorination |
| coffee | hydrogen peroxide<br>methylglyoxal | 4000 ppb<br>4000 ppb | |
| cola (12 oz.) | formaldehyde | 7900 ppb | |
| beer | formaldehyde<br>nitrosamines<br>alcohol | 700 ppb<br><br>50 million ppb | |
| milk | fat | variable | implicated in breast, colon, and rodent cancer |
| fruit juice | mold toxins | variable | |
| peanut butter | aflatoxin | 2 ppb | a mold toxin |
| honey | grayanotoxin | variable | $LD_{50}$ = 1 ppm in rats |
| nutmeg | myrsitiein, apiole | | |
| parsley | myrsitiein, apiole | | |
| dill | myrsitiein, apiole | | |
| basil | estragole | variable | |
| mustard | allyl isothiocyanate | variable | |
| mushrooms | hydrazines | variable | |
| Vitamin C | uncharacterized | | has produced tumors in mice |
| rutabagas | uncharacterized | 200 ppm | thyroid cancer |

*Table 1. Common beverages and foods and their potential carcinogenicity. (1) Ames, B. 1985. (*ppb = parts per billion;1/1,000,000)*

perceived risk, higher than deaths due to motor vehicles, surgery, or electrical power. The public clearly overestimates the potential danger of pesticides. It is human nature to fear what we do not understand.

**TOXICITY CONCERNS.** To understand the risk of pesticide exposure, you must first understand the concept of toxicity. Toxicity is the extent to which a substance is poisonous to humans and other animals. The risk associated with exposure to anything potentially toxic depends on how toxic the material is, and the magnitude of exposure to the material. Thus, hazard (risk) equals pesticide toxicity times exposure. In order to decrease the risk associated with a pesticide, one may either reduce the toxicity of the material or the duration of exposure to the material. One could reduce risk by choosing whichever material provided acceptable control while exhibiting the least toxicity in tests of acute and chronic toxicity.

One could also choose a less concentrated formulation of a given pesticide. The fungicides and herbicides commonly used on turf areas are mostly ranked as relatively nontoxic because of their high LD50s. Insecticides are an exception, usually being classified as moderately toxic. Because these chemicals are applied to turf in extremely dilute solutions (typically in 160 to 200 gallons of water per acre) their toxicity is further reduced so that they pose little risk to the public.

Risk can be further reduced by taking precautions to limit exposure to the pesticide (protective clothing, avoid treated turf until it has dried, etc.). Thus, because of the relatively nontoxic nature of most turf pesticides, their diluted application, and the fact that they are applied few times per year; the health risk associated with application of turf pesticides is minimal.

Four areas of public concern generally associated with pesticide use include their potential for:

- acute toxicity
- chronic toxicity
- allergic reactions (pesticide sensitivity)
- environmental pollution

**ACUTE TOXICITY.** Acute toxicity is defined as poisoning and/or death resulting from a single dose of a pesticide. The term LD50 is used to characterize acute toxicity. LD50 (Lethal Dose 50) is the amount of undiluted pesticide active ingredient that will result in the death of 50 percent of the test population (usually mice, rats, or some other lab animal). LD50s are expressed in milligrams of pesticide per kilograms of test animal weight (mg/kg) which is equivalent to parts per million (ppm). The higher the LD50 of a material, the less likely the material is to cause acute toxicity. The majority of turfgrass pesticides have LD50s high enough to classify them as relatively nontoxic.

Acute toxicity from turf pesticides is an extremely rare phenomenon which might result, for example, from accidental injestion of a pesticide concentrate. Pesticides are applied to turf in very dilute solutions and therefore acute toxicity to a person who comes into contact with a treated turf area is virtually an impossibility.

**CHRONIC TOXICITY.** Chronic health risks are problems which develop over a relatively long period of time following one large exposure or a series of small exposures which accumulate. The following types of chronic risks are routinely evaluated before a product is registered for use:

- oncogenicity — abnormal cell growth (nonmalignant or malignant tumors)

*(continued on page 30)*

# Buy Sevin® SL for this.

*White Grub*

Your reasons for choosing a turf insecticide could be summed up in two words:

Kills grubs.

Which, frankly, is reason enough to choose SEVIN® brand SL carbaryl insecticide. Because, when it comes to grubs, no other turf insecticide is more effective.

We have the efficacy data to prove it.

But if that still isn't enough to make you a confirmed SEVIN® brand SL user, consider this:

With SEVIN® brand SL carbaryl insecticide, you also get effective control of 27 other turf pests.

Including tough ones,

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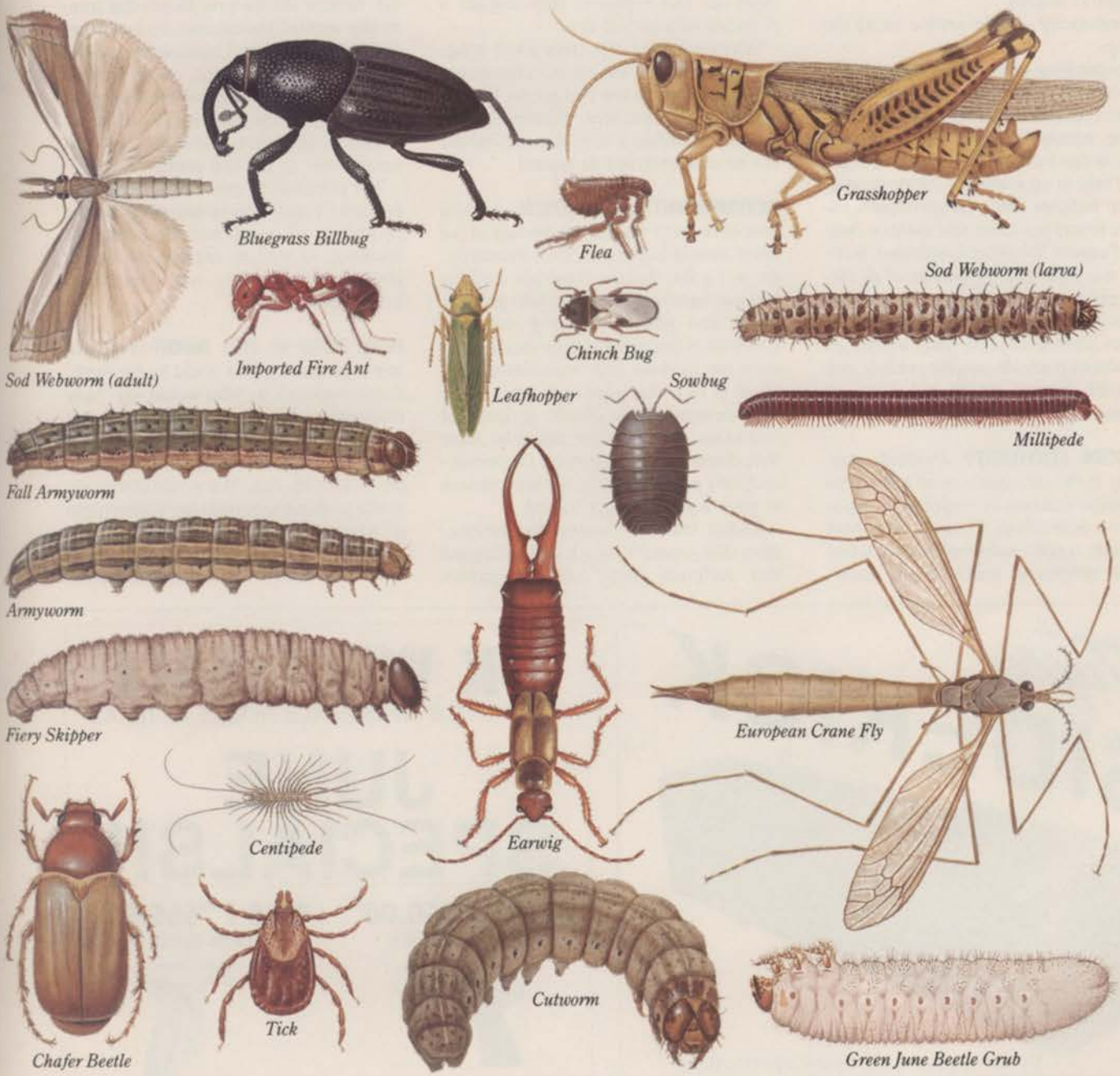


like chinch bugs, billbugs, armyworms, cutworms, and sod webworms.

And SEVIN® brand SL carries a Toxicity Category III Caution label. Which makes it ideal for use on golf courses, parks, lawns, or any turf area frequently used by people and animals.

So ask your turf chemicals supplier for SEVIN® brand SL carbaryl insecticide. It may be the best example yet of getting more than what you pay for.


*From the turf care group at Union Carbide.*

Agricultural Products Co., Inc. As with any insecticide or herbicide, always read and follow label instructions. Member of Golf Course Superintendents Association of America.

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**HOW SAFE?**

*(continued from page 27)*

- mutagenicity — genetic mutation
- teratogenicity — birth defects in developing fetuses
- fetotoxicity — direct toxic injury or death to fetuses
- eurotoxicity — irreversible nerve damage

Chronic long-term effects are probably what concern the public the most. People are concerned that over a long period of time, minute exposure to turf pesticides might in fact increase their chance of cancer. There is no scientific information to date to indicate that a homeowner's exposure to turf pesticides will increase their risk of cancer. It has been estimated, however, that more than 99 percent of all carcinogens which we injest are the result of products other than man-made pesticides

Thus, even if we completely banned all agricultural pesticide use, the publics' risk of health hazard would not decrease meaningfully.

**PESTICIDE SENSITIVITY.** Pesticide sensitivity is the development of some type of allergic reaction in response to exposure to a pesticide application. Shortness of breath, a rash, and sweating are a few of the symptoms which might occur. Countless people are plagued by allergic reactions to everything from dust to grass, and there are certainly people who are sensitive to pesticides as well. Unfortunately, these isolated instances of allergic reactions have been singled out by pesticide activists and portrayed as what everyone can expect if they contact a pesticide-treated turf area.

When someone dies from a bee sting, we realize that it was an unfortunate accident, but we do not feel particularly at risk of death from bees. Severe reaction to a turf pesticide is very rare and should not be misconstrued as typical.

**ENVIRONMENTAL POLLUTION.** A final area of concern is potential damage to our environment from pesticides. Primarily, there is a fear that the materials used for turf management may leach into groundwater and pollute drinking supplies. Research in this area has been lacking, but is on the increase due to accelerated interest in how turf pesticides react in the environment. While certain agricultural pesticides (Aldicarb for example) have been detected in groundwater, commonly-used turf pesticides have not been shown to pose a groundwater hazard.

Rather than threatening the environment and groundwater, it can be argued that turfgrass areas actually protect groundwater. Turfgrass cover reduces soil erosion and prevents soil and chemical runoff into water sources (unlike areas without vegetation). Also, turfgrass thatch has a high capacity for binding many pesticides (4), and has been shown to increase the degredation of some pesticides (2). Several studies have shown that commonly applied insecticides do not penetrate more than 2 to 3 centimeters into the soil profile (5,6). Indeed, one of the major factors hampering soil inhabiting insect control is the inability of turf insecticides to penetrate below the first few centimeters of the soil profile.

The potential for groundwater pollution due to turf pesticides is minimized by the resistance of most turf pesticides to leaching, as well as degredation due to photodecomposition and microbial breakdown.

**HOW MUCH IS TOO MUCH?** In spite of any arguments which could be put forth, there remain those who would say "any detectable amount of pesticide is too much." This assumes that the smallest detectable amount of material actually poses a health risk. We would obviously prefer to detect zero parts per billion (ppb) of every possible toxin. However, we need to ask ourselves if very small

*(continued on page 32)*

# No other Slicer Seeder Maneuvers like this . . .

Seeding in an incredible 25" radius, the SS-35-20S allows you to operate with ease around trees, hydrants, flower beds, in fact any obstacle. Not only that, this all-terrain unit handles inclines like a champ. And it's simple to operate. Just one lever lowers cutters, activates cutters and turns seed on. And for maximum efficiency, the SS-35-20S seeds on 2" centers. How much does it cost? . . . Less than $3,400!*

*Come see the SS-35-20S at our booth #1211 at the International Lawn, Garden and Power Equipment Expo in Louisville in July. Or call or write for complete information:*

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**HOW SAFE?**

*(continued from page 30)*

amounts of turf pesticides cause cancer and/or health risks over the long-run? There is no evidence that turf pesticides pose chronic risks to the public.

Also, it is important to keep in mind the quantities we are discussing. Quantities of pesticides which have been detected in groundwater (not turf pesticides) have been found in concentrations in the low parts per billion. One ppb is equivalent to 1 second in 32 years. This is an incredibly small amount of material. Remember, risk equals toxicity times exposure! Even if a potent carcinogen were detected at 1 ppb, our exposure would normally be sufficiently low as to result in minimal risk. Today's analytical equipment makes detection of concentrations as low as one part per trillion possible. Soon we may be able to detect one part per quadrillion. Just because something is measureable does not mean that it is meaningful.

As a final point, remember that toxicity testing is carried out on lab animals and not humans. Since it is obviously not possible to use humans as test subjects, we use mice and rats and assume that if something is toxic to mice, it will be proportionately toxic to humans. Thus, all human risk calculations based on rat and mice data are hypothetical. Of carcinogens tested in both mice and rats in one large database (1), 42 percent of materials causing cancer in mice were not carcinogenic in rats, and vice versa. Thus, even two, short-lived, closely-related animals like the mouse and rat do not predict very well for each other whether a substance will cause cancer. One must question the validity of determining human risk based upon animal studies.

**SUMMARY.** The purpose of this article is not to portray pesticides as harmless materials whose use requires little caution. Rather, we have tried to emphasize that the current anti-pesticide furor is based on emotional reaction and is not supported by scientific fact. Turfgrass pesticides are not highly toxic. When used *responsibly* according to the label they have been shown to be devoid of environmental and health hazard (similar to many "potentially toxic" household chemicals).

The greatest risk from pesticides lies not with the general public, but with those handling concentrates and spray solutions without proper safety precautions. Eliminating the use of pesticides would not lower the public's health risk since virtually all of the hazards we are exposed to result from non-pesticide risks. Research concerning the environmental fate of additional pesticides needs to be initiated so we can choose to use the safest materials available. — *Dr. Richard J. Cooper* ■

*The author is Assistant Professor of Turfgrass Science at the University of Massachusetts at Amherst.*

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# ROTARY SPREADER SPEED EFFECTS

*Some new research has shown that speed of application has less of an effect on application rate and pattern than we once thought.*

You have been told many times that it is important to operate your rotary spreader at a consistent and correct speed. We all know that speed affects both the application rate and pattern delivered by most professional turf rotary spreaders. Until now, however, there has been very little data dealing with the extent of problems due to speed. Engineers claim that speed is important, but they haven't been able to tell the professional how important speed is or how much it can actually vary before it begins to affect spreader performance.

The effect of speed on drop-type spreaders has been quantified (see "Drop Spreader Complications," *ALA* magazine, April, 1986), but much less is known about the effect of speed on rotary spreaders.

A recent research project at the Louisiana Agricultural Experiment Station in Baton Rouge, Louisiana, provides some answers to the problem of rotary spreader speed effects.

| SPEED mph | OPTIMUM SWATH ft | COEF. OF VARIATION % | SKEWING %L%R | MINIMUM POINT % OF MEAN | MAXIMUM POINT % OF MEAN | RATE 1b/1000 sq. ft. |
|---|---|---|---|---|---|---|
| 1.50 | 7a* | 94d | 40/60ab | 7a | 247d | 5.66g |
| 1.75 | 8ab | 68c | 44/56abcde | 18a | 200c | 5.23fg |
| 2.00 | 8ab | 66c | 42/58abc | 23a | 188bc | 4.97f |
| 2.25 | 10bc | 37b | 47/53bcde | 51b | 147a | 4.38e |
| 2.50 | 11c | 23ab | 51/49e | 64bc | 140a | 3.96d |
| 2.75 | 13d | 17ab | 49/51cde | 77c | 136a | 3.64d |
| 3.00 | 14de | 14a | 51/49 de | 82c | 132a | 3.55d |
| 3.25 | 15de | 16ab | 46/54abcde | 74c | 130a | 2.77c |
| 3.50 | 16de | 16ab | 46/54abcde | 77c | 134a | 2.25abc |
| 3.75 | 16ef | 28ab | 39/61a | 64bc | 152ab | 2.50bc |
| 4.00 | 19fg | 24ab | 42/58abc | 71c | 151ab | 2.14abc |
| 4.25 | 21gh | 17ab | 43/57abcd | 74c | 130a | 1.92ab |
| 4.50 | 22h | 16ab | 44/56abcde | 74c | 129a | 1.70a |

*Table 1. Pattern parameters and rate at different speeds. All pattern parameters except swath width and skewing are based on the optimum swath at 3.00 mph. Coefficient of variation, minimum and maximum points, and rate are based on overlapping patterns at this swath width of 14 ft. *Entries followed by the same letter are not significantly different at the 5 percent level, based on Duncan's multiple-range test.*

**TEST PROCEDURE.** An O.M. Scott and Sons Proturf Model R-8 spreader was tested at different speeds. As is typical with this class of spreader, the impeller is ground-driven and the metering is gravimetric (in other words, metering is controlled by an adjustable orifice, and the spreader will meter out the same amount of material per minute regardless of speed).

The material used for the tests was granular super phosphate fertilizer. This material was chosen because of its relatively uniform particle size and its lack of hygroscopicity.

The tests were conducted according to the guidelines of the American Society of Agricultural Engineers Standard S341.1, Test Procedure for Dry Fertilizer Spreaders. Metal catch pans measuring

11.5 by 15 inches were spaced on 12-inch centers in a line perpendicular to the direction of travel. The pans had internal dividers to prevent material bouncing out. All tests were conducted indoors, so there were no wind effects.

Prior to making the actual test runs, several preliminary runs were made to determine the optimum pattern setting on the spreader for the material at a standard speed of 3.00 mph. Pattern setting number seven was found to give the best standard pattern with an optimum swath width of 14 feet.

The main test consisted of a series of pattern test runs at speeds ranging from 1.50 to 4.50 mph in increments of 0.25 mph. The series was replicated three times, for a total of 39 pattern test runs. Each run consisted of three passes over the collection pans in the same direction. During the testing, an extra set of wheels was mounted on the rear of the spreader to hold the impeller level.

**RESULTS.** The results of the pattern tests at different speeds are shown in Table 1. The critical pattern parameters of CV and minimum and maximum points, as well as the application rate, are calculated for overlapped patterns with a swath width of 14 feet. The table also shows the optimum width for each of the speeds. As expected, the optimum width increases with speed. A speed decrease of 17 percent caused a significant change in optimum width, as did a 25 percent increase in speed.

The table shows the degree of skewing of the patterns at different speeds. It was expected that the change in skewing would be approximately linear. Since the spreader impeller rotates counterclockwise, it was expected that higher speeds would consistently shift the pattern to the right and lower speeds would shift it left. The data show that this did not occur.

The pattern shifted to the right at both higher and lower speeds. Although skewing is an easy pattern characteristic to measure, it is not the most critical characteristic of the pattern. As the data show, the more important parameters of CV and minimum/maximum points change considerably less at higher speeds than does skewing. This supports the idea that looking at a pattern on the ground (and visually evaluating skewing) is not a good indicator of true pattern quality.

Coefficient of variation is affected more by speed decreases than by speed increases. A speed decrease of 25 percent yields a significantly different CV, but a speed increase as great as 50 percent did not significantly change the CV.

Similarly, the extremes in the pattern are more severely affected by speed

*(continued on page 38)*

# PRODUCTS

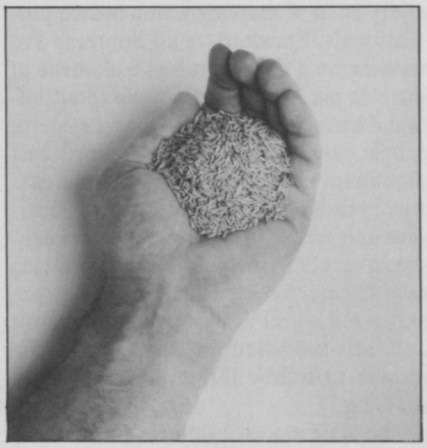
The **Jacobsen** Division of Textron, Inc. has its Model 524 Commercial Seeder available. The seeder is a self-propelled, walk-behind that seeds a 21-inch swath, planting on 3-inch centers. Planting depth is easily controlled with a single lever, adjustable from 0- to 2-inch below the soil surface.

The hopper holds about 20 pounds of seed, and a flow-rate gauge accurately controls seeding rate. A built-in floating action allows the seeder to follow ground contours and plant seeds evenly.

**Circle 130 on reader card**

**CelPril Industries, Inc.** is now marketing Nutri-Kote® seed coatings to improve seedling establishment. Nutri-Kote plus Apron® fungicide provides the most effective combination of nutrients and micro-nutrients.

"In trials with bentgrasses, bermudagrass, and certain varieties of perennial ryegrass and fescue, Nutri-Kote Plus Apron resulted in faster stand establishment, better survival, more lush green



leaf growth, better root development, and protection from seedling diseases," says Don Thompson, CelPril's General Manager.

Turf managers are also finding that use of Nutri-Kote plus Apron can reduce the need for pre-plant fertilization. Many managers find they need only topdress nutrients later for a more lush stand.

**Circle 151 on reader card**

A new multi-use truck has been introduced to the lawn and tree care industry by **Denver Leasing and Manufacturing** which may make the need for an extended inventory of lawn and tree care equipment obsolete.

The 625-gallon multi-compartment spray truck is built on the new 13,200 G.V.W. GMC cab and chassis. This versatile unit can be used as a low-volume turf sprayer with an isolated herbicide spray system, to a high-pressure tree and shrub spray truck that can spray 45- to 60-foot-tall trees.

An additional feature of the 625 is the stainless steel elliptical tank which gives the truck a lower center of gravity. This makes the truck easier and safer to drive. The elliptical shape holds more chemicals over a shorter wheelbase.

Other features of the 625 are: a hot-shift power take-off; ground level loading; a jet mixing system to evenly mix chemicals; hydraulic agitation; and a lockable dry storage area.

**Circle 132 on reader card**

**Lawn-Boy** has re-entered commercial lawn mower production with three new models for 1987, named the Supreme Pros.

These mowers are equipped to meet the every need of mowing/maintenance professionals. Standard on all Supreme Pro models are a five-quart fuel tank made of durable plastic with a screw-in filter; all-metal carburetor/throttle control system; tough, lightweight, non-rusting cast aluminum mower deck; semi-pneumatic rubber tires on steel wheels with ball bearings and grease fittings; sturdy steel handle; a steel engine guard which doubles as a handle for easy loading. Also, the staggered wheel design on both the push and self-propelled models allows the mower to follow the terrain and avoid scalping.

The three models available are the 6461 21-inch push, the 8461 21-inch push, and the 8461 21-inch self-propelled. All are covered by a two-year limited warranty.
**Circle 133 on reader card**

**Brouwer Turf Equipment Limited** introduces a seeder that does it all -- a self-propelled seeder/overseeder that is perfect for seeding, overseeding, and fertilizing.

Contra-rotating powered blades and guides place the seed precisely in adjustable depth slits that are 2-½ inches apart. Offset wheels then cover the seed for the best possible germination conditions.

The operating width is 22 inches and the seed flow is calibrated for efficient distribution. Powered by a 5-horsepower engine and fitted with a heavy-duty drive, there is excellent traction in a variety of conditions. For easy transporting or storage, the adjustable operator control handle folds away quickly.

The unit can be purchased as a basic seeder. The optional overseeder attachment and fertilizer box can be added when needed.
**Circle 150 on reader card**

**Pennwalt Corporation** announces the EPA registration of Penncozeb™ Fungicide for control of most common turfgrass diseases and major fungus diseases of certain ornamentals. Penncozeb, Pennwalt's trade name for mancozeb, is a wettable powder which can be applied by ground or aerial equipment. The product is available in 3-pound and 50-pound bags.

Penncozeb is registered to control several major fungal diseases including: *Fusarium, Rhizoctonia, Pythium*, dollar spot, petal blight, and leaf spot. Applicators should consult the label for additional crops and diseases controlled.
**Circle 131 on reader card**

## ROTARY SPREADER

*(continued from page 36)*

decreases than by speed increases. As with CV, a decrease of approximately 25 percent causes a statistically significant change in the extremes, but an increase in speed of as much as 50 percent causes no significant change.

Rate is also affected by speed changes since most spreaders in this class are generally gravimetric. This particular set of data shows a significant change in rate with only an 8 percent increase in speed. In general, with a gravimetric spreader, the rate change should be somewhat less for an increase in speed than for an equivalent decrease in speed.

**CONCLUSIONS.** The speed at which a spreader is operated does affect the distribution pattern and application rate. Spreader patterns are more sensitive to reductions in speed than to speed increases. In general, it appears that speed decreases of 25 percent or more can cause a significant change in critical pattern parameters, while speed increases of as much as 50 percent have little effect on pattern. Rate, on the other hand, is more drastically affected by speed changes.

These findings provide some good news for applicators. If a spreader operator wants to push his spreader at a speed that is faster or slower than the recommended speed for which the spreader is calibrated, he has a reasonable range of speed to select from — particularly if he pushes it faster than recommended, rather than slower. Rate corrections, however, should definitely be made by changing the rate setting on the spreader. In other words, if an operator wants to *consistently* operate at a non-standard speed, he can probably change the rate setting and ignore pattern differences (within the limits of about -25 to 50 percent). The speed should, however, be consistent for a given operator to avoid rate problems.

It should be noted that this test considered only one spreader and one material. It is possible that other spreaders and materials may act differently, but it should be possible to extrapolate this general data to most common turf spreaders. — *Richard L. Parish* ■

*The author is employed in the Agricultural Engineering Department of the Louisiana Agricultural Experiment Station, Louisiana State University, Baton Rouge, Louisiana.*

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*(continued on page 42)*

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# AD INDEX


Bush and Cook....38
Ciba-Geigy....2
Earthway....41
Encap....36
England Associates....6
Frankco....42
GNC Pump....37
Imler....37
Jacklin Seed....32
Jonathan Green....9
Kuker....36
Lebanon....27
LESCO....44
Liqui-Land....18,35
Mini-Dump....10
Nor-Am....43
OK Wholesale....30
Olathe....21
PLCAA....40
Practical Solutions....41
Quintessence....38
Real Green....42
Regal Chemical....19,25
Rhone-Poulenc....22,23
Ryan....4,5
Salsco....31
Spring Valley....39
Strong Manufacturing....39
Terracare....10
Trebor....24
Tuflex Manufacturing....30
Union Carbide....28,29

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*(continued from page 39)*

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