

## Break up soil to lower thatch

FT. WORTH, Texas — An ironic aspect about thatch is that it can come about as a result of you doing your job well.

"In general, practices that promote vigor, growth and persistence in turf also promote thatch development. That's just the nature of the game," says Robert Green, research associate at Texas A&M University, College Station.

Thatch has a number of potential causes, says Green, including excessive nitrogen fertilization, poor drainage, a soil pH above 7 and the liberal use of broad-

spectrum pesticides.

"We're recommending more judicious use of specific pesticides," says Green. "As far as watering is concerned, we need to wet it, let it dry. Wet it, let it dry. That's the kind of watering that's ideal in thatch prevention."

Green also notes that everyday practices such as mowing no more than 40 percent of the turf's leaf blade and avoiding turf cultivars prone to thatch problems (such as zoysiagrass, some Bermudagrasses and St. Augustinegrass) is a good idea.

If you have a thatch problem, engage the soil just below the surface by kicking up the thatch, says Green, as is done through aerifying or slicing. However, he adds, "Aerification should not be so severe that it takes more than 10 days for the turf to recover." It's better to aerify more often and not as deep, he suggests, when the turf is experiencing its most active growth period (in warm season climates, summer; in cool, usually the fall).

Coring, described by Green as the most effective way to control thatch,



Thatch gets built up in high-maintenance turfgrass.

should introduce at least one hole per six inches of turf. Also, allow the cores to dry out before you reintroduce them into the soil. □

### LAWN CARE

## PLCAA starts education foundation

MARIETTA, Ga. — The Professional Lawn Care Association of America (PLCAA) recently formed the PLCAA Education and Research Foundation.

Purpose of the foundation is to enhance the public understanding of benefits of turfgrasses to the urban environment and to fund activities such as research and education to further this understanding.

The foundation's goal is to raise \$100,000 in 1989.

Members of the foundation's board are: Bruce Augustin, Ph.D., Lesco, Inc.; Paul Bizon, Pro-Grass, Inc.; Thomas Delaney, Georgia Department of Agriculture; Robert Earley, *Lawn Care Industry* magazine; Jerry Faulring, Hydro Lawn; Mary Fischer, wife of the late Bill Fischer, PLCAA past-president;

Russ Frith, Lawn Doctor, Inc.; John Hall, Ph.D., VPI-SU; Dave Hansen, Industrial Landscape Services; Walter Houston, Encap Products Co.; Paul Moore, Lawn Green, Inc.; Martin Petrovic, Ph.D., Cornell University;

Paul Schnare, Ph.D., Accu-Grow; Robert Shearman, Ph.D., University of Nebraska; Barry Troutman, Ph.D., PLCAA; Keith Weidler, past PLCAA board member; and Ruth Yursa, sister of the late Jim Marria, past PLCAA president.

Earley is group vice-president of *LANDSCAPE MANAGEMENT* magazine and Hall, Petrovic and Shearman members of the magazine's Editorial Advisory Board.

One of the original ideas in forming the foundation was in part to memorialize Marria and Fischer. □

### LEGISLATION

## Contracts could become standard for lawn care industry

COLUMBUS, Ohio — According to Marty Erbaugh of Lawnmark, Inc., the possibility of signed contracts going to all lawn care customers may become the rule rather than the exception in the lawn care industry.

"The wave of regulations are just beginning," Erbaugh told Ohio Turfgrass Foundation members at their annual conference. "Over 50 percent of our business is in New York where the Department of Environmental Control (DEC) has proposed signed contracts for all LCOs. You just watch it trickle to Ohio



Marty Erbaugh

and Pennsylvania and most of the rest of the states."

Erbaugh said his company started to like the idea of a signed contract for all

new customers. "It may have been the best decision we've ever made," he noted.

Erbaugh said Lawnmark, which had sales of \$8 million in 1988, made 15,000 sales—all under contract—before May 15.

"Ninety-two percent of the verbal agreements converted to signed contracts," Erbaugh pointed out. "The other eight percent—well, they're better off being serviced by the other guy."

"The marketplace appreciated us spelling out the rules. It helped business because we created more realistic expectations at the

start of our relationship with the customer."

The contract Lawnmark presents new customers is divided into eight sections: Services provided, Timing of treatments, Payment terms, Guarantee, Service calls/service continuity, Other services, Continuing service and Call ahead. Erbaugh says each section is carefully worded to suit all legal responsibilities imposed by New York's DEC.

Erbaugh believes that written contracts were part of the reason for 55 percent fewer skips and cancels from new customers in 1988 than in 1987. □

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## The Average Person's Idea Of Overpowering Allies.

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COLUMBUS, Ohio — According to Mary Ehrlich of Cincinnati, the goal of law firms is the goal of law firms. The goal of law firms is the goal of law firms.

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# SHORT CUTS

**KEEP IN MIND...**that water is the "life-giving source," says **Richard White**, Ph.D. and turf research specialist at Cook College, Rutgers University. White reminds us that 98 percent of a plant's water is transpired, and only 1.5 percent is retained in tissue and is a component of that tissue. And 70 percent of a turfgrass plant is composed of water, says White. Water is essential for nutrient transport, cooling, energy, and growth support, says White. "The role of water is life."

**FORMIDABLE FESCUE...**A new revolutionary tall fescue has been named Shortstop, according to breeder **Jerry Pepin**, Ph.D. for Pickseed West Inc. Shortstop is a true dwarf that has exhibited the lowest and slowest growth habit of all varieties tested at the company's research station. It has been rated one of the best varieties for overall turf quality and color, according to a press release. Shortstop will be commercially available by this fall.

**FOR THE LIBRARY...**is "Diseases of Trees & Shrubs," by **Wayne A. Sinclair, Howard Lyon and Warren Johnson** of Cornell University. "It's the best book I've seen on the topic," says **Bruce Clarke**, Ph.D. at Cook College, Rutgers University. The 507-page book is composed entirely of color plates, and is a bargain at only \$49 from Cornell University Press, 124 Roberts Place, Ithaca, NY 14850.

**WOMEN ORGANIZE...**The Ontario (Canada) Professional Women in Horticulture meets four times a year. For more information, contact **Brenda Rice** at (416) 274-3109 or (416) 274-6918. You can write the group at 1564 Mississauga Rd., Mississauga, Ontario, Canada L5H 2K2.

**DON'T FORGET TO FOLLOW UP...****Rick Kuscinski** believes more attention should be given to plants after they've been installed. "Eighty percent of a plant's lifespan involves management, and there hasn't been enough attention given to that area." Speaking at the Missouri Lawn and Turf Conference, Kuscinski said maintenance is a joint effort. "It's best to set up a four-season program. Establish standards for care, and zone the landscape according to degrees of care required. Document the care required during the year to maintain a continuity of landscape from year to year, especially in times of employee turnover."

**A WINNER IN VEGAS...**was **Robert Morris**, chairman of the Nevada Cooperative Extension. Morris received the Clark County Conservation District's Water Conservation Award for 1988, for his contributions towards promoting better understanding of water conservation. "The desert is a complex area when it comes to water conservation," said Morris. "It's considered to be a resort area, known for its quality of life. But at the same time, we have problems with water shortages." Morris said conservation is a political and economic issue pitting the pro-legislation people against those in favor of unrestricted water use. "I just hope the two factions will find a compromise. We must strike a balance."

**SHAKE, RATTLE AND...****Bill Martin** in Whittier, Calif., may want to change the name of his course from Friendly Hills to Rolling Hills. The epicenter of the earthquake that registered 6.1 on the Richter Scale last October was located in about the same area as the country club. "The course did fine, Martin wrote in *TurfComms*, "but some of the members' homes did not."

NEWS from page 11  
RESEARCH

## Potassium is an O-'K' element

ST. LOUIS — Paul Roberts, Ph.D., believes that too many turfgrass experts are overlooking the importance of high amounts of potassium in their turf's diet. Speaking at the Missouri Lawn and Turf Conference here, Roberts revealed results of his recent research.

Roberts found the benefits of potassium include better temperature disease tolerance and that potassium readily leaches, or adheres to and remains in sand, a feature that aids golf course supers who are converting more to sand putting greens. General benefits of potassium, according to Roberts, are improved heat, cold and wear tolerance.

"Potassium-nourished greens come out of drought well," says Roberts, which will come in handy should drought conditions continue in 1989. Roberts also credits potassium with imparting a high degree of disease resistance, and improved rooting systems.

Finally, Roberts believes potassium is essential for carbohydrate synthesis, protein synthesis, regulation of transpiration and chlorophyll development.

The tests were taken at Meramec Community College in conjunction with the University of Missouri and the Mississippi Valley Golf Course Superintendents Association. □

## LEGISLATION

### Reminder: OSHA remains in effect

ATLANTIC CITY, N.J. — If you haven't checked in at the clubhouse for the mail lately, you might be in the dark about the latest guidelines concerning hazardous chemicals.

Speaking to members of the New Jersey Turfgrass Association, George Hamilton, Ph.D. and

# Ryan brings quality aeration from golf greens to green lawns.



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The revolutionary Lawnaire 28 combines the technology and precision of golf course aeration with the demands of lawn maintenance. Its reciprocating, crank mounted tine arms feature a vertical coring action similar to larger Ryan aerators. Tines penetrate straight in to a depth of 2½ inches, and come straight out. The results are a more professional-looking job, better root development, greener lawns, and more satisfied customers.

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# Embark<sup>®</sup> can reduce the mowing costs of fine turf by at least 50%.

PLANT GROWTH REGULATOR

Anyone who is involved in mowing and managing low-traffic, irrigated, ornamental turf can benefit from the experiences of those who are using this program.

Everett Mealman, President  
PBI/Gordon Corporation

Last year, a number of progressive groundskeepers accepted the challenge to prove to themselves that they could successfully use an Embark-Ferromec AC<sup>®</sup> program on low-traffic, irrigated turf. We promised them that the program would reduce their bottom-line mowing costs by 50% or more during the 5 to 6-week period while the Embark is active, and in the process would enhance the color and thicken up the turf.

Of course, we knew the program would work because of tests conducted by university researchers, and the experience of Constant Care, Inc., one of the leading landscape management contractors in the entire midwest, who have been pioneering the use of PGRs on ornamental turf since 1985.

But never in our fondest dreams did we anticipate the enthusiasm of the positive responses we have received.

Listen to Carl Schroeder, owner of Horticultural Consultants, Inc., of Shawnee Mission, Kansas. He says,

"Now that we know what Embark can do, we will be aggressively soliciting mowing and maintenance contracts that we formerly would have shied away from because of questionable profitability."

Schroeder bases his optimism on his experience in testing the Embark-Ferromec AC program on the vast sweep of ornamental turf that surrounds the headquarters of Farmers Insurance Group . . . the largest and most visible piece of turf in the Kansas City area. "It's a tremendous 18.5-acre showcase for us," says Schroeder. "But, is it ever a #! to mow!

"There's a 40% slope on some areas that have to be mowed with a walk-behind to avoid ruts and erosion," says Schroeder. "You can imagine the expense! But, with the Embark-Ferromec AC program, we will be able to cut those costs in half, while at the same time improving the appearance . . . and we are hopeful that Embark will help strengthen the roots of the grass on those slopes."



This program is as simple as a, b, c.

First of all, the Embark is applied at the low rate (1 pt./A). The idea is to slow down the growth rather than to totally shut it off.

Second, it is tank-mixed with Ferromec AC Liquid Iron at a high rate (2.75 gal./A), which produces a vibrant green color before the Embark kicks in; hence no worry about discoloration. In fact, just the opposite.

Third, the Embark-Ferromec AC can be tank-mixed with Trimec<sup>®</sup> Broadleaf Herbicide, so it gets a free ride that even further improves the bottom line.

But wait! There's more good news: Embark is a true plant growth regulator, not a reformulated herbicide. Tests clearly show that when Embark shuts down seedhead development and stem elongation, the energy is redirected toward root growth.



Carl Schroeder, right, gives Everett Mealman a closeup view of the impressive and highly visible turf he maintains for Farmers Insurance Group. Millions of people who whiz by on I-435 see it as a thing of beauty, but Schroeder sees it as a monster for Embark to tame.



Constant Care, Inc. have been pioneering the use of PGRs for five years and were directly involved in the early tests of the Embark-Ferromec AC combination. Bill Gordon, above, director of commercial landscaping for Constant Care, says that nothing works like Embark.

Bill McGee, above right, general manager of Smith Lawn and Tree Company, used Embark/Ferromec AC/Trimec on this turf at Bedford Properties Industrial Park. "Within two days the tall fescue greened up and the mowing was cut in half for six weeks."

Does this look like a challenge for the amateur golfer? Yes, indeed, but it's even more of a challenge for superintendent Jerry Ducker, left, in the photo at right; and his assistant, Tom Addington.



### Experience of a golf course superintendent

Jerry Ducker, golf course superintendent of the prestigious Hallbrook Farms Country Club in Leawood, Kansas is extremely interested in the potential problem-solving power of Embark-Ferromec AC.

Hallbrook was designed to present a challenge. "And indeed it does!" laughs Ducker . . . "a challenge to the superintendent. For example, we've got zoysia peninsulas that extend into

fairway traps that can only be mowed with hand trimmers while standing deep in sand. You can imagine what a labor-intensive job you're looking at."

With this in mind, Ducker tested Embark-Ferromec AC on some of his less-visible areas in 1988. "We're very enthusiastic about what we hope to be able to do with Embark," says Ducker.

Another Embark-Ferromec AC enthusiast is Bill McGee, general manager of Smith Lawn and Tree Company of Kansas City, Missouri. "We used it on three of the Bedford Properties Industrial Parks," says McGee. "And, within 48 hours, the tall fescue took on a rich green color, and the mowings were cut in half for six weeks."

### Embark-treated grass develops deeper roots

Research shows that when grass is treated with Embark, the energy that would naturally produce seedheads and stem elongation is redirected to the roots. This phenomenon occurs regardless of whether or not the grass is mowed.



### Shouldn't you try Embark?

Indeed, the evidence cannot be denied. The Embark-Ferromec AC-Trimec program is dramatically changing the economics of managing low-traffic, irrigated ornamental turf.

Surely you'll want to keep pace with the change and at least test the program for yourself — if only in a minor way.

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This unique tool clamps to edge of mower deck to secure blade so that nut can be wrenched off quickly and safely. To receive a Nutbuster via UPS, send \$9 to PBI/Gordon with your name and address and a copy of an invoice showing you have purchased one quart or more of Embark. Offer expires Nov. 1, 1989. Limit one per customer.

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PLANT GROWTH REGULATOR

717-1288

Circle No. 153 on Reader Inquiry Card

pesticide specialist at the Rutgers Cooperative Extension reviewed the latest requirements brought about by the OSHA Hazard Communication Standard.

Enacted in 1983, the Standard required chemical manufacturers and importers to evaluate the hazards associated with various chemicals and to communicate these hazards to workers via Material Safety Data Sheets. Worker training, container labeling, written programs, chemical lists and maintenance of data sheets are all part of the requirement. In 1987, OSHA expanded the requirements into the non-manufacturing sector, making golf courses and lawn care operations liable in the event of non-compliance.

The three main areas of concern have to do with labelling, Material Safety Data Sheets and training.

● Chemicals must have a label that states the OSHA hazard classification, active ingredient, name and ad-



Newly elected board members of the California GCSA discuss the GCSAA conference this month in Anaheim, Calif. Top row, from left to right are, David Lozoya, David Hein, D.J. Pakala, Tim Sedgley. Bottom row, left to right, Dave Fleming, Robert Tillerman, Melvin Summer and Paul Dias.

dress of manufacturer. Hamilton says pesticides in original containers are exempt from the labeling requirement, however, if the pesticide is in a service container it must be properly labeled according to both OSHA requirements and

state pesticide regulations for service containers.

● Each chemical covered under the standard requires its own safety data sheet, which contains information regarding acute and chronic health effects, any physical health effects and the chemical's potential for fire and explosion. Sheets also are to provide information on proper storage and disposal techniques, specific safety precautions, medical treatment information and steps necessary to prevent excessive exposure to the chemical.

● Hamilton says information and training must be provided to employees about those hazardous chemicals present in their work area. This information includes the purpose and provisions of the standard, areas where the chemicals are in use and location and availability of the written hazard communication program, including the list of hazardous chemicals and material safety data sheets. □

#### LAWN CARE

### Drought stress programs an issue

ATLANTIC CITY, N.J. — If the drought returns this summer, will you be ready? Robert Carrow, Ph.D. at the University of Georgia,

thinks it's a good idea to focus on high temperature drought stress just in case.

"The effects of future droughts will depend on how you mold your entire program of lawn care practices," Carrow said, in remarks made at the New Jersey Turfgrass Expo.

Carrow said a drought care program is especially important considering that once the LCO leaves the property, it's in the hands of the homeowner.

"The lawn care professional has total control over what he does to correct problems, but very little control over how the homeowner cares for the lawn in his own way. Let's be sure," urged Carrow, "that we're doing all we can for the turf."

Carrow described two types of high temperature stress: direct and indirect. Indirect heat stress, the most common, happens every year.

Direct heat stress is much quicker and more harmful, and occurs when heat-sensitive proteins in the protoplasm are denatured, resulting in protoplasmic coagulation of the cell wall, which collapses.

To prevent high temperature stress:

- Irrigate properly.
- Promote hardiness by using drought-resistance species and cultivars.
- Plant shade trees to protect the turf in case of severe heat conditions.
- Plenty of water is needed for transpirational cooling.
- Recommend to the homeowner the best mowing practices, since mowing height influences the root system, density of surface turf and high amount of carbohydrate reserves.

Drought stress reduction includes:

● A good overall agronomic program. It does make a difference if you have good fertilization, weed control and insecticide programs.

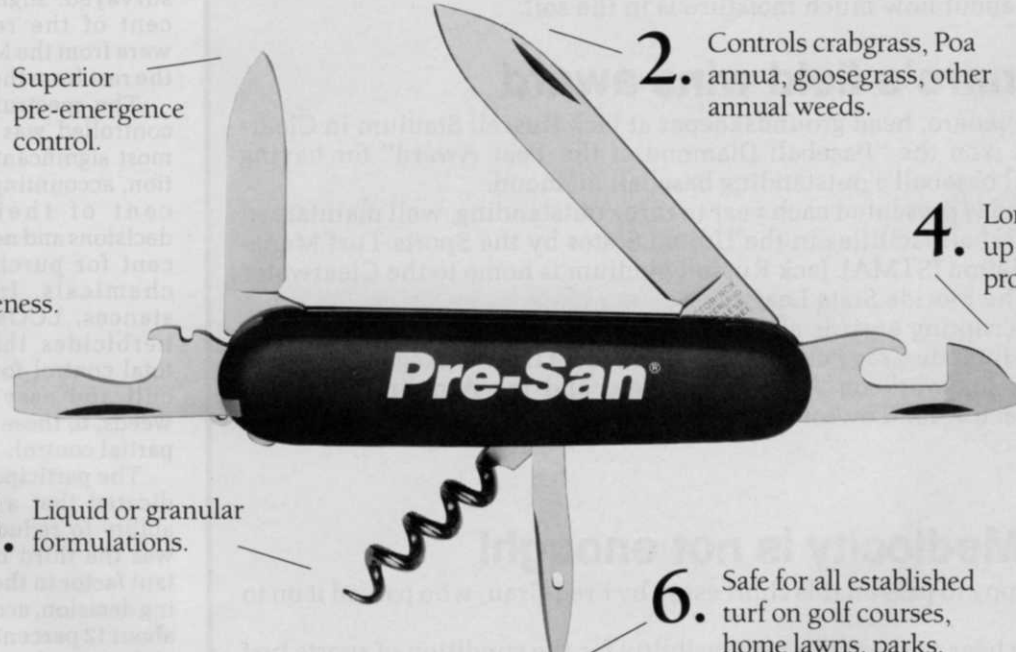
● Continue to educate the homeowner. What the

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Circle No. 166 on Reader Inquiry Card

# ATHLETIC TURF

## Working on the ideal surface

"When you come in contact with the surface as much as you do in football, poor field condition has to be a concern." That's Penn State University head football coach Joe Paterno talking about his favorite playing surface, natural grass.

To improve athletic field conditions Don Waddington, Ph.D. and Trey Rogers have been working to develop the ideal surface. They gave results of their research at the annual meeting of the American Society of Agronomists late last year.

Most recently the pair (Rogers has since earned his Ph.D. and is an assistant professor of turfgrass science at Michigan State University) looked at cutting height and soil compaction and how they affect impact.

"There are two critical interactions between the player and the ground that determine the quality of a sports surface—hardness and traction," claims Waddington.

To measure traction, compaction and impact absorption, the researchers used a portable Clegg impact tester that drops weights from 18 inches and measures how quickly they stop.

"The Penn State research indicates that differences in cutting height of the grass are not as important in absorbing impact as the mere presence of the turfgrass itself," Waddington reports.

It is not the height of the grass so much as the amount of moisture in the ground that determines the surface's hardness. As soil moisture decreases, the importance of grass as a shock absorber increases. Practices that reduce soil compaction also become more important as the soil becomes drier.

The study concludes that for traction, field managers need to be looking at how well-developed the root system is. The deeper the roots, the better the traction. And to minimize injury from impact, managers need to be concerned about how much moisture is in the soil.

## Timpanaro's field wins award

Ron Timpanaro, head groundskeeper at Jack Russell Stadium in Clearwater, Fla., won the "Baseball Diamond of the Year Award" for having professional baseball's outstanding baseball diamond.

The award is presented each year to three outstanding, well maintained and safe baseball facilities in the United States by the Sports Turf Manager's Association (STMA). Jack Russell Stadium is home to the Clearwater Phillies of the Florida State League.

Others accepting awards at the STMA's January presentation in Vero Beach, Fla., include Greg Petry, superintendent of the Waukegan, (Ill.) Park District, for his work on Al Grosche Field and Joe Ardolino, assistant athletic director, for Towson State University's Burson Field in Towson, Maryland.

## Grau: Mediocrity is not enough!

We're happy to pass on this short essay by Fred Grau, who passed it on to us:

"We who bear or share the responsibility for the condition of sports turf can no longer continue with just good enough when players expect excellence.

"For those we serve we want to provide excellence. If the purse strings are drawn too tightly let the parents know the situation. They are fundraisers personified.

"We can do it— just loosen the reins and say Giddyap. No athlete who has enjoyed excellence will ever again be satisfied with good enough.' "

homeowner does reflect directly on the LCO.

● Don't oversell your service. You only control half of it.

● Work with your regulatory agencies to develop favorable water-use regulations. "Without good water-use regulations, many of today's companies will be out of business in five to 10 years. Sufficient water must be there," Carrow concluded. □

## PESTICIDES

### What kills most sells the best

MIDLAND, Mich. — The single most important consideration when buying a herbicide is percentage of broadleaf weeds controlled, according to lawn care operators (LCOs) surveyed recently by the Dow Chemical Co.

About 100 LCOs responsible for selecting chemicals and materials for their lawn care operations were surveyed. Eighty six percent of the respondents were from the Midwest and the rest from the Northeast.

The spectrum of weeds controlled was the second most significant consideration, accounting for 18 percent of their buying decisions and nearly 20 percent for purchasing spot chemicals. In both instances, LCOs preferred herbicides that provide total control for both difficult and easy-to-control weeds, to those giving only partial control.

The participants also indicated that a chemical's ability to reduce callbacks was the third most important factor in their purchasing decision, accounting for about 12 percent of their decisions to buy broadcast and spot herbicides.

Chemical cost per acre was reported to be significantly less important than efficacy, sales support and safety. Cost accounted for nine percent of the broadcast chemical decisions and four percent for spot herbicides. The results indi-