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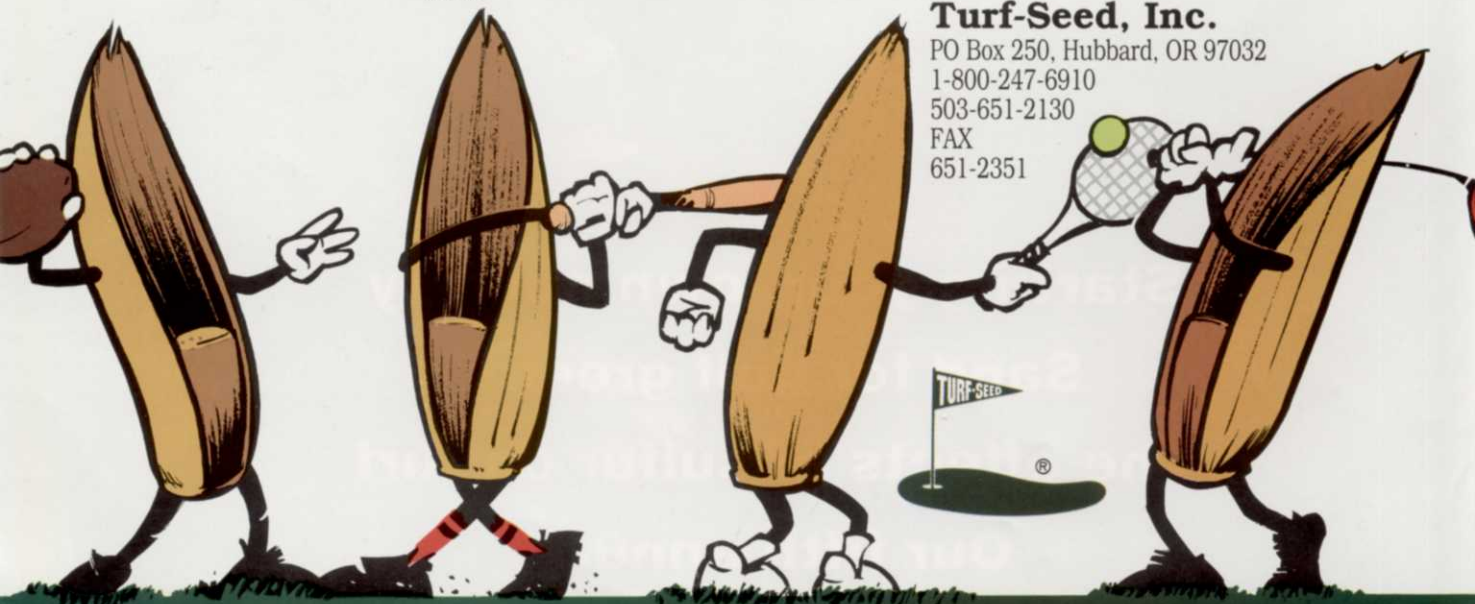
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## AS WE SEE IT

RON HALL, SENIOR EDITOR



### Green industry workers on collision course with cancer

Many of us are at great risk and don't even know it.

The hazard: cancer.

No, it's unlikely the danger is caused by exposure to any of the chemicals we work with. Much, much more likely, what will cause our cancer is something we consider to be the best part of the turf/landscape business—working outdoors.

Skin cancer (there are several different kinds) is one of the biggest health risks we face. Why? Because most of us are exposed to skin-damaging ultraviolet radiation day after day, and we take no precautions.

More than 600,000 new cases of non-melanoma skin cancer are reported each year in the United States. The National Cancer Institute says that as many as 30 percent of people in the South will develop non-melanoma skin cancer at some point in their life, about 15 percent in the North.

These numbers astonish me.

Even now they astonish me—even after a skin specialist removed a solar keratosis from my right temple which, as far as can be determined, was pre-cancerous.

"What would happen if I didn't get this taken care of?" I ask the doctor.

"It would just get worse."

"How'd I get it?"

"Too much sun. It's not all that uncommon. Actually, it's in a good place. It could have been on your nose."

The keratoses started as a tiny bump, maybe four years ago, then gradually progressed into an on-again, off-again sore that eventually grew to half the size of a pencil eraser.

Within minutes of examining the blemish, the doctor went to work. He injected an anesthetic into the area between my right eye and hairline, then cut and scraped away the offending blemish. He used what, from the corner of my eye, appeared to be a soldering iron to cauterize the wound. He sent a sample of the tissue to a nearby hospital for further tests.

I've since learned that several friends have had similar experiences; some, in

fact, more serious than mine.

I've also learned that solar keratoses are probably the least threatening manifestations of cancer. There are other forms, and some can become life threatening if not detected and treated soon enough.

Basal cell carcinoma, for instance, is a slow-growing cancer that rarely spreads to other parts of the body. It's the most common type of skin cancer. Squamous cell carcinomas are faster growing tumors and sometimes spread to other organs. Together, these two types of cancers are known as "non-melanoma skin cancers" to distinguish them from melanoma of the skin, a more serious form of cancer yet.

There isn't enough room in this column to give you more detailed information. Contact your local chapter of the American Cancer Society. They'll be glad to supply you with literature, photographs, and other material.

Until then, share this information about the risks of skin cancer with co-workers and employees.

It should be a part of the safety training of all lawn/landscape professionals, considering the number of shirtless, hatless workers I see mowing or working on clients' landscapes.

Usually these workers are white males. Although no race is immune to a skin cancer, this segment of the the population is most likely to develop a skin cancer, says the American Cancer Society.

To reduce the risk of becoming one of the 2,500 Americans who die each year of non-melanoma skin cancers: wear hats and appropriate clothing, and use sunscreen (SPF 15 or more) when working outdoors.



# LANDSCAPE MANAGEMENT

INCORPORATING LAWN CARE INDUSTRY

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## COVER FEATURE

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*Ron Hall*

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*Gary L. Wade, Ph.D.*

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Insist on sand that has been subjected to particle size analysis, or you could be in trouble, says this author.

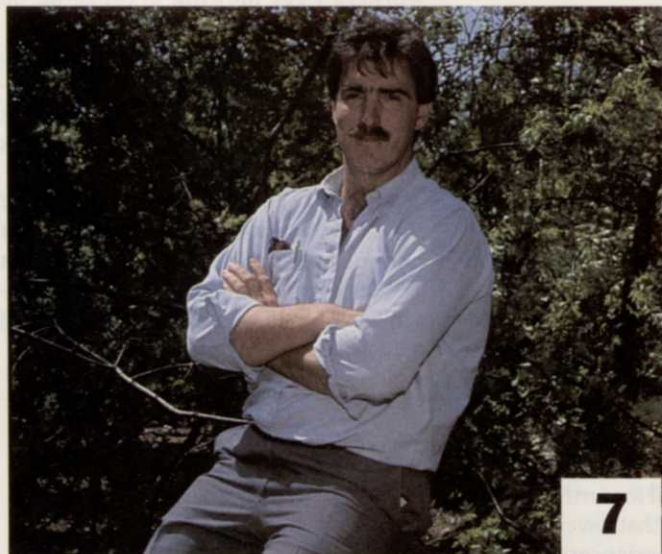
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## SPECIAL SUPPLEMENT

### Seed Pocket Guide

The fifth annual Seed Pocket Guide is your complete turfseed reference piece. Included are listings of blends and mixes, and results from the National Turfgrass Evaluation Program (NTEP).

**On the cover:** Natural grass gets carted into the Silverdome in Pontiac, Mich. prior to a World Cup soccer game. More in "Hot Topics." (Photo by Ron Hall)

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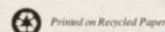
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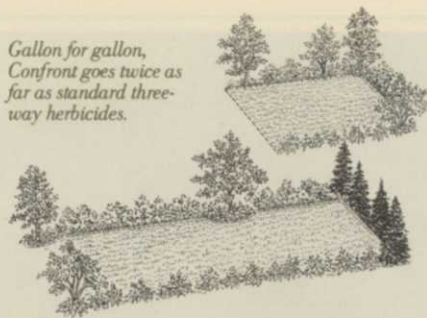
The thing we're trying to help you avoid is overkill. Because if you can control weeds, isn't that enough?

So here's a less

EPA), and you'll get very good results. It sounds simple, but it's one of the most effective ways to use less herbicide.

Also, calibrate your equipment frequently, and use the correct

Gallon for gallon, Confront goes twice as far as standard three-way herbicides.



# At last. A herbicide that like eradicate, eliminate

aggressive approach to managing weeds. A few things you can do to use less postemergence herbicide to get the weed control you need.

First, look for weedy areas

A Young  
Weed Is  
A Vulnerable  
Weed.

The best time to apply your postemergence herbicide is early—when you first see weeds emerge. This is when weeds are the most vulnerable to herbicides. You'll get better results from your application, and you'll reduce the need for treating hardened weeds later.

before applying herbicide. That way, you can use spot treatments instead of broadcast applications (a practice recommended by the



 DowElanco



rate of herbicide for the weed you want to control. You'll get better results from your application, and reduce the chances you'll have to re-apply.

And it's important to select a

postemergence herbicide that does the job the first time you apply it. For stubborn broadleaf weeds,

*Careful scouting helps you get effective weed control using less herbicide.*



herbicides often miss, giving you excellent results from your application. Confront® herbicide is also a good choice. Confront gets to the roots to keep weeds from coming back. It's very effective on

# d that doesn't use words or destroy.

Turflon® herbicide is a good choice. It controls weeds other

clover. And perfect for turfgrass where you prefer a herbicide without dicamba, 2,4-D or MCPP.



Of course, there isn't room here to outline an entire weed control program. That's why we created The Turf Manager's Guide To Responsible Pest Management. It's 44 pages on the latest techniques for controlling weeds, insects and turf diseases.

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**The chemistry is right.™**





# ASK THE EXPERT

DR. BALAKRISHNA RAO

## Be happy for earthworms

**In response:** to a recent question about how to eliminate earthworms from golf greens (May, 1993), Timothy Kelly, superintendent of the Horse Thief Country Club, Tehachapi, Calif., writes:

"Be happy you have a healthy population of earthworms. The benefits far outweigh any possible objections.

"To mitigate the problem of worm castings, install a brush on the front of your greensmower to knock down and spread the mounds of castings. I guarantee you will find no better topdressing."

## Who regulates lawn care?

**Problem:** A number of our employees and clients ask, 'Who regulates lawn care products and services?' We appreciate your comments. (Mich.)

**Solution:** The following is excerpted from a question-and-answer publication of the Professional Lawn Care Association of America (PLCAA):

**The U.S. Environmental Protection Agency (EPA).** Under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), all lawn care products that contain pesticides must be registered with EPA before they can be lawfully sold or distributed. However, an EPA registration is not equivalent to a recommendation, endorsement, or approval of the product, nor is it a finding of "safety." EPA registration means that pesticide registrants have submitted required scientific data concerning the risks associated with pesticide use.

Since many pesticides have been available for a long time, the review process for these products was done many years ago. FIFRA now requires the EPA undertake the re-registration of any pesticide product registered before November 1984. This includes updating the scientific data base necessary to evaluate the risks and benefits, and reviewing that data according to today's scientific standards. Although the re-registration process is under way, it is anticipated that it will take years to complete. To date, only a few products have been re-registered.

**The Federal Trade Commission (FTC).** The FTC has regulatory powers covering advertising in any medium, whether transmitted orally or in written form. The FTC requires that all advertising materials and claims, including sales presentations, must be scientifically accurate while not being deceptive to the consumer.

**State governments.** Virtually all states require licensing and testing before a company can apply pesticides commercially. Many states also evaluate pesticide advertising within their borders. The responsible state agency is usually the Department of Environmental Protection or Conservation, the Department of Agriculture, or the State Attorney General.

## Defining 'wolmanization'

**Problem:** I always enjoy reading your column in *LANDSCAPE MANAGEMENT*. However, looking through back issues, I came across the term "wolmanized wood" in the December 1991 issue. I am totally unfamiliar with the term, and to make matters worse I could not find "wolmanized" in any of my reference books or dictionary. I would greatly appreciate it if you could put my curiosity to rest. (Va.)

**Solution:** The "wolmanized" wood is a treated wood which, according to our local lumber store representative, can be purchased in any store that sells lumber for exterior use. The word "wolmanized" is the name given to a process by which wood is treated. The lumber store representative mentioned that often companies write on the wood or stamp it, indicating that it is "wolmanized" wood.

## Crabgrass control

**Problem:** We heard about a pre-emergence herbicide called *Barricade* for crabgrass control. Is it labelled for fine turf like *Kentucky bluegrass*? We also learned that it helps control some broadleaf weeds. We are dealing with a lot of properties with speedwell (veronica) problems. Does the *Barricade* work on this? I appreciate your comments. (N.Y.)

**Solution:** The *Barricade* 65WG herbicide, also known as prodi-amine, from Sandoz Company, is a selective pre-emergence herbicide. It helps manage several annual grassy weeds and some broadleaf weeds.

A Sandoz representative mentioned that currently, *Barricade* is labelled for use on fine turf, including both cool- and warm-season turfgrass all over the U.S., except in California and New York. It cannot be used in your area until the product is registered, which they hope will be in the near future.

The label refers to the use of *Barricade* on perennial bluegrass, which includes *Kentucky bluegrass*. Reports indicate that one application will provide a season-long control of grassy weeds like crabgrass, annual bluegrass, yellow foxtail and goosegrass. It also helps manage broadleaf weeds such as henbit, knotweed, common chickweed and prostrate spurge.

The Sandoz representative indicated that hard-to-control weeds like speedwell are not on the label. Sandoz is researching *Barricade*'s effectiveness on such weeds.

In your case, *Barricade* might not be a viable option now. For veronica control, a pre-emergence herbicide such as Dacthal may be used. Reports suggest that this material needs to be applied when veronica plants are in bloom for better results.

Read and follow label specification when using any pesticide.

*Dr. Balakrishna Rao is Manager of Research and Technical Development for the Davey Tree Co., Kent, Ohio.*

*Mail questions to "Ask the Expert," LANDSCAPE MANAGEMENT, 7500 Old Oak Blvd., Cleveland, OH 44130. Please allow two to three months for an answer to appear in the magazine.*



# Thinking about a nursery?

**Landscape contractors can give many reasons to start their own nursery, but there's only one valid reason: better customer service.**

■ Please: this stunt should be attempted by professionals only.

Approach the thought of starting your own nursery—particularly if you're a landscape contractor—with a level of trepidation equal to that of attempting to hurdle a razor-wire fence.

As your nursery ambitions grow, whether you're considering a small "holding" area, most assuredly if you're thinking wholesale or retail, raise the height of the fence correspondingly.

"There's an awful lot of work involved in operating your own nursery," says Ken Smith, The Landscape Company, Jacksonville, Fla. "It's a separate business from the landscape business, and if you're going to run a nursery and you're a small business, you won't get a vacation."

Barclay Bullock, Barclay's Gardens, Lake Oswego, doesn't see much benefit either from running his own nursery, particularly, not in the nursery-rich Pacific Northwest. He buys much of his material from brokers and wholesalers. "They (growers) don't want landscapers coming in and picking up five flats of this or two of that," says Bullock.

So much for the prerequisite dire warning.

There are, in fact, operations that successfully combine both a nursery with landscape services. We found several examples near our Cleveland offices.

Barnes Nursery Inc. of Huron maintains more than 125 acres of shade and ornamental trees and some evergreens on several small farms. But its core business is landscaping and landscape maintenance.

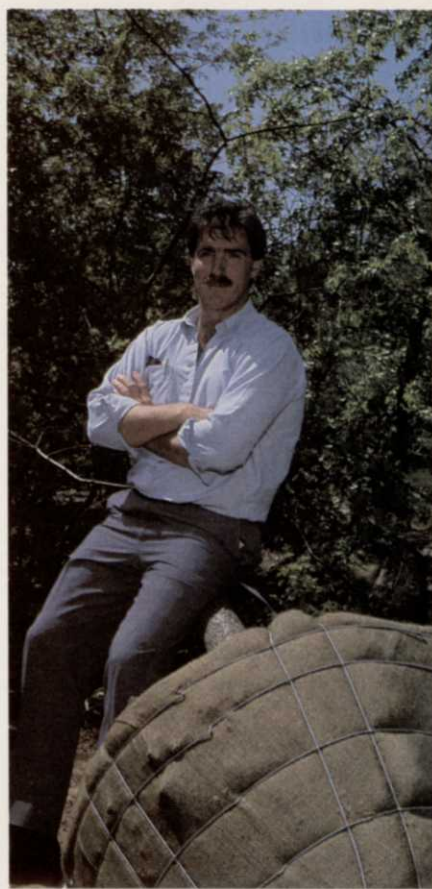
Barnes does not propagate its own trees. It buys "whips" and seedlings from many sources across the United States, much of it bare-rooted. The young plants, "liners," are stored in a cooler, which is about the size of a railroad box car, until they're planted in the fields, usually in early spring, says Stephen Coughlin, a landscape designer and Barnes' chief buyer.

**Lots of trees**—In the spring, Barnes' crews dig their trees, before they leaf out. Other landscapers have contracted for some of these dug trees; many end up in Barnes' landscape projects; and the public buys many at Barnes' colorful garden center.

"It's a crop that sometimes takes five to seven years before you harvest," says Coughlin. "It's a sizable expense because you have to trim and spray and water these trees as you would any other crop. You need extra equipment, and materials like wire baskets and burlap. Besides that, you're paying tax on the land."

Coughlin visits tree suppliers in person, including those on the West Coast, to get the best plant material at the best possible prices.

Sometimes he finds something



**Kurt Kluznik : how many businesses can a person be in?**

unique that will thrive in north central Ohio.

"A friend once told me that he can always tell a Barnes' landscape because there's almost always something unusual in it," says a smiling Coughlin.

**Busy company**—But Barnes isn't your typical landscape company—if there is such a thing.

Harold and Jean Barnes and several other family members started the company just over 50 years ago as Barnes Roses. A son and daughter-in-law, Robert and Sharon Barnes, and a handful of capable managers direct the company now.

Suggest to Bob Barnes that he wears four or five different hats and he responds with a wry smile, "make that 11 or 12 hats."

Barnes Nursery employs over 200 in season and offers landscape design, installations, maintenance, tree & shrub, lawn care, a retail garden center (with a new greenhouse of hanging baskets and exotics) and even a plant recycling/compost facility.

*continued on page 8*



**Another example**—Kurt Kluznik helped start Yardmaster, Inc. of Painesville fresh out of high school in 1971. It's also a full-service landscape company, but it doesn't have a retail garden center and Kluznik has no plans to start one.

"How many businesses can a person be in at one time?" asks Kluznik. "In May I can't handle one more thing. My springs are already full, and that's when the retail business kicks in."

Yardmaster does have a nursery, though: 40 acres of trees, evergreens, shrubs and some perennials.

"It's an expense, and you question it on a regular basis to make sure it still makes economic sense," admits Kluznik who cites certain cost savings like volume buying, and the advantage of having well-tended landscape stock always available for his company's installations.

"A lot of our work is sold in advance so we go ahead and buy the plants in the fall or spring, and put them back in the ground, and then we'll be able to harvest them later," says Kluznik. Typically, the plant material puts on more growth as it's tended and irrigated in Yardmaster's almost pure sand nursery.

"To use big plant material, you have to go out and find it. We do," says Kluznik.

Most of this stock is targeted for Yardmaster jobs. The company's designers and sales people get regular printed inventories of the stock including sizes, availability, etc.

"One of the things we try to do is give our customers a little bit more than they bargained for," says Kluznik. "If a person buys a six-foot hemlock, we don't want

**Stephen Coughlin, left, and Robert Barnes of Barnes Nursery say nursery expenses include extra equipment, materials and land taxes.**



them to go out and measure and say, 'This is only five-and-a-half feet.' We want them to measure it and say, 'Hey, it's seven feet.'

"We like to leave a client with an instant effect. We don't want it to look like we went to a garden center and put everything in a station wagon and then planted their job."

**'No' votes**—Despite these success stories, Tom Lied, Lied's Nursery Company, Inc. of Sussex, Wis., says most landscape contractors shouldn't be in the nursery business. Period.

He feels most landscape professionals can serve customers and themselves better by directing their energies and resources more directly to their core businesses: providing quality landscapes and/or maintenance services.

Landscapers thinking about starting nurseries, and even many who already operate them, may not really realize the true costs associated with farming trees and landscape plants, believes Lied.

Steve Coffey of Scapes, Inc. in Atlanta, Ga., is happy to leave the farming to others.

"We get almost all of our plant material directly from the growers," says Coffey.

"If everything goes like it's supposed to, it goes directly to the job site and gets planted. That way we don't double and triple handle the plant material. We don't even bring it to the yard. It takes time to handle plant material, and that's especially true if we're handling big trees."

There's a down side to this method, admits Coffey, particularly if a shipment doesn't arrive when it should. "You could have a crew sitting at a site with nothing to do," he says.

"Certainly, the way we do it takes a lot of coordination. But, it saves a lot of labor too," says Coffey, whose company, with offices in Atlanta and near Washington D.C., works throughout much of the Southeast.

—Ron Hall

## Nurseries mean legwork

### ■ Search and ye shall find.

That's the key to acquiring professional quality tree and plant material from suppliers.

You might even have to travel.

The nursery industry is increasingly more sophisticated, particularly the distribution of tree and plant material through wholesalers and now even re-wholesalers. But you'll still have to do a lot of the footwork yourself.

Stephen Coughlin, buyer for Barnes Nursery, regularly attends nursery industry trade shows, and makes trips to other nurseries, including periodic visits to the West Coast to personally meet suppliers and inspect their offerings.

Yardmaster's buyer makes the rounds of tree and plant suppliers and hand tags specific stock. Operator Kurt Kluznik says

this past year has been a good year for stock. Prices are reasonable because of the recession, and quality is good because of 1992's favorable weather.

Scapes, Inc. spends thousands of dollars each year in telephone charges in tracking down quality landscape material, says Steve Coffey.

"You have to search out the best sources for quality plant material," he says. "Without doing that, you just buy whatever's out there, and there's nothing more costly than an unhappy client when you get there with trees they're not happy with."

For more information, contact the American Association of Nurseryman, 1250 I Street, NW, Suite 500, Washington, DC 20005; (202) 789-2900.

—R.H.



## LM REPORTS

# Mower options: more than 'bells and whistles'

## Optional attachments turn mowers into essential, year-round machines.

by Steve and Suz Trusty

■ When is a mower not a mower? When optional attachments have converted the base power unit to a backhoe, skid-steer loader, powered blade, aerator, blower, brush or snowblower.

How important are these optional attachments? How do they affect the need for additional pieces of equipment? How do they affect the cost effectiveness of the original mower?

Obviously, the answers to these questions will vary with each equipment owner. But often, optional attachments can make a major contribution to the bottom line.

● Consider snow removal. If a mower in the northern climates can be converted to a snowblower or equipped with a blade, the seasonal life of that machine is extended by three to five months annually. After the costs of the attachments and additional use hours are factored in, the overall cost of the equipment for mowing is offset by the added use. Expenses for hiring outside help or purchasing a dedicated piece of equipment for snow removal are eliminated.

● If a backhoe is used once every five years, purchasing such an attachment won't be cost effective. If a backhoe is needed frequently, purchasing an attachment may be justified.

If several attachments for the same basic power unit keep that equipment in use over a long enough period, it can justify the purchase of a much more powerful machine than would be needed for mowing only.

Use your calculator or computer to compare past use and equipment rental figures with equipment options.

● How many hours will be needed for mowing? How many hours for snow removal, trenching, clearing areas or other tasks?

● How do the costs of a dedicated piece of specialty equipment, current rental rates for the anticipated period, and the cost of the attachment compare?

● Can current personnel handle the proposed tasks, or could they, if taken through a minimum training period? Would assigning them to the task cut into efficiency in other areas of turf care?

Though the "bells and whistles" may be classified as optional attachments, they can turn a good mower into an essential, year-round machine.

—The authors, principals in Trusty & Associates, Council Bluffs, Ia., are members of the Sports Turf Managers Association.

**FOR ADDITIONAL MOWER PRODUCTS,  
SEE PAGE 44**

**John Deere:** The F1145 front mower has a two-function four-wheel drive system. "On demand" four-wheel drive automatically engages and disengages as needed to improve fuel economy, reduce steering tire wear, and maintain traction when following landscape contours during trim work.

A "Full-Time" four-wheel drive can be engaged or disengaged en route, and works in reverse as well as forward drive.



**Circle No. 300 on Reader Inquiry Card**

**Dixon's ZTR560** riding mower makes a 60-inch cut with three blades. Height of cut adjusts from one to four inches.

Other features include:

- electric blade clutch; ● hydrostatic transmission;
- 20-hp Kohler engine ● electric start
- 4.8 gallon fuel capacity

**Circle No. 301 on Reader Inquiry Card**



**Encore's Pro-Line** steerable sulky lets the operator convert a walk-behind mower to a riding model.

Advanced tracking features keep the mower's controls within the operator's reach and eliminate scuffing the turf.

The sulky ad-justs to terrain independent from the mower, and a quick-release hitch makes for easy conversion back to a walk-behind.

**Circle No. 302 on Reader Inquiry Card**

The **Exmark Explorer II** has a 52-inch floating cutting deck; TriVantage design for mulching, bagging or discharge.

A Micro-Mulch accessory recycles clipping into the turf and comes with rear utility box.

**Circle No. 303 on Reader Inquiry Card**





**Grasshopper:** Quik-D-Thatch Vac Grasscatching System uses a powerful vacuuming action to clean up clippings, leaves, debris.



It disconnects in seconds without tools. Five collectors are available, ranging from 8- to 25-cu.ft. capacity.

●Rotary Broom sweeps away dirt and debris and clears up to eight inches of snow.

●Dozer blade moves dirt, sand and gravel, and snow quickly and easily. It is available in 48- or 60-inch blades which operate straight ahead or 25 degrees left or right.

**Circle No. 304 on Reader Inquiry Card**

**Jacobsen Division of Textron:** a new five-gang fairway mower, the LF-33810, was released in September of 1992. The LF-



3810 features a 155-inch cut, with five, 7-inch diameter, 10-blade reels.

Jacobsen's down-pressure spring system follows ground contours for a quality cut, even with cutting heights as low as  $\frac{3}{8}$  of an inch, at speeds up to 7.5 mph.

**Circle No. 305 on Reader Inquiry Card**

**Kubota Tractor Corporation's** GF1800E front mower is designed for maximum mowing performance and efficiency.

Equipped with a hefty 18-hp, liquid-cooled diesel engine and a variety of other

performance and safety features, the GF1800E is ideally suited to commercial mowing jobs.

The GF1800E is available in three shaft-driven, off-set mowers:

- 1) a 48-inch mulching rear discharge mower;
- 2) a 54-inch side discharge mower;
- 3) a 60-inch side discharge mower.

**Circle No. 306 on Reader Inquiry Card**



**Lesco** 42-inch and 52-inch commercial rotary mowers are high-productivity and easy to operate.

Their zero-turning-radius design lends extra maneuverability.



An exclusive dual-articulating deck simplifies mowing of hills, slopes and banks, and also provide better traction.

These Lesco mowers feature two hydraulic pumps and individual wheel motors.

**Circle No. 307 on Reader Inquiry Card**

**Scag:** The SSZ "Super Z" gives commercial cutters a zero-radius operation with a 48-inch floating deck.

Forward ground movement is to 6.8 mph.

Additional features: electric blade engagement clutch, durable taper roller bearingspindles, and a 5-gallon fuel tank.

**Circle No. 308 on Reader Inquiry Card**

The 35 hp version of **Gravelly's** Promaster 400 Series of diesel front mount commercial mowers has added a



differential lock to its list of attractive features such as:

- hydrostatic drive;
- hydraulic lift;
- "sharp turn" steering
- heavy duty battery;
- easy wheel brake lock,
- 8.75 gallon gas tank
- easy-to-reach points.

**Circle No. 309 on Reader Inquiry Card**





# KUBOTA RELEASES ANOTHER BEST SELLER



Kubota Tractor Corporation's new compact, yet powerful GF1800E diesel front mower is a hit with professional mowing contractors. Ideal for commercial mowing jobs that demand maximum mowing performance and efficiency from a fuel-efficient, compact machine with outstanding maneuverability.

Equipped with an 18-horsepower, liquid-cooled diesel engine, the GF1800E offers a choice of three shaft-driven, off-set mowers – 48" mulching rear discharge mower, 54" side discharge and 60" side discharge. The three mower decks feature a cutting height from 1"– 4". The GF1800E has a hydraulic brake, clutch and lift system.

The sophisticated hydrostatic transmission features a single pedal to manipulate both speed and direction, eliminating shifting and clutching. Front-wheel traction, differential lock and rear-wheel steering for tight turns lets you work efficiently on all types of grass without turf damage.

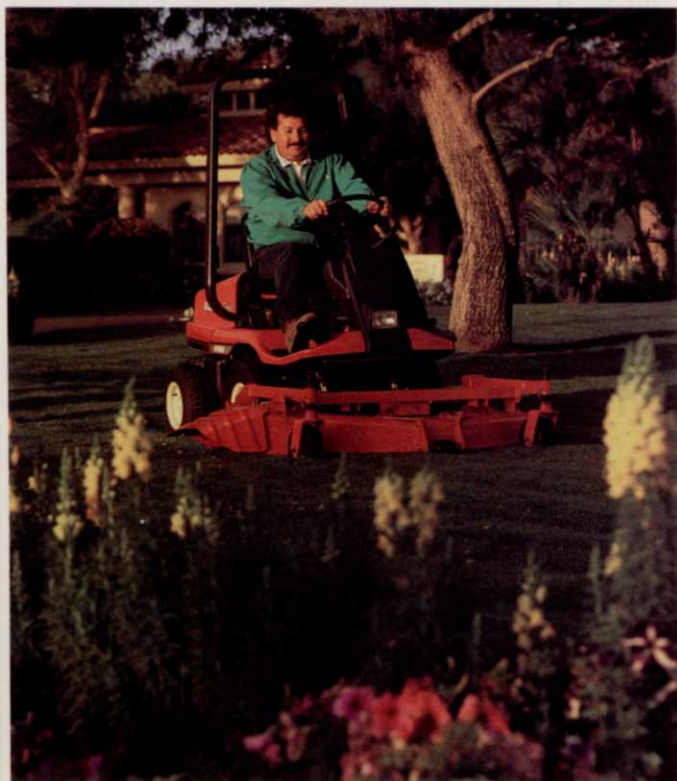
A 3-cylinder engine, "speed set control" hour meter, full-tilt steering wheel, one-touch seat adjustment, semi-flat deck and reverse air system are standard.

For the best quality cut, see your authorized Kubota dealer today.

## Kubota

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P.O. Box 2992, Dept. LM, Torrance, CA 90509-2992  
Financing available through Kubota Credit Corporation.





# Making a place for turf in the desert landscape

**'Everybody thinks desert landscaping means rock and cactus. In our designs, you're going to see the wildflowers and natural plants that grow here.'**



**This home landscaping project by Arterra shows how turf complements the dry, dusty look. The expanse of green turf replaced a bland stretch of river rock.**

■ Landscape designer Peter Curé has lived his life in Arizona. He loves to be outdoors in the warm Arizona sun. And like many a cowboy who rode the plains before Curé began his life's work, he spends all of his time outside, putting together the pieces of desert landscaping.

President of Arterra, located in Scottsdale, Ariz., Curé's been in the landscape architecture/installation business for 25 years.

Arterra is a full service shop that can handle the A-to-Z of design and installation, with a little help from pool and paving contractors.

"We're not really a design/build firm," explains Curé, "since the initial idea is to sell the design alone. We'll meet with them again with a cost estimate. They pay us for the total design fee and then we give them a proposal to do the whole project. We end up building probably 80 to 85 percent of the projects we design."

Arterra designs both residential and commercial landscapes, but it installs only the home projects.

The Arterra company is four years old. Curé had a larger company during the 80's boom, then downsized when the recession hit. Business has been booming over the past three years, thanks to residential remodeling jobs. Real estate sales have been slow, so owners decide to stay put and add a pool or new landscape.

People may not be buying homes, but they sure are building them. The area's current new home construction market has taken off. Homes there are selling for a quarter to half a million dollars.

**Green is good** —Curé admires desert landscapes, but not to the exclusion of turf; he thinks the "desert style" is stereotyped.

"Everybody thinks it means rock and cactus,"

says Curé. "That's not what our designs are at all. In our designs, you're going to see all the wildflowers and natural plants that grow here."

Curé has found that growing plant material is easy and worthwhile if you can give it the time and space required. The Arterra crew has become expert at nurturing container-grown plants until they reach the desired size for a specific project, from seedlings all the way up to the 24-gallon-size.

**Always in focus** — A degreed landscape architect who learned his craft at Arizona State, Curé (pronounced *Cure-ay*) worked his way through design school



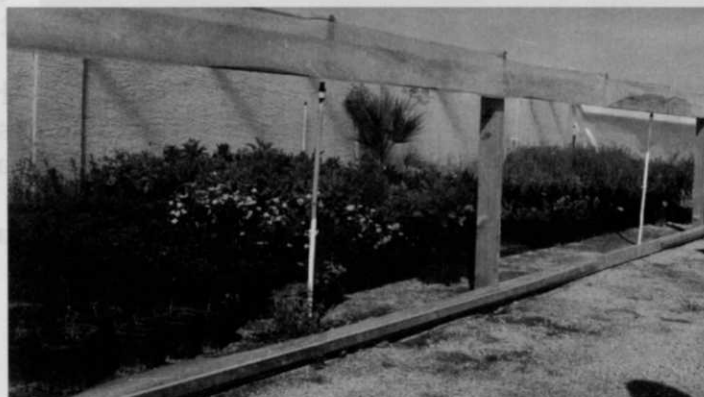
**Peter Curé: When planting, stress the symbiotic relationship native plants have developed to survive. Some of them belong together.**

by working at a local architectural firm. After graduation, he stayed with that company rather than apprentice himself elsewhere.

Curé most likely would have felt stifled starting off again as an apprentice, given the experience he had up to that time. Today, he has the look of a man who's always thinking, as if he's working on a blueprint in his head.

That focus has paid off. Business is based exclusively on referrals. Awards fill office tabletops, and Arterra projects are often featured in local and state association magazines and several home and garden journals.

—Terry McIver



**A section of the Arterra nursery shows the volume of planting that's possible if given enough space.**





## Save a few lawns this year.

Treat for grubs with OFTANOL insecticide. It's about twenty cents less per 1,000 square feet than most grub control products. Which means you'll be saving more



than your customers' turf this year. For more information, contact Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.





# It turns other





# front runners into also rans

Making a wrong decision when buying a 4-wheel-drive front mower could put you on top of the heap sooner than expected.

That's why the smart money this year is on the nose of the durable John Deere

F1145. The F1145 is the only one

on the market built with heavy-duty real-tractor components.

The 2-speed axle, hydrostatic drive, differential lock, wet-disk brakes, and planetary final drives, for example, are lifted straight from our 855 Compact Utility Tractor.

And this 24-hp diesel is the only one that lets you switch from on-demand to full-time 4-wheel-drive, on the go.



This heavy-duty rear-wheel-drive axle is but one of many components taken straight from our 855 Compact Utility Tractor.

And that means more precise operator control and maximum fuel economy.

The F1145 will turn other front runners into also rans. See your dealer today. Or call 1-800-544-2122 for information.

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LIKE A DEERE®**



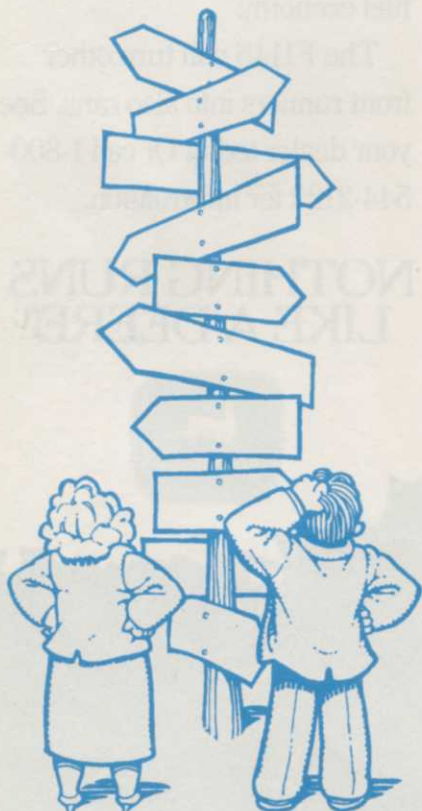


# ORGANIZATION:

## clear or confused?

### WHO'S RESPONSIBLE HERE?

—A state of organizational confusion sends mixed signals to employees and can frustrate them.



by Ed Wandtke

■ Lawn/landscaping operations in the green industry continue to expand through an increased number of customers or services. However, many managers do not add administrative or supervisory personnel.

Some organizations don't even take the time to formally designate a person in charge of a new undertaking. Rather, they assume everyone else in the company knows who is in charge.

If this sounds like your company, read on.

**Rapid growth**—One cause of an operation's inability to declare responsibility is the top manager. Many wait until the very last minute to see what segment of their operation will grow the most before making a decision.

These operations have fragmented leadership. Crew chiefs and lead technical personnel, in order to get the job done, take on responsibilities which they have not been assigned. If such is the case, what will force the manager to appoint someone the team leader? If judgment errors are made, who will be held accountable?

Managers often personally take care of marketing, finance and administration. As the operation starts to grow, additional people are not hired because management does not want to commit to fixed overhead expense. The solutions are often very confusing to employees.

When an organization is growing, many owners prefer to avoid hiring full-time employees if part-time individuals will do. Many, large and small, purchase the services of specialized consultants to supplement current employees rather than hire more full-time employees.

For example, instead of using a full-time payroll person, an operation could hire Automated Data Processing (ADP). However, this does not have to limit opportunities for employees seeking higher responsibilities, because these outside temporary employees are generally replaced when a full-time individual is needed.

**Promote from within**—Many managers say they will promote supervisors and other positions from within the organization, but they continue to advertise in

trade magazines or regional publications. This mixed signal confuses and further frustrates employees who are hoping to be promoted.

If your organization does not have a periodic evaluation plan where the manager discusses the employee's ambitions, employees will have difficulty growing.

Establishing such a plan is necessary and very beneficial. Goal-setting and training programs help employees grow into the positions that will be needed in the future.

Doing this during the busy seasons is often overlooked. When a manager reviews employees' goals with them during a busy season, they realize how important the goals are.

**Long-range designs**—It's difficult to develop a training plan if you haven't identified the various positions and skills that will be needed as the organization grows. By formalizing a long-range plan, the manager will be taking time to identify anticipated personnel needs based on probable future services and volume of business.

**Stabilize morale**—When an operation has no formal organizational design, employees often flounder—sometimes from lack of direction, sometimes from too much direction.

Employees like jobs where daily duties and assignments are very specific and predictable. They like a steady work environment. The smoother an operation runs, the more the employees enjoy coming to work. And, in many instances, employees work harder.

When their daily duties are predictable, employees tend to have a bounce in their actions. Their overall attitude is more relaxed. They tend to get along so well that they begin to socialize outside of the office. They often perform at a higher level than anticipated.

**The bottom line**—Allowing employees access to the organizational chart will help them to recognize who is in charge of various functions. Open communications mean higher morale and better feelings about an operation by its employees.

If you don't have an organizational chart now, develop one. If you do have an organizational chart, share it with all employees. Knowing where an individual stands will strengthen the lines of communication, and errors will be avoided.

—Ed Wandtke is a principle in Wandtke & Associates, 2586 Oakstone Dr., Columbus, OH 43231; (800) 966-3546.



## Calif. superintendent breaks away from 'rescue chemistry'

**'Feed the soil' are the words they live by at Lake Wildwood Country Club.**

■ The maintenance crew at Lake Wildwood Country Club, in Penn Valley, Calif., has successfully incorporated a nutritional program into the daily turf care program.

At the center of the program is the belief that soil nutrition is the most essential factor to disease control.

The program at Wildwood is currently led by Mark H. Bunte, who earlier in his green industry career earned a degree in ornamental horticulture from Cal Poly State University/San Luis Obispo, and who also has experience in landscape construction.

But Bunte is quick to credit former superintendent, Dave Wilber—now with Brookside Labs—with laying the groundwork three years ago.

According to Bunte, Wilber believed—based on supporting research—that microbial activity in the soil was the key to healthy, disease resistant turf.

"Before," recalls Bunte, "all applications were synthetic, and fungicides were used in antici-

tion of disease problems."

Three years ago, Wildwood's greens and fairways suffered from poor heat and wear tolerance, shallow rooting, poor water infiltration and *Poa annua* encroachment. The belief was that the heavy use of fungicides on the greens were having a negative effect on microbial populations.

Competent soils analysis discovered that there were severe nutrient imbalances throughout the course.

A custom blend of 5-26-25 was needed for tees and fairways. Greens were treated with Scotts' starter fertilizer and Bests' 0-0-50.

Calcium levels were, as Bunte recalls, at a "critically low" level.

"We hired one of those lime trucks that spreads material in the rice fields



Lake Wildwood superintendent, Mark Bunte, uses a refractometer to measure sugar levels in leaf tissue.

to do the job," says Bunte. The truck spread 100 tons of sugar beet lime  
*continued on next page*

"We decided on a fertilizer based on what was needed, not on what was available."

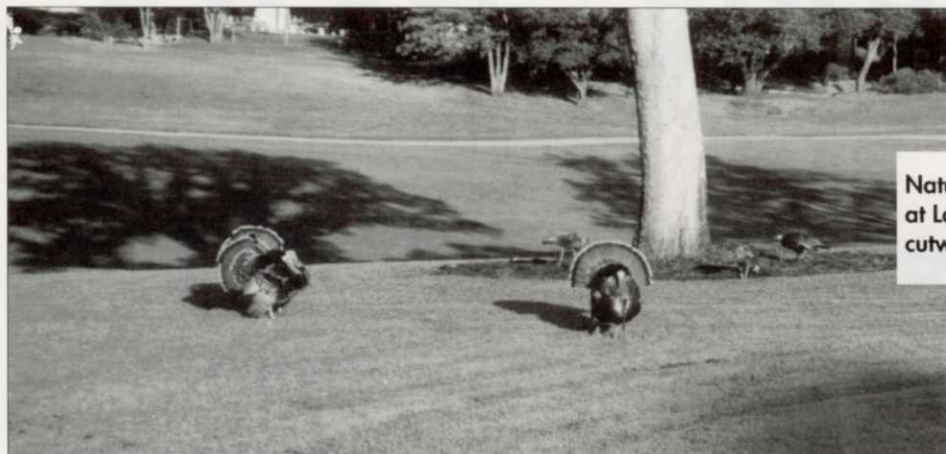
Sugar beet lime is applied to fairways and roughs at a rate of one-and-a-half tons per acre.



### IN THIS ISSUE

**Synthetics and organics: how they can work together**  
**Florida tries nematodes against mole crickets**  
**A place for sludge: are forests the answer?**





Nature's IPM: wild turkey flocks at Lake Wildwood help with cutworm control.

in about two-and-a-half-hours, at one-and-a-half tons per acre."

Bunte says the lime costs about \$3,500, and for three years they've made the applications to bring calcium content to the desired level.

Phosphorus was also found to be in short supply.

"The lab recommended 238 pounds per acre," says Bunte. "We had been using less than 80 pounds.

Irrigation is more frequent, but is operated manually. Now, 1650 gallons per minute are dispersed, down from 1800 gallons, and the system was fine-tuned for equal pressure from all heads.

Wetting agents are used for certain troublesome wet/dry areas. Greens are mowed six days each week. On the seventh day, dew is removed in the morning to "interrupt the fungus cycle," says Bunte. Drain tiles were installed in low-lying areas of the fairways and roughs to reduce the potential for disease there.

**Impressive results.** Bunte hasn't made one major fungicide application in 1993. A small dollar spot infection crept



Greens assistant Adam Richardson applies oyster shell lime to greens, collars and tees.

onto one green, and was corrected with Scott's FFII.

"We treated the worst part of the green and left the other part alone to see what would happen. The untreated turf grew out of the situation and looked fine."

Bunte believes potassium or other fertility applications help the turf "grow out" of the ailment. "Nature does the talking, and we listen," he says.

### Walk-behind greens mowers have replaced riding units at Lake Wildwood. They're lighter, and they bring the operator closer to the green.

Walk-behind greensmowers have replaced riding units at Lake Wildwood, and turf density has improved "tremendously."

Fairways and tees are overseeded with endophytic ryegrass, and mowed with sharp reels. Appearance and playability of the golf course has improved.

Mowing heights are set at  $\frac{19}{100}$  of an inch, or until the complaints are too much to bear.

Greens are verticut every 14 days during the growing season at  $\frac{19}{100}$  of an inch and topdressed in lightly.

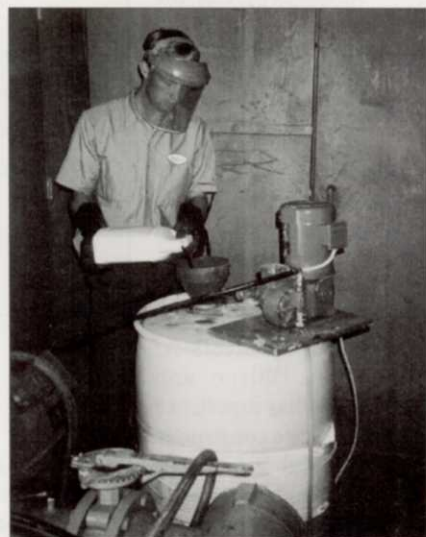
To maintain organic levels and consistency, turf cores are crushed and returned to the green.

**Eye on the public eye.** In a nod to public perception of a spray tank and suited applicators, the crews now use granular materials.

"In the years past the

spray rig used to go out every 14 to 21 days with fungicides for preventive controls," says Bunte. "In an effort for better public relations, we post information at the pro shop on those days we use the spray rig and tell the members what is in the tank. The spray rig is now used for humates, micronutrients and some foliar fertilization."

The goal of all this is to escape what



Assistant superintendent Stephen Leas pours micronutrients into a fertigation injector drum.

Photos courtesy Mark Bunte

Bunte describes as "rescue chemistry," and he has his fingers crossed for the remainder of 1993.

"I am fortunate to have gone through this wet winter and spring without fungicides," says Bunte. "The improvement in microbial activity has increased the stress buffering capabilities of my greens and the severity of outbreak is dramatically reduced."



# Organic/synthetic product mix based on soil nutritional needs

## Use synthetic control products and natural organics together for one goal: soil nutrition.

by Mark Nuzum

■ It may seem like a contradiction: using a chemical pesticide with an organic fertilizer, but it all depends on what you're trying to accomplish.

Certainly, chemical control products have no place in a 100 percent all-natural program, but few turf professionals have the opportunity—or patient customers—to follow that philosophy.

Many professionals will avoid incorporating organic fertilizer products into their current programs because they will still be using pesticides. There seems to be a common misperception that in order to use organic fertilizer products, you must change your whole way of doing business. Banning organic inputs because chemicals are being used has no sound agronomic basis at all. In fact the people who are using chemical pesticides may need organics even more.

Even though the goal of Integrated Pest Management is to gradually reduce the use of pesticides, they are a realistic part of turf care programs, necessary for an acceptable stand of turf.

The problem with pesticides—especially fungicides and insecticides—is that they drastically affect soil life, decreasing its natural ability to withstand pest problems. Therefore, bad soil leads to more susceptible turf, which must be treated again, bringing on a cycle of problems. We turn to artificial maintenance products when the soil alone can't sustain the plant. Each of these products or practices can also have negative effects on the soil environment, thus perpetuating the need for more artificial support.

Organic fertilizers play an important role when pest control products are used. They help to rebuild the soil and create an environment more resistant to pests and

disease. A big advantage of using organic materials to feed plants is that they do stimulate the activity and populations of living macro and micro-organisms. On the other hand, there is evidence that certain pesticides damage these same beneficial populations. Since this is the case, shouldn't our thinking be that when pesticides are used, organic inputs are essential to help rebuild and restore any detrimental effects the control product may have had on the soil?

Another factor to consider: what product is used to accomplish the pest control with minimal impact to the soil system. University tests have shown that some pest control products impact soil organisms much more than others.

Frequency of application is also an

important factor. If application of a low-impact pre-emergence product can prevent single or multiple applications of a post-emergent, the turf environment would be better off in the long run. Spot treatment of only those areas with a problem also reduces over-use.

Avoidance of chemical control products to achieve 100 percent natural organic programs has its philosophical, idealistic arguments, but not everyone can completely avoid pesticides. Yet, no one should avoid organics just because pesticides are used.

—The author is president of the Plant Products Division of Harmony Products, Inc., Chesapeake, Va.

## Understanding soil structure

To understand and discuss organic fertilizer clearly, we must first understand the soil itself.

This complex, living environment is the most important factor affecting a plant, and the most important aspect of an organic-based turf care program. When the soil is in good condition, it is capable of supporting plants well. The soil is a thriving environment, a living system with food chains and checks and balances.

For example: the earthworms aerate the soil and create channels for water distribution and root growth. Bacteria and fungi are also needed for good soil balance: they break down organic and mineral nutrients; beneficial nematodes, bacteria and fungi help keep turf-damaging nematodes, bacteria and fungi in check.

The soil's condition and its ability to carry out its functions correlates directly to the health and vigor of the plants growing into it.

When the soil functions are decreased for any reason, the ability to support a healthy plant is also diminished. Poor soil conditions include compaction, low moisture retention, low microbial activity and low soil nutrient-holding capacity. When the soil is poor—which may be due to natural conditions or the overuse of chemical pesticides and fertilizers, artificial means of support are needed (irrigation, aeration, fertilization and weed/insect/disease control products) as a short-term solution.

We must focus on improving the soil by feeding it. Soil functions require energy sources because soil functions are carried out by living organisms that require energy. Fertilizers should contain energy-rich organics to support the soil life that will in turn make slow-release nutrients available to the plants.

—M.N.



# Seeking sites to slip sludge

**COLLEGE PARK, Md.**—The state of Maryland produces about eight to nine thousand tons of wet sludge—every day.

About one-quarter of the sludge is used as farmland fertilizer.

But as farmland in the state disappears, new sites are being considered as sludge fills. Forest land is one alternative under consideration.

"A prime concern with sludge application to forest land," says Marla McIntosh, from the University of Maryland, College Park, "is the fate of nutrients in the sludge, especially nitrogen."

As part of a continuous regional project—supported in part by the Maryland Agricultural Experiment Station—McIntosh is examining how sludge can be scattered in forests without harming the surroundings.

**Nitrate levels a clue.** After applying

sludge to forest land, McIntosh measures the nitrate levels in the soil water, which is the water contained in the soil above the ground water level. The soil may be

different from that used as farmland, says McIntosh, as the rich organic material in the layer of leaf litter may immobilize sludge-borne nitrogen, and decreasing the amount of nitrogen that can leach into the ground water.

#### Other advantages.

According to Dr. McIntosh, sludge can be applied to forests year-round. Forest lands are more accessible than

farmland and are not associated with public food supplies, McIntosh says.

The experiment station reports good results with sludge application in some

**The advantages: sludge can be applied to forests year-round; forests are more accessible than farmlands, and are not near public food supplies.**



Dr. Marla McIntosh, center, Dr. Robert Hill, left, and Dr. Scott Angle hope to put sludge to work in forests.

West Coast forests. The nutrients have helped the timber industry by improving tree growth.

However, results in one part of the country may not apply to another.

"You cannot generalize to other areas," says McIntosh, who reports no improved growth from her study. Researchers in Pennsylvania and New Hampshire, also participating in the regional project, found different results.

*continued on next page*



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**Raising nitrogen levels.** Three different sludge concentrations—low, medium and high—were applied to a plot of trees at the Central Maryland Research and Educational Center in Clarksville.

Nitrogen increased slightly in the soil water containing low sludge concentrations and returned to normal after a short time.

The medium and high concentrations resulted in soil water with nitrogen levels well above acceptable levels. The nitrogen levels remained above normal after two years.

To be considered useful, research has to be able to predict nitrogen leakage under worst-case conditions.

These include instances where nitrogen is not being cycled into the ecosystem, leaving more to leach into the

groundwater.

Maryland experienced this worst-case scenario with its two-year drought in 1986 and 1987, where rainfall was half that of normal, says McIntosh, which may have caused the lack of growth as well as the varied results in nitrogen

Nitrate leaching into groundwater is the limiting factor for applying sludge to forest lands.

leaching. When water is scarce—as in a drought—two things can happen: plants do not take up as much nitrogen and denitrification—the process by which nitrogen is released into the atmosphere

as nitrogen gas, and occurs only under waterlogged conditions—does not occur.

The sludge was applied at a rate of 714 lbs./acre, twice the medium of 357 lbs. Leaching levels, however, were about the same for both rates.

McIntosh suggests that under more rainy conditions, leaching might not occur or might not be as high.

Nitrate leaching into the ground water is the limiting factor for applying sludge to forest land.

McIntosh says nitrogen levels must be watched closely, and be allowed to return to baseline levels before re-applying.

Sludge application on farmland is highly regulated, but no regulations exist for forest lands, according to McIntosh, who hopes her research findings will help establish such guidelines.

## AgriDyne seeks foreign markets for neem

**SALT LAKE CITY**—AgriDyne Technologies, Inc. announced recently that it had filed foreign registration applications for its neem-based bioinsecticides.

The applications were filed in Italy, France, Spain and the Netherlands, as well as 14 Latin American countries, including Mexico.

AgriDyne has requested marketing clearance for three bioinsecticides:

- Azatin, for non-food crop application in the nursery and ornamental markets;
- Turplex, for lawn and turf application;
- Align, for food crop application.

The active ingredient for each bioinsecticide is azadirachtin, a natural insect growth regulator extracted from the seed of neem trees. Found in more than 50 countries worldwide, the tropical neem tree has long been recognized for its natural insecticidal properties.

AgriDyne received marketing clearance from the U.S. Environmental Protection Agency (EPA) for Azatin and Turplex in January 1992, and anticipates EPA registration for Align in 1993.

"The four European countries represent a significant portion of the

European market for insecticides," says Eric B. Hale, AgriDyne president and chief executive officer.

"Additionally, they are some of the more environmentally progressive nations in Europe.

"These foreign registration filings are part of our on-going strategy to broaden the market and grow our revenue stream, for our family of bioinsecticides."

AgriDyne had previously received marketing clearance for its neem-based bioinsecticides from the Dominican Republic.

## Biosys buys AgriSense

**PALO ALTO, Calif.**—Biosys announced recently it had acquired AgriSense, a Delaware general partnership.

The acquisition includes the wholly-owned AgriSense European subsidiary, Biological Control Systems and the U.S. operations headquartered in Fresno, Calif.

Both divisions of AgriSense develop and market pheromone-based products for detection and monitoring of cockroaches and insect pests in high value crops and stored products. Other product and technologies include those that disrupt the mating of insect pests which attack rice and cotton crops.

AgriSense was sold for \$3.5 million in cash and 400,000 shares of biosys common stock. Additional shares may be issued under "certain circumstances."

AgriSense is commercializing products based on Phillips Petroleum's pheromone

synthesis technology and Dow Corning's micro-encapsulation/slow release technology developed for pheromone traps and lure applications.

The product range provides for non-toxic, environmentally compatible detection, monitoring and control of insects in agricultural fields and orchards as well as in residential and industrial sites. Integrated pest management regimes which minimize the use of chemical pesticides are made more effective through the use of such monitoring techniques which assist in timing and in minimizing the application of pesticides.



# Florida supers try biocontrols to relieve scourge of mole crickets

**GAINESVILLE, Fla.**—Some Florida turf professionals are using nematodes and red-eyed flies to help control the mole cricket, one of the South's most hated pests.

Two University of Florida scientists, H. Howard Frank and nematologist Grover Smart, released parasitic nematodes (*Steinernema scapterisci*) and Brazilian red-eyed flies (*ormia depleta*) at two sites in 1985. They concluded their project last year after reportedly having been successful in establishing the parasites in several counties. They say they've recorded all-time lows in mole cricket trapping records.

"Mole cricket damage to the turfgrass industry could be devastating," to golf courses, sod producers and homeowners, says Robert J. Yount, executive director of the Florida Turfgrass Association. The cost to repair mole cricket damage is estimated at \$46 million per year.

The FTGA funded the University research with more than \$250,000 after state funding ran out in 1987.

Smart was awarded a patent late last year to use the Uruguayan nematode

against mole crickets. The patent has been licensed to BioControl, Inc., a new company headquartered in Tampa, Fla. BioControl markets the nematodes to golf course superintendents and other turf professionals in the Southeast.

BioControl

tions by the end of the year, including repeat treatments.

According to McCaskill, companies using the product include Augusta National and Bay Hill, site of the Masters and Nestle Invitational, respectively.

BioControl has treated several athletic fields in one Florida county, and

**"It's a high-tech approach and a very valid approach, but the industry itself wants to sit back and be sure that it does indeed work."  
—Bob Yount**



founder, Cameron McCaskill, says at least 50 golf courses have been treated with the nematodes this year. The company expects to sell 200 applica-

about a dozen grazing pastures, which are also plagued by the mole cricket.

According to McCaskill, sod farms, seed growing acreage and vegetable crops can be targets of the crickets.

McCaskill says the nematode demand is far ahead of the supply. "If we could supply the demand that's out there, we could have a fair amount of business very quickly," says McCaskill.

Yount says about five percent of the state's 1,200 golf courses have begun using the biological control method as a standard maintenance practice, and predicts that figure will rise to 60 percent in 10 years.

"It's a high-tech approach and a very valid approach," says Yount, "but the industry itself wants to sit back and be sure, before they introduce a treatment like this on their very valuable land, that it does indeed work."



**About five percent of Florida's 1200 golf courses have been treated with biocontrols as a standard maintenance practice. Up to 60 percent are predicted to be using some form of biological controls in 10 years.**



## PRODUCTS

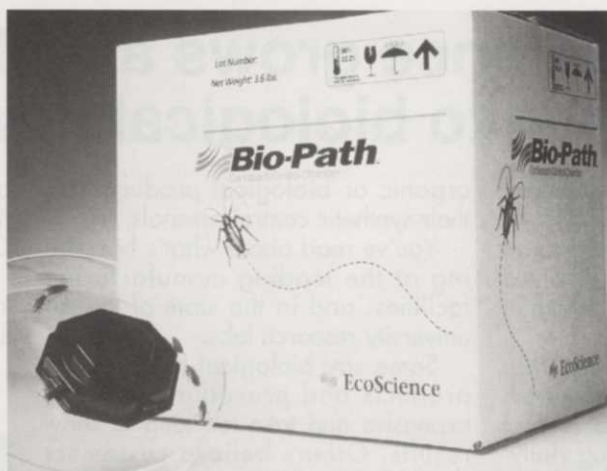
## EPA gives okay to natural cockroach control product

A new patented biological cockroach control product is called BioPath.

The Cockroach Control Chamber is the first to use a naturally occurring microbial agent, instead of a synthetic chemical pesticide, to kill cockroaches.

The chamber technology is an application of a natural microbial agent to control household pests.

Although used like a bait station, the Bio-Path chamber has a dramatically different mechanism of action. Where traditional bait stations require the cockroach



to eat a chemical pesticide, the Bio-Path Cockroach Control Chamber is the first product to only require the cockroach to touch the microbial agent found within the chamber.

The exposed cockroach can then spread the microbial agent to other cockroaches through any direct contact, known as Horizontal Transfer.

For more information, contact Bio-Path's Kevin Devine, at (508 754-0300).

## Bioinsecticide approved for crop protection purposes

Crop Genetics International, of Columbia, Md., announced in mid-May it had received EPA approval for its Spod-X bioinsecticide, as an active ingredient for future commercial crop protection products.

According to the company, Spod-X is the first virus-based product to be approved by the EPA in the last ten years.

Spod-X is a naturally-occurring insect virus which controls beet armyworm, a major insect pest on tomatoes, lettuce, cole crops, flowers and ornamental plants.

Insect viruses occur naturally in the environment, and are very specific in their ability to infect certain insects. The company reports the viruses present no known threat to crops, wildlife, humans or non-target insects.

Circle No. 311 on Reader Inquiry Card

## Nematode strain has greater downward mobility, efficacy

A beneficial nematode from Nematoc, called BioMega reportedly has a greater tendency to move downward through the soil, with superior host seeking abilities.

According to Nematoc Biological Control Agents of Lafayette, Calif., the *Heterorhabditids* group of nematodes has three distinguishing characteristics:

- Greater attacking ability. A minute, tooth-like structure allows the Bioomega strain to penetrate directly through the

insects' skin, rather than being restricted to natural body openings.

- Greater vertical mobility. In studies conducted in sandy loam soil, infected juveniles of *Heterorhabditis* showed a greater tendency to move downwards to a depth of 30 inches from the surface.

- Greater reproductive rate. According to the company, nematode reproduction is dependent on an infective stage of each sex entering the host. In the *Heterorhabditids* strain, all infective juveniles develop into hermaphroditic females, thus establishing a breeding colony when a single nematode enters the host.

BioMega Turf and Lawn Bio-Insecticide is based on this strain, and is designed to provide a convenient, cost-effective means of controlling Japanese beetles in turfgrass.

In research conducted at the University of Rhode Island, control results of 46 percent and 55 percent were achieved using a concentration of 666 million nematodes per acre and 3.33 billion nematodes per acre.

BioMega is also labeled for masked chafer, May/June beetles, European chafers, cutworms, armyworms and billbugs.

Fifty million *Heterorhabditid* nematodes will treat an area of at least 2,200 sq.ft. of turfgrass or soil (one billion per acre).

BioMega Turf and Lawn Bio-Insecticide costs \$20.75 for 50 million nematodes, including priority overnight delivery service.

Circle No. 312 on Reader Inquiry Card

## BIOTURF NEWS

For professional landscapers, lawn care operators and golf course superintendents interested in learning more about organic turf care supplements to existing chemical control.

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Address comments or story ideas to:

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7500 Old Oak Blvd.,  
Cleveland, OH 44130

Terry McIver, editor, layout  
Jon Miducki, publisher  
Michelle Therrien, graphic designer



# BIOTURF NEWS



## Our audience grows as *LM* readers subscribe to biological news source

With our October premier publication of *Bioturf News*, we at *LANDSCAPE MANAGEMENT* magazine continued our commitment to give you the best possible coverage of green industry happenings.

*Bioturf News*—our bi-monthly review of current research and development in “biological, organic and natural” turf care—is growing daily. Response to *Bioturf News* has been overwhelmingly positive. Those who are using biological or organic products—even experimentally—are glad we’ve taken the lead in keeping you abreast of the latest developments.

In past issues, we’ve told you about lawn care operators, landscapers and golf course superintendents who have successfully integrated

organic or biological products into their synthetic control arsenals.

You’ve read about what’s happening at the leading manufacturing facilities, and in the state-of-the-art university research labs.

Some say biological and organic products and procedures are too expensive and take too long to show results. Others believe customers should have a choice. And still others are probably wondering what all the excitement’s about.

Our job, as an industry information source, is not to tell you what to think, but to simply relay the information to you—as soon as we can and in the best way possible—and let you take it from there.

Complete the subscription form

below and mail to the *LANDSCAPE MANAGEMENT* offices in Cleveland, Ohio.

Your comments are welcome. Let us know what you think or what you’d like to see in *Bioturf News*.



**Jon Miducki**  
Publisher



**Terry McIver**  
Editor



*Bioturf News* is a bi-monthly newsletter reporting on biological, organic and natural products for the specialty turf market. To receive your free, one-year subscription, please return the coupon below to:

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# Maintaining infields ways in Illinois

# 3

## 1

### Attention to daily maintenance the key on Waukegan field:

by Mike Trigg  
Waukegan Park District

■ Attention to detail gives Waukegan's Al Grosche Field its professional look, and helped win the 1989 Beam Clay diamond-of-the-year award. Specific infield care includes daily prep maintenance, edging and renovations.

**Daily maintenance** begins by raking back the infield mix into holes and low areas such as those around home plate and the bases. It's important to compact the mix, creating a firm, level surface. The skinned area is dragged daily. Prep crews drag 8 to 12 inches away from the arc edge so as not to push the infield mix into the grass area. After dragging, the grass edges are hand-raked to maintain a smooth transition between the mix and

the grass. Batters' boxes and foul lines are lined with a 2-inch chalk line, using a frame and string for accuracy.

**Edging** the infield grass occurs at the beginning of the baseball season, mid-season, and before major tournaments. Approximately two inches of the turf is trimmed back with a sidewalk edger. Infield mix is added to produce a level surface between the grass and the skinned area.

**Renovations** are scheduled at season's end to repair worn turf areas and remove the "lip" build-up along the arc edge. A sod cutter removes 18 to 24 inches of turf along the arc, along with four inches of underlying soil. New infield mix is added back to the newly-established grass edge and firmly compacted.

The success of any infield renovation is determined by daily maintenance procedures.



Mike Brouillard uses a sidewalk edger to trim about two inches of infield turf.

## 2

### Conversions take the spotlight in Glenview parks:

by Mike Moorman  
Glenview Park District

■ Eleven of Glenview's 46 ballfields have sodded infields, the rest skinned infields.

Park district maintenance crews receive assignment sheets each morning, along with an inspection report/itemized worksheet for each field. Line entries are made on all aspects of field maintenance. Face-to-face meetings are held with each crew member at day's end to make sure there are no missed ideas.

**Skinned fields** used for league play are lined with chalk, and base pegs are exposed for team members to set the bases, each weekday. Non-league-play skinned ballfields are groomed weekly. On weekends, needed equipment is stored on-site so that league members

can groom.

All field prepping is done in the fall. Lips are cut; sod is edged; the arc is measured; and bases are measured to assure they meet league specs. In the spring, fields are cleaned and raked, and any damage repaired. The fields are groomed and new base pegs and pitching rubbers are placed.

**Conversions** to sodded infields are slated for some fields in the fall. This will reduce crew travel time, allow more maintenance of remaining skinned fields, and create a more multi-use park setting. Our crews can now complete the conversion in about three days.

Infields to be converted are measured for area and volume of ballfield mix to be removed. The mix is transferred to another skinned field for topdressing. Approximately 35 to 50 bags of Turface

are applied to the infield prior to field mix removal, improving mix quality in one process.

Next, we apply pulverized topsoil to the area, grooming in a slight crown for drainage. We fertilize at 1 lb./1000 sq.ft. and then lay sod. We irrigate if necessary.

**Sodded infields** receive general scheduled park maintenance, including mowing, weed control and garbage collection.

Specific maintenance is scheduled during the fall. Turf at points of high wear—home plate, the pitcher's area and the bases—is removed with a sod cutter. They are backfilled with topsoil, firmed, leveled and new sod laid. Fencing protects these areas until the sod is established.

*continued on page 22*



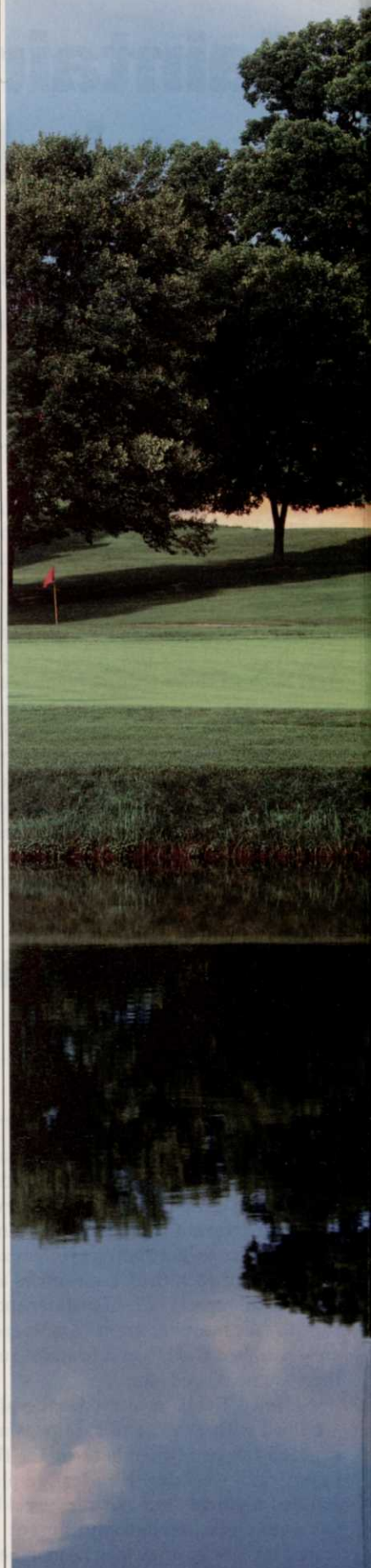
**Today, nothing works faster than**

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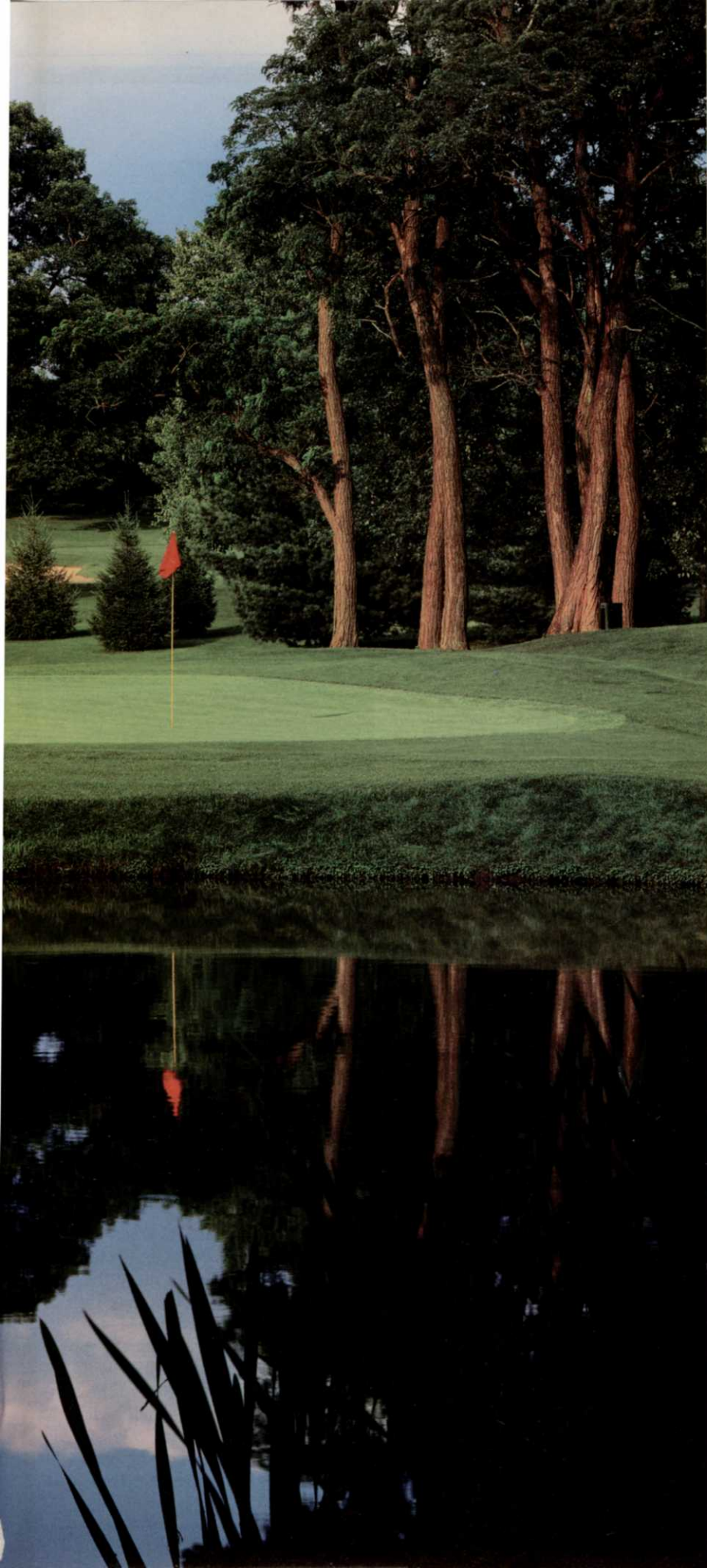
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**important, we'll bring you up to speed.**







DYLOX insecticide controls all species of white grubs in as little as 24 to 48 hours. It doesn't waste time. Then it doesn't hang around.

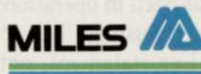
In these times, that's reason enough to use DYLOX. But there's more. It has no label restrictions on turf grass species or sites. So, you can spray your tees, greens and fairways for grubs, as well as cutworms and sod webworms. And with the DYLOX 80% formulation, you can also treat your flowers, shrubs and trees for armyworms, bagworms and stink bugs.



Add to that the fact that it's a low-odor compound available in 6.2% granular as well as 80% water soluble powder. Now you can understand why it is the fastest growing grub insecticide on the market.

For more information, contact Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.

The time is right for DYLOX.



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## 3

## Teamwork emphasized in Northbrook Parks District:

by Mike McBride  
Northbrook Park District

■ For every baseball/softball program, everyone must understand that he or she is on the same team: coaches, users, maintenance crews. We have 23 baseball/softball fields, serving players from T-ball through adult mixed leagues.

Pre-spring preparation takes place in the fall; all edgings are done, ball mix is worked in, and infields are re-sodded. In spring, only some edging and infield tuning are needed.

Skinned infields are a mix of 80 percent clay and 20 percent sand. They are crowned for drainage. Turf areas are perennial ryegrass mixes.

All of the Little League fields are grassed, with maintained basepaths, mounds and pitcher's boxes. Softball fields are entirely skinned.

Fields are dragged and lined every day, even for practices. The main field, located downtown, has moveable bases that are set for each game. All other fields use Hollywood bases, set by coaches.

Fields are aerated as play schedules allow. All fields are maintained to regulation, with pro-type basepaths, mounds and

batters' boxes.

The main field is used for Little League, softball and baseball. It has three pitcher's mounds in an hourglass-shaped skinned area, with sufficient room to be "legal" for all three levels. Even after the pitcher releases the ball, his foot never touches the grass.

None of the fields are irrigated; hand watering is used as needed. This year, a stabilizer will be tried for dust control.

A six-person crew handles ballfield maintenance. Crews work Monday through Saturday. After 11 years of working toward it, there are no Sunday games this year. Each crew member works 10-hour shifts, four days a week. Wednesday and Thursday are the "double-crew" days.

—Mike Trigg is parks supervisor for the Waukegan Park District. He is president of the Sports Turf Managers Association's Midwest chapter. Mike Moorman is maintenance supervisor for the Glenview Park District. Mike McBride is athletic field/signs supervisor for the Northbrook Park District. All three are STMA national and Midwest chapter members.



Al Liebert cuts sod during field renovation along the arc edge.

### Advice from Uncle Sam:

## How to apply for a small business loan

■ There are seven steps you must take if you are applying for a small business loan, according to the Small Business Administration.

Here they are:

**1)** Prepare a written business plan for your business. Describe your experience, and management capabilities of owners and/or managers in writing; personal resumés are acceptable.

**2)** Prepare the following financial information:

- financial statements for the past three fiscal years, or period of time the business has been in operation;

- current business balance sheet and profit-and-loss statement, not more than 90 days old at time of submission;

- aging of accounts receivable and accounts payable;

- copies of corresponding income tax

returns for prior three years, or time business has been in operation.

(All financial statements should include the balance sheet and profit-and-loss statement.)

**3)** Prepare a detailed projection of earnings and expenses for a one-year period if the business has not been in operation at least two years. Include a narrative explanation of your basis for the projections.

**4)** Prepare an estimate of the total amount that you need, and break it down to show amounts estimated for land, buildings, leasehold improvements, equipment, inventory, operating expenses, etc.

**5)** Prepare a list of collateral to be offered as security for the loan, with your estimate of their individual present values. Include an itemized list of currently-owned equipment and/or equipment to

be acquired with the loan proceeds (serial number, model and cost value).

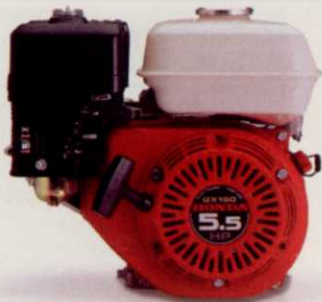
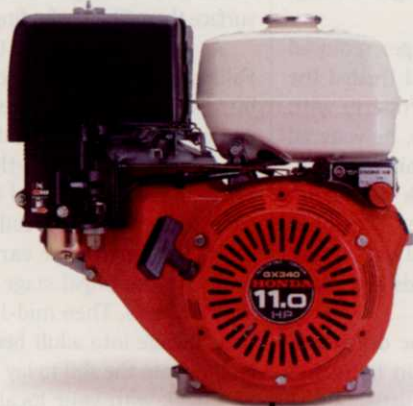
**6)** Prepare a current personal financial statement for each owner or partner or stock-holder owning 20 percent or more of the business. (Do not include business assets and liabilities in these statements.)

**7)** Take this material when you see your banker. Ask for a bank loan; if refused, ask the bank to make the loan under the SBA's Loan Guaranty Plan or to participate with the SPA in a loan.

If the bank is willing to grant you an SBA guaranty loan, the banker will provide you an application. Return the completed forms to your commercial lender, who will in turn forward them to the SBA with a cover letter. The bank will deal directly with the SBA from this point out.



# Honda announces a change at the top.



Honda Engines has expanded its power structure with the addition of two new OHV engines, the 18 and 20 hp V-Twins. Both are designed with the quality and reliability

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## Knowing lifecycle vital to control white grubs

■ Skunks feasted on the grubs buried in the roots of the turfgrass surrounding the corporate office building in suburban Cleveland.

The damage, mostly in the low, moist areas of the property, reaffirmed the adage: to control a pest, first learn its lifecycle. This is particularly true of white grubs since they're below the soil surface. This also complicates their control.

Typically, beetles that develop into white grubs—Japanese beetle, masked chafers, European chafer—lay their eggs in the soil in June or July. The eggs absorb moisture from the soil otherwise they won't grow and develop. The tiny first instar larvae needs sufficient moisture, too.

In fact, research in recent years suggests it's difficult to over-estimate the importance of soil moisture in the lifecycle of white grubs. That's why poor control usually occurs when chemical controls are applied on drought-stressed turf in mid-summer. The white grubs have moved deeper into the soil, in effect, out of reach of the control.

**Tasty summer meal**—But by mid-summer 1991, the grubs at this showcase of a 10-acre corporate office site had grown large and juicy enough—and remained close enough to the soil surface—to attract

skunks. The night-feeding skunks devastated about six patches of turfgrass, really ripping up a 10-by-30-yard oval patch of turfgrass in a depression adjoining a 3-acre marsh. This ribbon of turfgrass separates the natural, marshy area from a patio where company employees lunch if the weather is nice. Everyone in the building watched as the turfgrass damage, worsened by dryness, grew.

The skunks also dug up turfgrass in a scattering of smaller areas, although they did no scavenging in the less intensively maintained, non-irrigated turfgrass fringing of the property.

The on-site turfgrass manager removed the dead grass *and* thatch, and treated the grub-infested areas of the property with diazinon. After the application, he watered the product into the soil. He said the treatment was successful. Skunk predation tapered off. He reseeded the devastated areas. After a mild winter and wet spring and early summer, his grounds are green and healthy.

**They're back**—However, he discovered white grubs began feeding on turfgrass roots earlier this spring than usual. (1991 was one of the warmest years recorded in much of the United States.) Adequate rain-

fall in late spring and early summer is another reason why he began checking the roots of his turfgrass for evidence of white grubs earlier than he normally would.

He, like other turfgrass managers, establishes a threshold to determine if they'll apply an insecticide or not. Healthy turfgrass will sustain a certain population of white grubs before damage becomes visible.

However, if and when a manager determines that a control is needed, he or she must make a decision about control product, the method of application and the timing of application.

For typical weather (when is weather ever typical?), the best time to treat for white grubs is just after small larvae grubs emerge. This could be any time from mid-July through late summer. The tiny grubs are closest to the soil surface then. They're feeding.

As fall approaches, the larvae molt. Falling soil temperatures cause the grubs to burrow deeper into the soil to spend the winter. When the temperature rises again in the spring, they work their way upward again and feed for several weeks, just a couple of inches below the soil surface.

In late spring or early summer, the grubs, in the pupal stage, quit feeding for several weeks. Then mid-June through July they change into adult beetles, emerge and burrow into the soil to lay eggs.

Check with your local extension agent for optimal grub control times.

—Ron Hall

## GRUB CONTROL STRATEGIES

### Spring April-May

If treatment of overwintered grubs is needed, apply when all grubs are in the first two inches of surface soil. General or spot treat Triumph<sup>1</sup> (2 lbs. ai/A); Oftanol, Sevin-Sevimol or Mocap (5 lbs. ai/A) or Turcam (2-4 lbs. ai/A) may be used. Crusade<sup>2</sup> (4 lbs. ai/A). Irrigate as soon as possible after application. Green June beetle larvae are difficult to control at this time. Sevimol (2-4 lbs. ai/A) may be effective.

### Summer June-August

Existing grubs found in July or August may be treated with Triumph<sup>1</sup>, Dylox, Proxol, Turcam, Oftanol, Sevin-Sevimol or Mocap. Apply at label rates. Crusade<sup>2</sup> (4 lbs. ai/A). If soil and/or thatch is dry, irrigate thoroughly before and as soon as possible after app. Treat green June beetle with Sevin (2-4 lbs. ai/A).

### Fall-early winter Sept.-December

Treatment can be made as late as mid-late Sept. as long as grubs stay in first inch of surface soil. Triumph<sup>1</sup>, Mocap, Dylox-Proxol at label rates may be effective

1 For use only by commercial lawn pest control personnel, and only on golf course tees, greens and aprons, and on sod farms. See soil restrictions.  
2 For use in professional turf areas such as golf courses and commercial sod.

Source: Dr. Harry Niemczyk



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When white grubs get into turf, they can cause extensive and costly damage. That's why you need to control them fast — with TURCAM® or PROXOL® Insecticides.

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IMPORTANT: Please remember always to read and follow carefully all label directions when applying any chemical.



# Is your turfgrass sulfur-deficient?

■ Turfgrass response to sulfur is more common today than just a few years ago, according to the Potash & Phosphate Institute (PPI).

The reasons might be traced to more effective clean air programs, less sulfur in high analysis specialty fertilizers or plant protection chemicals, differences in variety of species requirements, and improved technology for measuring nutrient shortages. Whatever the reason, each turf plant still needs a certain amount of sulfur to develop properly.

Here is what a lack of sulfur can do to turfgrass:

● **Off-color turf:** The leaf mid-vein remains dark green while the remainder of the leaf becomes light green. Symptoms first show on new growth, since sulfur is slowly translocated within the plant. With more severe cases, the entire plant turns

light green. Some die-back can develop from the leaf tip.

● **Slow growth:** Sulfur and nitrogen are both essential parts of amino acids, the building blocks of proteins. A sulfur deficiency can result in an inadequate amount of one or more of the sulfur-containing amino acids. Sulfur and potassium also serve the plant in similar ways: both are needed to help activate enzymes essential for driving major plant growth activities.

● **Low plant sulfur content:** Early stages of sulfur deficiency might not be visible to the naked eye or noticeable in plant development. But it can be detected through soil and plant analysis.

● **Poor response to nitrogen:** Sulfur helps plants use nitrogen efficiently. Research shows that growth response to nitrogen by bentgrass improves by nearly

70 percent when sulfur is also provided. Grass color also improves when sulfur is in balance with nitrogen.

● **Weed encroachment:** Turfgrasses become less competitive with weeds when nutrient shortages or imbalances develop.

Sulfur can be provided to turf from several sources. A small amount comes from rainwater, which captures sulfur released into the air from burning coal, oil or other materials. Plants obtain a part of their sulfur needs from the breakdown of soil organic matter.

The remainder must be provided through a balanced fertilization program, the PPI says. A few sources include:

- ✓ potassium sulfate,
- ✓ sulfate of potash-magnesia,
- ✓ ammonium sulfate,
- ✓ ammonium thiosulfate and
- ✓ elemental sulfur.

## Colorants, mulch in the landscape

by Gary L. Wade, Ph.D.  
University of Georgia

■ The fall months are typically the time when landscape professionals replenish mulch in plantings. This is done primarily:

● to help insulate the roots from winter freezes; and

● to freshen the mulch's appearance.

In the southern states, pine straw is the most widely used mulch. But it dries rapidly, becomes brittle and fades to gray.

Today, however, landscapers are looking at mulch colorants as a possible alternative to re-mulching. A wide variety of earth tones are available, and the landscaper can literally paint the landscape any color he or his client likes.

Becker-Underwood's Mulch Magic comes in light brown for pine straw and cypress mulch and dark brown for pine bark and other darker wood mulches.

Standard Tar's Bark Renewer comes in three colors: honey, California redwood and walnut brown.

Lesco's Nu-Mulch is apparently being formulated for them by Becker Underwood and is either similar or identical to Mulch Magic.

Applicators should use them cautiously; they can cause skin and eye irritation.

In the accompanying table, please note that the costs listed are suggested prices

### RE-STRAWING VS. APPLYING COLORANTS TO MULCH

Product name	Avg. dealer price/gal.	Cost per oz.	Rate of application	Coverage/ gal. or bale	Est. Cost/ 1000 sq.ft.	Longevity in months
Mulch Magic	\$65.00	\$0.51	4 oz./gal.	200 sq.ft.	\$10.20	4-6
Bark Renewer	\$95.95	\$0.75	12 oz./gal.	200 sq.ft.	\$45.00	12-24
Nu-Mulch	\$59.00	\$0.46	4 oz./gal.	200 sq.ft.	\$9.20	4-6.
Pine straw	\$2.50	—	—	150 sq. ft. (to 1" depth)	\$16.65	6-12

Source: Dr. Wade

provided by the manufacturers in 1991 and may vary by locale and distributor. If labor costs were also considered, the cost of re-strawing would be proportionally higher than spraying because it is a more labor-intensive task.

The data provided are intended for

information purposes only and do not imply endorsement of any one product, nor are they intended to exclude similar products that may also be available.

—Dr. Wade is extension horticulturist in landscape management for the University of Georgia, Athens, Ga.

## Corrections

■ A misnomer appeared in a chart on page 43 of our April issue, according to José Milan of Ciba-Geigy.

In the chart, Dr. Don Short of the University of Florida suggested using "Logic" bait for fire ant control. Milan says "Logic" is labelled specifically for agricultural uses such as pastures and farmlands.

Ciba-Geigy's product for fire ant control of turfgrass areas is "Award" fire ant bait.

■ Our March cool-season weed control article listed incorrect treatment for creeping speedwell. Creeping speedwell (*Veronica filiformis*) is controlled by Dacthal DCPA as a post-emergent. Corn

speedwell (*Veronica arvensis*) or parslan speedwell (*Veronica peregrina*) may be controlled by Turflon D, Dacthal, DCPA or Trimec.

■ In the May disease control article, Rohm and Haas products were not correctly represented, according to Robert F. Gordon, manager of Turf & Ornamental Products.

● Rohm and Haas no longer sells maneb (Dithane) in the U.S.

● Dithane and Fore are the trade names for the fungicide mancozeb.

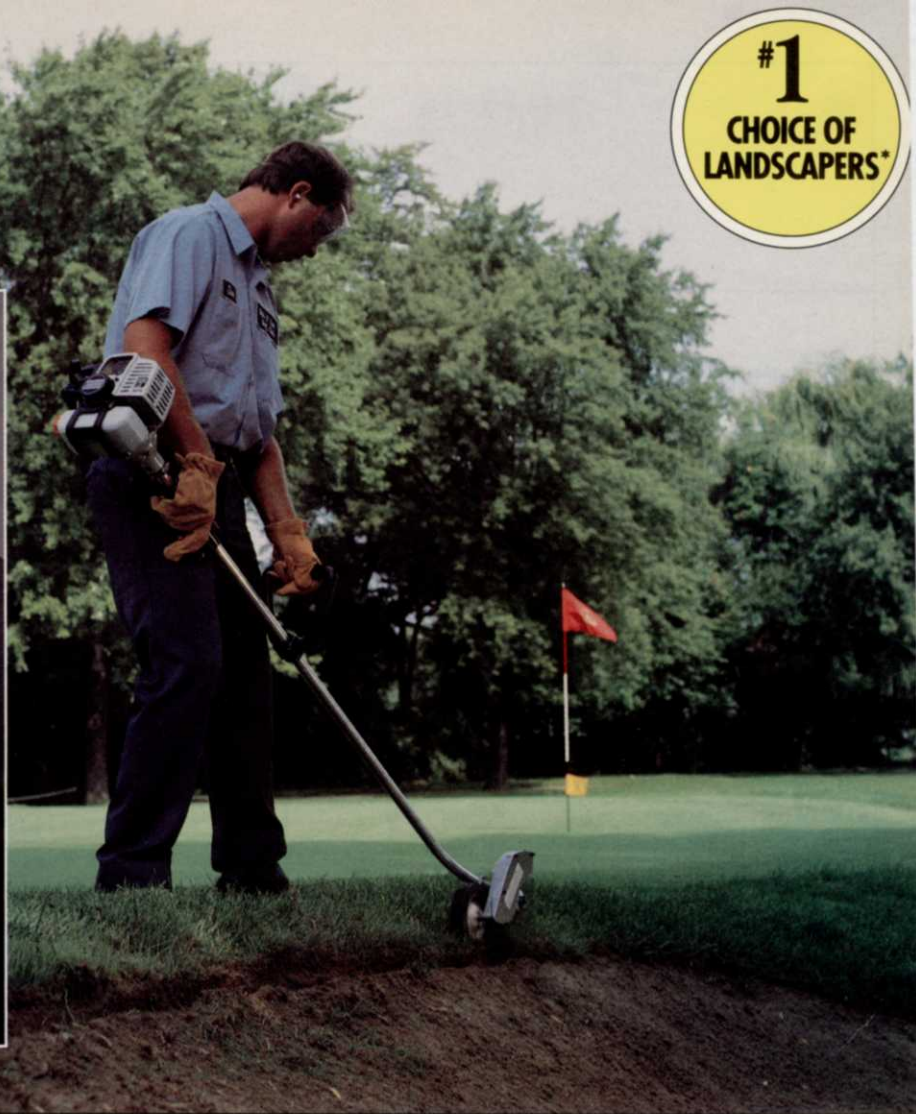
LM regrets any inconvenience these errors may have caused readers.



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Golf Course Superintendent  
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# STRICTLY GOLF

## Don't gamble on sand selection

**Insist on sand that has been subjected to particle size analysis, says this author.**

by Stephen McWilliams

■ When superintendents select general construction-type sand for greens construction or maintenance, they increase the potential for chronic turf problems.

Selecting sand for sand-based systems must be based on a proper chemically- and mechanically-dispersed particle size analysis. This process strips silt and clay from the individual sand grains to show a true particle size distribution. By not separating the silt and clay from the sand fractions, a basic drop sieve analysis (common in the construction industry) can misrepresent multiple sand grains as one particle.

Because the goal of a sand-based system is balanced air and water management, the level of fine and very fine fractions is critical in the initial grow-in and long-term operation of USGA-perched water table systems.

A basic turf management rule: don't topdress sand-based systems with sand that is finer than the base rootzone mix. Doing so can lead to restricted air movement due to layering, and as a consequence, root pruning, a loss of surface stability, and rapidly deteriorating turf quality.

When buying sands for a sand-based system, make sure the particle size distribution—the primary basis for your decision to purchase the materials—is determined by a chemically and mechanically dispersed particle size analysis. It is also prudent to sample and test the delivered sand. Mistakes do happen.

—The author is president and CEO of Turf Diagnostics & Design, Inc., Olathe, Kansas.

Comparison of full mechanical particle size analysis and dry sieve analysis						
Case 1				Case 2		
Dry sieve	%Δ	Full mechanical		Dry sieve	%Δ	Full mechanical
1.6	-0.9	0.7	Total gravel %	0.0	0.0	0.0
12.7	-3.9	8.8	Very coarse %	7.5	-5.7	1.8
31.0	-6.4	24.6	Coarse %	44.9	-17	27.9
30.8	-1.5	29.3	Medium %	31.4	+9.8	41.2
15.9	+7.5	23.4	Fine %	17.9	+6.6	24.5
2.9	+2.8	5.7	Very fine %	0.1	+0.3	0.4

Textural analysis				
Case 1			Case 2	
Dry Sieve	Full mechanical		Full mechanical	Dry sieve
N/A	91.8	Sand %	98.4	N/A
N/A	0.3	Silt %	0.4	N/A
N/A	7.3	Clay %	2.1	N/A

### The importance of full mechanical analysis

■ For any important turf application, these tables show that the quality of the sand has been misrepresented by an unacceptable testing method.

Case 1 and Case 2 show a considerable shift (%Δ) in sand distribution from the "Total Gravel," "Very Coarse" and "Coarse" fractions to the "Medium," "Fine" and "Very Fine" fractions. This indicates a potential risk of relying on a dry sieve analysis when buying sand for use in high-performance sand-based systems.

To meet 1993 USGA standards, all sand testing must be a full mechanical particle size analysis. All sand distribution testing for turf applications should be tested in this manner.

In a full mechanical analysis, if there is any silt and clay, the particle size distribution for the sand cannot total 100 percent as sometimes seen in the dry sieve method. If a sand particle size analysis is presented and the distribution totals 100 percent, further investigation is called for.

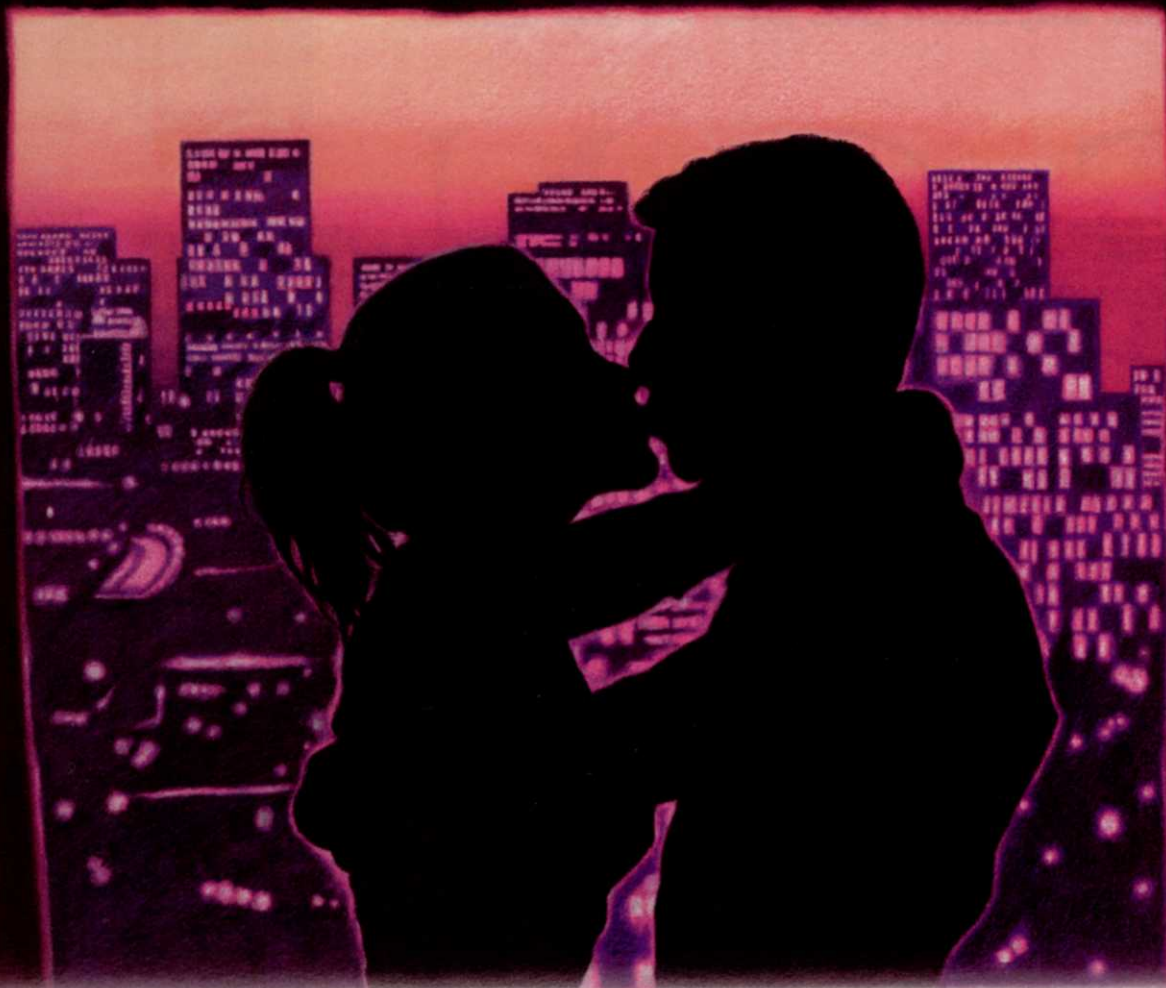
—S.M.

#### ELSEWHERE

**More disease, super asks, p.34**

**Airplanes and the Audubon, p. 34**





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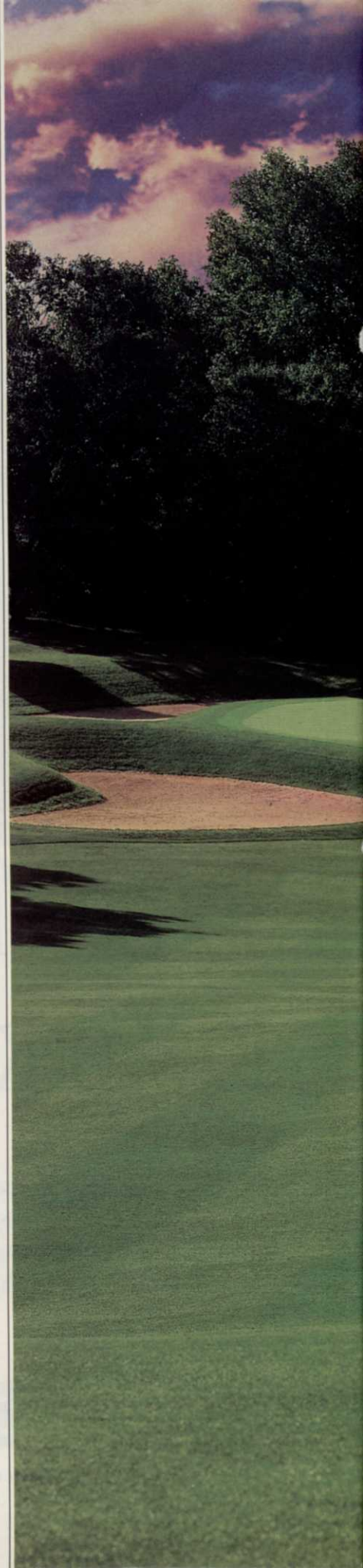
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## More disease in golfing world?

by Brian Mazey

■ An open suggestion to all greens chairmen, club presidents, golf committee members:

Let's take a little pressure off today's superintendents by asking for only 95 percent disease control instead of 100 percent. Five percent isn't that much to ask, especially since only the trained professional would notice the first signs of disease pressure anyway.

That way, all the superintendents who spend thousands of dollars spraying preven-

tively (or every two weeks, whether it's needed or not, because they are being pushed to perfection) could wait until the disease is actually present to apply fungicides.

If we can delay spraying a few days each time, all of a sudden we've extended our chemicals long enough to skip a few sprays over the course of a season.

This would make everybody happy:

- We would be saving money for the club, making the general manager ecstatic.
- We would be applying chemicals less

frequently, which would excite not only the golfer, but the superintendent and the applicator as well. Spraying is a time-consuming and sometimes aggravating task that we could all live without around the golf course.

● The people surrounding the course would find this quite neighborly, as well as the EPA, DER, etc.

We all know that less pesticides make for a cleaner environment and better living. I believe the road to that cleaner air and water starts with the club officials and members who persist in having the 100 percent perfect golf course all season long.

—Brian Mazey is golf course superintendent at Philadelphia Country Club in Villanova, Pa.



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## Airplanes and the Audubon

by Tony Rzadzki

■ I remember spending hours with my dad at the rookery at Lincoln Park Zoo, just watching and feeding the ducks there. Sometimes we would go fishing off the horseshoe pier at Montrose Harbor in Chicago. We never caught many fish, but always enjoyed watching the gulls glide and dive around us.

I remember the trips we'd take to airports and the hours we'd spend watching man fly and land around us. I still marvel to this day at the miracle of flight. Maybe that's why, on behalf of my golf course, I joined the National Audubon Society.

We all take great pride in our golf courses, especially on those days when everything looks just right—almost perfect—and the golfers are enjoying themselves.

So why not go one step further? Why not make our places more livable for our wildlife? You need only to manage your tools and your land differently, with a new outlook and attitude.

I can think of no better way to promote yourself, your public image, and enhance the environment at the same time, then by joining the National Audubon Society.

Once you get involved you may begin to "self-check" your actions more often and give more thought to a project before you start it. You will understand more of what the land has to offer. You will feel better about your actions, your golf course, and yourself. You will also be making an environmentally sound statement to others that you have a genuine concern for your surroundings.

Maybe somewhere inside all of us, that little boy still loves to remind us to do what is right as stewards of our land and our future. The Earth that you occupy or manage belongs to everyone.

—The author is superintendent at Cantigny Golf in Wheaton, Ill.

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# LAWN CARE INDUSTRY

## Fueling the fire

### A skeptical banker lit a fire inside this hard-working Kentucky lawn care pro.

■ Before his son came along, Rob Harris could mow 16 acres and spray 30 lawns in one shift. That's how Harris Lawn Care began in 1989 and 1990—when no one believed in Harris as much as he did.

"The first banker I went to for a loan (to start the business) thought I was crazy," Harris remembers. "He guaranteed that I'd never make it mowing grass. He laughed in my face. And that sort of lit my fire.

"The second banker I went to, an older man, kind of liked that fire burning in me. He's helped me out a couple of times when I was in a bind."

With very little advertising, Harris Lawn Care has grown to service more than 300 customers in a six-county area around Campbellsville, Ky. One of the secrets—besides the unusual hours required by a one-man operation—is Harris's relationship with his customers.

"My customers are not just a name or a number," he says. "I know each one personally and care about them. They are like my family. I have eight or 10 customers I can call 'Mom' or 'Uncle Joe.' I want to have a one-on-one relationship with them. I get more reward from making a person smile than making a hundred dollars."

Here are some of the extra special things he does for his customers:

● Every Christmas, Harris signs each Christmas card and personally writes a little note to each customer.

● He has been known to spray a lawn for free, if not to engage a new customer, then just to bring a smile to the homeowner.

● When he picked up Campbellsville College as a client, he had to drop some of his smaller residential customers. But before he left them, he explained why, and found an alternate person willing to mow their lawns. "I told them that if the new person didn't work out, I'd come back and cut their lawns for free," Harris says.

● Five to 10 minutes are allotted each customer on his daily schedule. "Just to talk to them—whether it's about their lawn, their cats or whatever," he says.

**Setting priorities**—"I've always had that desire to be a winner," Harris says. "I've always told myself I was going to be the best. If there was a market for any business, I think I could make it work. But you've got to enjoy what you're doing."

It's nothing for Harris to be mowing lawns at 3 a.m., the headlights on his Grasshopper mower pointing the way through the dark. "Some of the police in

town call me 'Crazyman' because of the hours I work," he notes. Other nicknames bestowed upon him by friends and customers: Superman, Rocketman, Mr. Smily.

Yet, part of the reason you can see him mowing lawns long after the sun has set is because he has his priorities straight: church, family, business—in that order.

"I'm not a workaholic," he says. "I have a family day and I also teach a Sunday School class."

Happily married and the father of a 2½-year-old son,

Harris continually alters his work schedule to allow him time with his family. He does some of his work while they are comfortably nestled in their beds.

"My son throws a fit when I leave for work, and it hurts me inside," he admits. "So I've made some adjustments."

**College substitutes**—If Harris is working from a disadvantage—not having a college degree—it's not apparent. He has pooled a variety of resources, including his "hero," Dr. A.J. Powell of the University of Kentucky, who referred Campbellsville College to him. Harris routinely relies on Powell, along with the training he receives from attending every seminar he can, the various trade magazines, and even God—especially God, when the weather goes rotten.

Harris spent four years in the Navy, where he won a chestful of awards. But when he heard that his next tour of duty would be overseas, rather than re-upping he decided to become a civilian again. He started mowing lawns for his cousin and believed that he could make some money doing it himself. Thus the saga of Harris Lawn Care began, with a little help from

*continued on page 36*

## Rob Harris: lawn care 'my way'

- 1) Have a personal relationship with each customer.
- 2) Be willing to go that extra mile.
- 3) Keep your priorities straight.
- 4) Use your resources to keep up to date.
- 5) Have pride in the job you're doing.



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**HARRIS** from page 34  
that elderly banker-friend.

It's no coincidence that this summer he's training an assistant.

"The college, with its 50 acres, keeps me pretty busy," says Harris. "And the business keeps on growing. So I've got a

guy I'm training. He's 6-foot-7, 250 pounds and plays for the college football team.

"He's sort of like me, though: he's got a lot of energy, and he likes to work. It took me a long time to find someone who can almost (note: "almost") keep up with me.

My goal is to get one or two helpers and pay them well and train them and let them take over some of the accounts to give me some more time to be home."

The Campbellsville Police Department will believe *that* when they see it.

—Jerry Roche

## Hand-held computers help Florida lawn care delivery

**Technicians can track everything from client histories to production with these small units.**

■ Field technicians at Aaron Pest Control weren't so keen on the idea of using hand-held computers on their pest control and lawn care routes. Some even referred to them as "babysitters."

Now, their enthusiasm for computer routing technology is growing. They're finding out it can help them save time and serve customers better too.

"We're 100 percent operational on it," says Phil Smith, general manager Aaron PC in Deland, Fla. Aaron technicians use the Norand Corp. 4000 series of automated route accounting systems. Smith expects this technology—more commonly used by package delivery firms and vending machine service companies—to become standard in pest control and lawn care service delivery also.

"We're fully automated. It's a long-term commitment, and in the long run it's going to save us money," says Smith.



"The men are now posting their own work," says Dawn Pinnataro, operations assistant. "It saves us an hour each morning, and that hour makes quite a bit of difference. It frees us up to spend more time with customers on the phone."

Previously, office staffers spent that hour key punching work orders for the technicians. Now that task is shaved to five minutes. Also, each Wednesday it used take three hours to program the schedule for the next week. "That was a wasted afternoon," Pinnataro recalls. "Now it takes 45 minutes start to finish."

**Provides more time**—Adds Smith, "we're better able to track our technicians' service time and non-service time. It's given our technicians a little more time to squeeze in another account or two in their day."

When a technician arrives for work in the morning and picks up the hand-held unit "it already has his day's work on it," says Smith. Information includes address, directions, the general nature of the treatment and, if it's a repeat customer, the account history.

As each stop is made, the technician immediately records the type of service, products used, amount of each, wind direction and speed, production time, any cash or checks received. A printer then produces a customer receipt.

The system also tracks production per hour and production per month. And because the technicians are paid on a commission basis, "it shows them how much money they're making," says Smith.

Any missed service stops are recorded, plus it provides the miles traveled and issues messages, such as "don't forget the monthly meeting." The system also generates a complete end-of-day report summarizing all activities.

**Portable communications**—"This information can even be transmitted from the technician's home, eliminating an unnecessary trip back to the office," says Cheryl Wery, communications man-



ager at Norand's headquarters in Cedar Rapids, Iowa.

"Errors from misinterpreting handwriting and the high cost of keypunching are eliminated. Missed services are promptly reported, so they can be picked up the next day," she says.

The Aaron system is based in a Texas Instruments 386 PC with software from Pest Control Systems of Leesburg, Fla.

The communications network for the Norand 4000 Series system consists of a controller and docking stations for the hand-held computer. The controller monitors the nightly transmissions between the hand-helds and the host computer. The docking station recharges the hand-held batteries and also provides a data transmission connection for each hand-held unit.

During the communication session, information gathered throughout the day is transmitted from the hand-held to the host computer. The scheduling information for the following day is down-loaded into the hand-held, so it is ready and waiting when the technician arrives.

Smith says that technicians initially balked at using the system, calling it a "babysitter." Now, they appreciate what it can do for them.

For more info: Lloyd Warner, Norand Corp., 550 Second St. SE, Cedar Rapids, IA 52401.

—The author, Jim Guyette, is a freelance writer in Cleveland, Ohio.



## Great managers focus on clients, support workers

■ Not everyone can be an effective manager in a service delivery organization.

It takes someone who can deal with and gauge customer perception, says Ron Zemke, of Performance Research Associates, Inc.

"It takes someone who can be comfortable with a lot of chaos in his or her world," says Zemke. Also, someone with incredible stamina.

In fact, the best managers of service delivery organizations often don't see themselves as managers at all—not exclusively, anyway. Sometimes they view themselves as motivators, evaluators, or cheerleaders, says the noted business consultant and author.

They know that, to build a successful organization, they themselves must be service providers. They also know that *their* customers are the organization's front-line employees—the people who have daily contact with clients.

"The goal is to have internally satisfied customers (employees) so that you will have external customers who are satisfied," says Zemke, who directed ALCA's Executive Forum this past winter.

"Management may be an old-fashioned word. The real word may be leadership," adds Zemke. "The leader's role is to create a vision. Not to spend time kicking people in the backside."

That vision should be focused one just one thing: customer service, says Zemke.

Management must be constantly restating, in as many ways as it can, what the firm is trying to do for the customer.

Managers, he says can help improve their organization's service delivery by:

✓ Hiring new employees thoughtfully. "Hire an adequate number of people to serve your customers well, but hire them slowly. It's easier to take time up front than to regret it later," says Zemke.

✓ Spending time with front-line people and making heroes of exemplary service providers.

✓ Having a flexible but fair compensation system.

✓ Listening to front-line people.

✓ Making sure that sales and service personnel don't believe that they have to progress past dealing with customers to get ahead in your organization.

✓ Empowering employees to meet

### Third in a series on Zemke and service.

customer needs in a broad sense.

✓ Making sure employers always have the proper tools and training to provide quality customer service.

"The most important things a manager can do in a service organization is to create a culture focused on service and support the delivery of good service," says Zemke.

For more info: Ron Zemke, Performance Research Associates, Inc., 821 Marquette Ave., Suite 1820, Minneapolis, MN 55402; phone (612) 338-8523.

—Ron Hall



**Zemke: Help employees help clients.**

# TALK TO TERRA

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# HOT TOPICS

## 'Dome' grass looks good

**Millions of soccer fans get their first look at efforts to provide a world class turfgrass field inside the Pontiac Silverdome.**

**PONTIAC, Mich.**—As exciting as watching grass grow, you say?

Don't use that phrase in conversation with John N. "Trey" Rogers III, Paul Rieke, John Stier, or any of the other Michigan State University turfgrass researchers involved in putting turfgrass—the real stuff—*inside* the Pontiac Silverdome.

"My phone rings off the hook constantly," said Rogers as he hustled from one group of reporters to another, just prior to the first-ever international soccer game being played on real grass inside a domed stadium.

More than 450 journalists from around the world reported on the June 19th U.S. Cup game between England and Germany. More than 80 countries received its telecast. Two days later, the U.S. Women's National Soccer team played the women's team from Canada, again inside the Silverdome on green, living grass.

These games, important enough in their own right, really amount to a dress rehearsal for the four 1994 World Cup games set at the Silverdome June 18-28, 1994.

More than 1 billion people will view first-round World Cup games taking place here, and in Los Angeles, San Francisco, Boston, Dallas, New York, Orlando and Washington D.C. The Detroit games will be the only ones played in a domed stadium. World Cup games *must* be played on turfgrass.

Pacific Sod in California, because of the longer growing season, grew the Silverdome's turfgrass sod (85 percent Kentucky bluegrass, 15 percent perennial ryegrass). It was shipped to southeast Michigan this past spring and transplanted to hexagonal metal boxes filled with six inches of topsoil.

The Silverdome turfgrass field is probably the largest jigsaw puzzle in the world—certainly the largest that's both alive and green.

Workmen began putting it together June 8th. Under the supervision of the MSU turfgrass team, they stripped metal bands from the sod-holding hexagons and forklifted each into position.



**A fleet of forklifts positioned each of 2,000 separate pieces of sod into a rectangular carpet of turfgrass.**

Almost 2,000 hexagons, each weighing about 3,000 lbs. and measuring 7½ ft. across, were fitted with a smaller number of trapezoidal and triangular boxes of sod to make the rectangular playing field.

A lack of light seems to be the biggest challenge to growing excellent turfgrass. Less than 10 percent of the sunlight on a sunny day penetrates the dome's Teflon-coated fiberglass roof.

"We're still in an experimental stage," admitted Rogers. "What we'll find out from these games is if we'll need to bring in any additional lights for the World Cup."



**Some handwork is required to fit the hexagons into a nearly seamless 'pitch.'**

After this June's soccer games, the turfgrass was removed from the field and placed in the parking lot. It will be returned to the dome next summer for the five World Cup games.

Rogers said the MSU turfgrass team is confident the field will provide world class World Cup playing conditions, but lots more needs to be learned before turfgrass becomes practical in domes.

"But by the year 2,000 we'll be so much more knowledgeable that this field will look like a dinosaur to us," said Rogers.

—Ron Hall

### ELSEWHERE

**More about the Silverdome, page 39**

**It's the law: keep records, page 40**

**Mulching pays off, study says, page 40**





MSU turfgrass 'team' at Silverdome field installation: (left to right) T. J. Lawson, John N. 'Trey' Rogers III, Paul E. Rieke, and John Stier.

## Cultural practices for 'inside'

✓ **Supplemental light.** A lighting system inside the Silverdome that covers the entire field with artificial light that simulates actual sunlight.

✓ **Water.** Over-the-top irrigation similar to that used on outdoor playing fields. Little irrigation will probably be needed.

✓ **Fertilizer.** Some nitrogen and potash to maintain soil fertility. Nitrogen is critical. There has to be enough to allow the turfgrass to recuperate quickly after a game but not so much to create a growth spurt before a game.

✓ **Plant growth regulators.** Grass cells tend to elongate under shady conditions. That's why the blades become spindly. Several PGRs already on the market can control that.

## GREEN INDUSTRY EVENTS

### JULY

**8:** University of Georgia Turfgrass Field Day, Experiment Station, Griffin, Ga. Contact: Dr. Gil Landry, (404) 228-7300.

**14-15:** MAPP/PGMS Grounds Management Conference, Miami University, Oxford, Ohio. Contact: George Persinger, (513) 529-6786.

**15:** Southern Illinois Nursery Association Summer Field Day, Dintelmann Nursery, Belleville, Ill. Contact: SINA, 4303 St. Rt. 160, Highland, IL 62249.

**15-17:** California Landscape Contractors Association Summer Tri-Board, Del Mar (Calif.) Hilton. Contact: Marc Gerig, (916) 448-2522.

**16-18:** Golf Coast Golf Show, Broward County (Fla.) Convention Center. Contact: U.S. Golf Shows, (407) 438-9788.

**18-20:** Mid-Atlantic Nurserymen's Summer Trade Show, Baltimore Convention Center. Contact: Carville Akehurst, (410) 256-6474.

**20-21:** National Golf Course Owners Association seminar, "Your Bottom Line," Orlando, Fla. Hyatt. Contact: NGCOA, (800) 933-4262.

**21-23:** "Field Diagnosis of Insects and Diseases on Trees and Shrubs," Cornell University, Ithaca, N.Y. Contact: N.Y. Arborist Assn., (518) 783-1322.

**22:** Connecticut Tree Protective Association Summer Meeting, Mountainside Resort, Wallingford, Conn. Contact: CTPA, (203) 257-8971.

**24-29:** American Society for Horticultural Science Annual Meeting, Opryland Hotel, Nashville, Tenn. Contact: Christine Radiske, (703) 836-4606.

**25-27:** Power Equipment Expo '93, Louisville, Ky. Contact: Expo '93, (800) 558-8767.

**26-Aug. 10:** J.E.G. Garden Tour of Scotland. Contact: Rebecca Ferrini, (916) 756-0430.

**27-29:** Landscape Contractors of MD, DC, VA Summer Conference, Holiday Inn Crowne Plaza, Rockville, Md. Contact: LCA, (301) 948-0810.

*continued on page 40*

# TALK TO TERRA

## FOR PLEX

**When your pesticides need more than a penetrator.**

For a pesticide to do its job, it has to get through surface foliage or turf to the real problem areas. Plex has been shown to be twice as effective as other adjuvants in improving pesticide penetration.\* But that's only the start. With Plex, you get more. Plex spreads the pesticide evenly over plant surfaces and then forms a protective film to reduce losses from sudden showers and heavy dew. Plus, Plex keeps your pesticide performing, providing extra protection from losses commonly caused by sunlight and evaporation. When you want more performance from your pesticides, talk to Terra Professional Products.

**Terra**  
Terra International, Inc.

*\*Trial results available upon request.*



Circle No. 126 on Reader Inquiry Card

## EVENTS from page 39

**29-Aug. 1: International Water Lily Society Symposium**, Rye Brook (N.Y.) Hilton. Contact: Hildreth Morton, (410) 798-0231.

**30-Aug. 1: Southern Nurserymen's Association Horticultural Trade Show**. Contact: SNA, (404) 973-9026.

**31: Friends of the Rutgers Gardens Annual Open House**, New Brunswick, N.J. Contact: Sherry Dudas, (908) 932-9271.

## AUGUST

**3-5: "Turfgrass Field Diagnostic Course for Golf Course Managers,"** Cornell University, Ithaca, N.Y. Contact: Joann Gruttadaurio, (607) 255-1792.

**4: Baseball Facility Workshop**, Sec Taylor Stadium, Iowa. Contact: Gary Peterson, (515) 791-0765.

**4-6: "Compost Management Short Course for Professionals,"** Cornell University, Ithaca, N.Y. Contact: Lauri Wellin, (607) 255-1187.

**4-8: TAN-Misslark/American Association of Nurserymen Joint Meeting and Trade Show**, Dallas Convention Center. Contact: AAN, (202) 789-2900.

**5: National Turfgrass Evaluation Program Field Day**, Beltsville, Md. Contact: Kevin Morris, (301) 504-5125.

**5-7 and 9-11: Residential Landscape Design Short Courses**, Sheraton-Pittsburgh North, Warrendale, Pa. Contact: Michael Masiuk, (412) 392-8540.

**8-11: International Society of Arboriculture Annual Conference and Trade Show**, Bismarck (N.D.) Civic Center. Contact: ISA, (217) 355-9516.

**8-11: Soil & Water Conservation Society Annual Meeting**, Fort Worth, Tex. Contact: Karen Howe, (800) 843-7645.

**11: New England Chapter, STMA Meeting**, Forest Park, Springfield, Mass. Contact: Mary Owen, (508) 831-1225.

**12: Wisconsin Nurserymen's Association Summer Field Day**, McKay's Nursery, Waterloo, Wis. Contact: WNA, (414) 529-4705.

**17: "Annuals: What Works for You?" seminar**, Norfolk (Va.) Botanical Garden. Contact: NBG, (804) 441-5830.

**18: University of Rhode Island Turfgrass Field Day**, Kingston, R.I. Contact: Dr. Bridget Ruennele, (401) 792-2481.

## Applications for golf turf management school

**NEW BRUNSWICK, N.J.**—Applications are being accepted for the two-year Rutgers Professional Golf Turf Management School. It is conducted in two 10-week sessions over two years, and requires two seasons of supervised field experience.

The fall session will be held Oct. 4-Dec. 10 and the winter session Jan. 3-March 11, 1994. Applications for the fall session are due on Aug. 6; for the winter session, Oct. 29.

For an informational brochure, contact the Office of Continuing Education, Cook College, P.O. Box 231, New Brunswick, NJ 08903; (908) 932-9271.

# HOT STUFF

## It's the law: recordkeeping begins

**WASHINGTON**—Companies and individuals applying restricted-use pesticides must now keep complete records, according to a United Press International report.

Users must keep written track, for a minimum of two years, of:

- brand or name of the pesticide;
- EPA registration number;
- crop (grass, ornamentals, etc.);
- total amount of pesticide applied;
- number of acres treated;
- location of treatment;
- application date; and
- name, address and certification number of applicator.

The records must be available for inspection if requested by authorized federal or state representatives, the UPI notes. "Certified commercial applicators must provide a record of restricted-use pesticide application within 30 days to the person for whom such an application was made.

"Penalties for violation of the recordkeeping requirement range from no more than \$500 for the first offense to not less than \$1000 for subsequent violations."

## Money saved by mulching, study shows

**TROY, N.Y.**—If your lawn/landscape maintenance crews are gathering grass clippings for disposal, rather than using mulching mowers, you are wasting money, a recent study proves.

The project, conducted at the Rodale Institute Research Center in Kutztown, Pa., showed the potential for saving money and improving soil fertility when mowing with a mulching mower.

"Each homeowner with a half-acre lawn in this area could generate about 4.65 tons of clippings (346 30-gallon trash bags) in need of disposal...from April through October," says Dr. Terry Schettini, associate director of horticultural research. Using an average town or community disposal fee of \$2 per bag, the typical homeowner with this size lawn would pay at least \$692 in disposal fees per year.

The study was conducted using non-mulching mowers versus Troy-Bilt mulching mowers.

## Earning free tools and safety allowances

**GREENSBORO, N.C.**—Golf course superintendents can again earn diagnostic tools and site safety improvement allowances, or donate money for turf research, through the 1993 Ciba Turf & Ornamental Products' "Prescriptive Control Program."

By meeting a minimum purchase requirement, superintendents can help themselves or the industry stay ahead of damaging turf pests.

"Safety is a priority with us," says marketing manager José Milan.

To qualify for the 1993 program, supers must purchase a minimum of \$2,000 of Ciba products, for which they receive a complimentary copy of "Compendium of Turf Diseases." Other premiums, like disease detection kits and macroscopes, are earned through a point system.

For more information, contact your local Ciba marketing representative.

## OLCA's turf equipment swap meet is Aug. 31

**MARYSVILLE, Ohio**—The Ohio Lawn Care Association (OLCA), in cooperation with O.M. Scotts is conducting a lawn/landscape equipment "swap meet" at the Scotts' facility here on Tuesday, Aug. 31—rain or shine.

Anybody in the green industry is welcome to bring their no-longer-needed equipment: sprayers, spreaders, small engines, hand tools, mowers, etc. All fertilizer and/or chemicals sold (no "restricted-use" chemicals) must be in full, unopened containers. Contact: Julie Guenther, OLCA, Box 14901, Columbus, Ohio 43214. Phone: (614) 261-1242.



# The only grub control fast enough to compete in the fifty-yard dash.



Nothing works faster than DYLOX insecticide. Plus it has no turf restrictions, it's low odor, and it's available in an 80% water soluble powder and 6.2% granular. So it's easy to apply as well. Which helps when you have to cover a lot of ground. For more information, contact Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120. (800) 842-8020.

**MILES**

# INFO CENTER

Useful literature and videos for LM readers

**ALL ABOUT LAWNS...**An order form for a series of eight consumer brochures makes excellent leave-behind material for lawn and landscape maintenance companies. The brochures are designed to promote the use of improved lawn seed varieties, to provide basic information on proper lawn maintenance, and to emphasize the environmental benefits of turfgrass. For a free copy of the order form, one of each brochure, and pricing information, write to: Consumer Brochures, The Lawn Institute, 1509 Johnson Ferry Rd., NE, Suite 190, Marietta, GA 30062-8122.

**HABLA ESPAÑOL...**Now available through Thomson Publications is a Spanish-English/English-Spanish dictionary of agricultural terms. Agricultural, botanical and horticultural terms are used, along with equipment, tools, weeds, diseases, insects, etc. Illustrations along

with the definitions are also used. To order, send a check payable to Thomson Publications or your Visa or MasterCard number for \$27.95 (California residents add 7% sales tax) to: Thomson Publications, P.O. Box 9335, Fresno, CA 93791. Orders can be phoned to (209) 435-2163.

**MEDICAL LEAVE...**The American Association of Nurserymen, in cooperation with the Small Business Legislative Council, has developed a guide to complying with the new Family and Medical Leave Act. The publication takes the employer through the step-by-step process of dealing with a leave request, and contains the full text of the law. Cost is \$20 for AAN members, \$40 for non-members, plus \$2.50 shipping and handling. To order, write AAN, 1250 I St., Suite 500, Washington, DC 20005 or phone (202) 789-2000.

**FOR SOIL ID...**"Soil Color," edited by J.M. Bigham and E.J. Cilkosz, and published by the Soil Science Society of America, focuses on the importance of soil color when making analyses, properties and the genetic significance of important pigmenting agents in soils, and geomorphic and geologic factors influencing the formation and inheritance of soil color. Contact SSSA, Book Order Dept., 677 S. Segoe Rd., Madison, WI 53711.

**ON FERTILITY...**The Potash & Phosphate Institute has revised and reissued its "Soil Fertility Manual" and accompanying slide photographs. The slide sets are available for individual chapters or as a 10-chapter package. The 10-chapter slide package consists of 320 color, 35mm slides and includes printed scripts for each chapter. The full slide package, containing all 10 chapters and printed scripts, is available for \$230 plus postage. Individual chapter sets may be bought at a cost of \$30 each. Contact: PPI Circulation Dept., 655 Engineering Dr., Suite 110, Norcross, GA 30092; (404) 447-0335.

**ECOSCAM...**In Ronald Bailey's new book, "Ecoscam: The False Prophets of Environmental Doom," we see an unraveling of all the major environmental scares of the past two decades. From global cooling, to global warming, to acid rain, to ozone depletion, Bailey reveals some of the true motives behind scientific proclamations of a doomed planet, and the real condition of our environment. Contact: Laissez Faire Books, (800) 326-0996; ask for No. CU5712. Ecoscam costs \$19.95.

**WHO'S WHO...**The Associated Landscape Contractors of America's 1993 membership directory, Who's Who in Landscape Contracting, is now available. The directory provides an index listing of both interior and exterior contractors. Contact ALCA's Publications Department, 12200 Sunrise Valley Dr., Suite 150, Reston, VA 22091; (703) 620-6363.

**EQUIPMENT GUIDE...**Encore Manufacturing's complete line of commercial turf equipment is featured in a new, full-color free Pro-Line brochure. The brochure includes model descriptions, photographs and specs on the company's 32-, 48- and 60-inch mowers, as well as blowers, edgers, dethatchers and accessories. Contact: Encore, P.O. Box 888, Beatrice, NE 68310; (402) 228-4255.

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for turf and ornamentals  
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1-800-524-1663

Circle No. 104 on Reader Inquiry Card



# TREES & SHRUBS

## Care of Shrubs:

### Diseases and Pests of Ornamental Plants by Pascal Pirone

5th ed. Standard reference discusses diagnosis and treatment of diseases and organisms afflicting 500 genera of ornamental plants. Reflects current national and state laws and new diseases with photos and illustrations. Indicates approaches by symptom and cause. 566pp. BK-410-\$58.00

### Diseases of Trees and Shrubs

by Wayne Sinclair, Howard Lyon, Warren Johnson

Comprehensive pictorial survey of diseases of and environmental damage to forest and shade trees and woody ornamental plants in the U.S. and Canada. Important developments in fungal biology and taxonomy, plant bacteriology, virology, and environmentally induced stress in plants are covered. Newly discovered diseases and accounts of old diseases summarized. 575pp. BK-430-\$52.50

### Insects that Feed on Trees and Shrubs

by Warren Johnson and Howard Lyon

Essential information you need for identifying more than 650 insect pests and the injuries they cause on trees and shrubs. Over 200 color illustrations aid identification. BK-690-\$52.50

### Ornamental Foliage Plant Diseases by A. S. Chase

Essential reading for the interiorscape industry. Includes: fungal diseases; diseases caused by Helminthosporium-like organisms, Phytophthora, Pythium, and Xanthomonas; bacterial, viral and nematode diseases. Plus, an extensive glossary and index for quick identification. 114 p. BK-415-\$30.00

### Elements of Pruning (VHS Video)

A knowledge of proper pruning procedures is a vital skill for gardeners. Find proven techniques clearly presented in this popular videotape for beginners: when and why to prune, basic principles of plant growth, pruning tools, types of pruning cuts, applications of pruning techniques to ornamental trees, hedges, roses, conifers, flowering shrubs, rhododendrons. 26 min. English - VD-755E, Spanish - VD-755S-\$89.95

### Tree Maintenance by Pascal Pirone

The care and treatment of trees including special sections on abnormalities, diagnosing tree troubles, non-parasitic injuries and assessing the suitability of trees in different environments. BK-760-\$49.95

## Identification:

### Shrub Identification by George Symonds

Pictorial key to identifying shrubs contains over 3,500 illustrations to check specimens. Popular and botanical names given. Handy index tabs for quick reference. BK-720-\$19.50

### Tree Identification by George Symonds

Make sure you have this pictorial reference to identifying trees by checking leaves, buds, branches, fruit, bark. Popular and botanical names listed with easy-find index tabs. BK-750-\$17.95

### Hearst Garden Guides: Annuals edited by Ted Marston

Guide to cultivating seasonal plants, lushly illustrated with over 150 color photos. Learn: success secrets for growing annuals, preparing potting soil, seed-sowing techniques; tips for positioning annuals so they thrive; how to eradicate pests/diseases. An A-to-Z encyclopedia of 200 species of annuals and hundreds of other varieties: Latin and common names, descriptions, cultivation, disease control strategies. 192pp. BK-700-\$25.00

### Hearst Garden Guides: Perennials edited by Darrel Apps

Gorgeously illustrated book gives fundamentals of growing perennials, featuring pest/disease control, safe use of chemical fertilizers, mulching, watering techniques, crown divisions, and an A-to-Z plant encyclopedia, with 250 full-color photos. Latin and common names, detailed description, hardiness zones, color, shape, blooming season. 208pp. BK-705-\$25.00

### Hearst Garden Guides: Bulbs edited by John E. Bryan

Complete guide to gardening with bulbs, this detailed reference includes extensive A-to-Z encyclopedia showing lesser-known varieties. Covers designing and planting for year-round color, storing, propagating, troubleshooting. 150 color photos. 191pp. BK-701-\$25.00

### Hearst Garden Guides: Trees & Shrubs edited by R. William Thomas

Complete guide to selecting, planting, nurturing over 1,000 ornamental varieties. 200 color photos, guidance on using trees and shrubs as focal points, selecting the right plant, tips on pruning. 208 pp. BK-702-\$25.00

# LANDSCAPE MANAGEMENT

INCORPORATING LAWN CARE INDUSTRY

## RESOURCES FOR PROFESSIONALS



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 Please allow 3-4 weeks for delivery. Prices subject to change. Quantity rates available upon request. For more information call 1-800-598-6008, or FAX (216)891-2726.

# PRODUCT SHOWCASE

## LM REPORTS ON MOWER PRODUCTS (FROM PAGES 11-12)

**Ransomes America Corporation's** newest riding mower, the Lynx 2000, features zero turning radius and a 9.2-bushel grass collection system.

The Lynx 2000 gives the operator the versatility of catching or throwing clippings back to the turf. Change from the grass collection to side discharge in minutes.

**Circle No. 310 on Reader Inquiry Card**



**Walker Manufacturing Company:** The Model "T" tractor is powered by a 20-hp Kohler Command V-Twin engine. This mower is designed to provide high productivity with good maneuverability.

Larger mowing decks of 48 to 60 inches for more powerful models, and a parking brake are optional.

**Circle No. 311 on Reader Inquiry Card**



**Ransomes America Corporation:** The Cushman 6150 Wing Rotary riding mower has a cutting width of 10 ft. 7 inches. It cuts up to nine acres per hour, and is good for golf course roughs and other large areas with tall grass. Height of cut ranges from 1 to 4.75 inches. The 6150's top mowing speed is 7 mph; it has a total of seven 21-inch blades.

Options include:

- Cushman Core Destroyer for post-aeration cleanup.
- tine rake dethatcher
- Promark blower
- snow blower and snow blade
- front-end brush for side-walk/parking lot sweeping
- cloth or solid cabs for winter protection.

**Circle No. 312 on Reader Inquiry Card**



### Mower adapts to flail, mulching attachments

The Toro Groundmaster 200 Series has a selection of all-season accessories.



- A leaf mulcher mounts under side discharge decks allowing blades to vacuum and pulverize fallen leaves;

- The Flail 2660 attachment cuts rough and semi-formal turf, pulverizes aeration plugs, mulches leaves or prepares turf for overseeding. Toro says the flail is quiet and durable.

- A rotary broom to sweep parking areas and walkways of dirt, debris leaves and snow; features right/left hydraulic articulation.

**Circle No. 313 on Reader Inquiry Card**

### Sprayer line is versatile, flexible and mobile, its manufacturer says

Friend Commander professional sprayers provide top performance, accuracy and reliability, according to the Friend Company.

The Commander line is available in a trailer or skid model for mount on utility vehicles and in engine drive or PTO drive.

A wide range of accessories and easy machine adjustments means greater versatility and flexibility, says Friend.

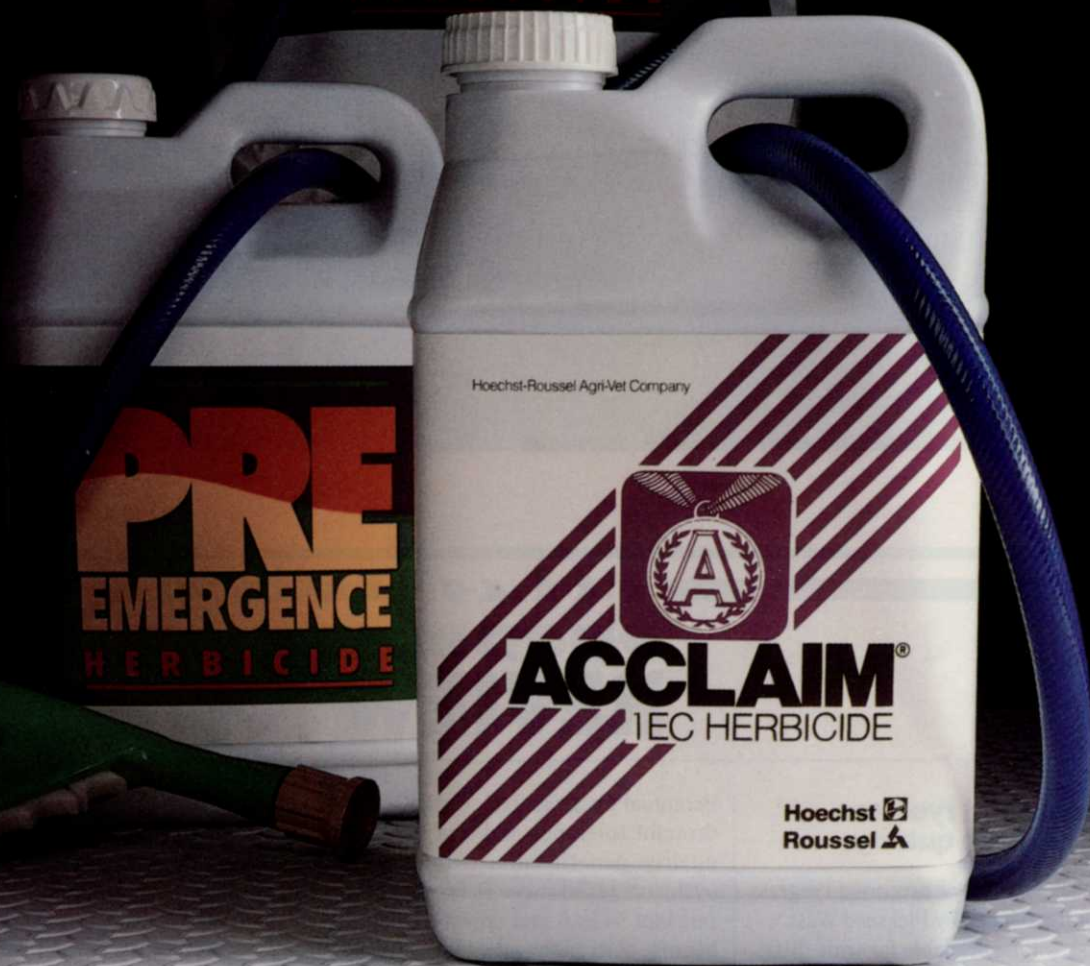
Accessories and options include mechanical and hydraulic spray booms, electric or hand rewind hose reels, high tree and multi-purpose spray guns.

Friend markets the sprayers to turf maintenance personnel, nurseries, tree spraying operations, and pest and weed control companies.

**Circle No. 314 on Reader Inquiry Card**





# BECAUSE NO PRE IS PERFECT



## PAIR A PRE WITH OUR POST

Crabgrass escapes are almost impossible to avoid, even when using the best *preemergence* herbicide. But unsightly crabgrass and costly callbacks can be avoided by using the best *postemergence* crabgrass herbicide available, Acclaim® IEC Herbicide. Crabgrass treated with Acclaim just melts away, leaving no ugly brown patches that the older arsenicals commonly leave in lawns.

Acclaim controls from the 1-leaf stage to just before seed head formation, and can be used safely on tall and fine fescue, bluegrass, ryegrass and zoysiagrass. It also lets you reseed fescue and ryegrass immediately after the spray dries.\* Best of all, you can treat 1,000 sq.ft. with Acclaim for just small change.

This year, be ready for crabgrass escapes. Be ready with Acclaim... **Hoechst**   
because no PRE is perfect. \*Wait 3 weeks for bluegrass, zoysiagrass, bentgrass **Roussel** 

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Circle No. 108 on Reader Inquiry Card



© 1992 CIBA-GEIGY Corporation, Turf and Ornamental Products, Box 18300, Greensboro, NC 27419. Always read and follow label directions.

## SHOWCASE PRODUCT REVIEW

### **New perennial ryes are low grow, high quality**

Two new varieties of perennial ryegrass have been introduced by Pickseed West.

Express will be available for wide distribution by this fall, while Cutter will be available in limited quantities this fall.

Express is a slow-growing variety that also germinates and establishes very rapidly. It also contains very high levels of endophyte fungi, enhancing its ability to resist leaf- and crown-feeding insects, as well as to tolerate heat and drought conditions. According to Pickseed, Express is a dark green, fine-textured variety that mixes well with other new-generation perennial ryes.

Cutter, according to Pickseed executive vice president Dr. Jerry Pepin, has a low growth habit, very high turf quality and diverse adaptability.

Among 123 entries in the 1990 National

Perennial Ryegrass Test, Cutter was first in drought tolerance and tied for second in quality, genetic color, winter color and pythium resistance. It is also naturally resistant to leaf- and crown-feeding insects because of its high endophyte content.

**Circle No. 315 on Reader Inquiry Card**

### **Four new turfgrasses in landscape market**

Seed Research of Oregon has introduced four new improved turfgrass seeds: SR8300 turf-type tall fescue, SR3100 hard fescue, SR5100 chewings fescue and SR4300 perennial ryegrass.

SR8300 comes from a different germplasm than any other tall fescue on the market. It has a semi-dwarf growth habit, medium to fine leaf texture, rapid tillering, and heat and drought tolerance.

SR3100 is endophyte-enhanced. It was selected for its dwarf growing habit,

improved disease resistance, dark green color and high endophyte content.

SR5100 is a darker, lower-growing, endophyte-enhanced chewings fescue variety that is disease-resistant.

SR4300 is perfect for close mowing, Seed Research says. With improved disease resistance and high endophyte content, it is well equipped to withstand stresses like insects and drought.

Both SR3100 and SR 5100 will soon be appearing in the Crusader mix with SR4200 perennial ryegrass.

**Circle No. 316 on Reader Inquiry Card**

### **Tall fescue adapts to hot, dry weather**

Georgia 5, from Pennington Seed, is the result of 25 years of research by the University of Georgia and the USDA Soil Conservation Service to develop a tall fescue cultivar adapted to the southern





**THE WORST PART ISN'T  
THAT SHE'S CALLED BACK  
THREE TIMES, OR THAT  
SHE PROBABLY WON'T RENEW.  
THE WORST PART IS THAT  
SHE'S GOT NEIGHBORS.**

If she's calling you about grubs, fire ants, or mole crickets, you can bet her neighbors are hearing about you, too.

Makes you wish you'd used Triumph<sup>®</sup>, doesn't it? You could have delivered up to 90% control in just 2 to 3 days. Too bad.

Bet you'll use Triumph first, next time.



Circle No. 102 on Reader Inquiry Card

## SHOWCASE PRODUCT REVIEW

coastal plain region.

Georgia 5 has performed well in several turfgrass evaluations in Georgia and Florida. It is similar in appearance and turf quality to other tall fescues, but is much superior to others in areas of high temperatures, extreme sun and water stress.

Pennington believes the cultivar is well adapted to Georgia and Florida, plus the southern or coastal part of North Carolina, South Carolina, Alabama, Mississippi, Louisiana and parts of Texas.

Circle No. 317 on Reader Inquiry Card

### This tall fescue has narrower green leaves

Lancer, a new narrow-leaf dwarf turf-type tall fescue from Lesco is a low-growing, dark green variety. Its slower leaf extension rate and shorter mature plant height create a dense, fine-textured turf.

Lancer is recommended for using on athletic fields, golf course roughs, commercial and public turf areas, home lawns, parks, playgrounds, and in sod production. It blends well with other tall fescues such as Trailblazer and Trailblazer II.

It has shown resistance to leaf spot, crown rust, stem rust and fusarium patch, and moderately good resistance to brown patch. In addition, Lancer tolerates cold, wear, shade and heat, Lesco says.

Circle No. 318 on Reader Inquiry Card

### Widely-adapted grass keeps guessing away

Rivard's Quality Seeds has a versatile lawn seed to keep the guessing away.

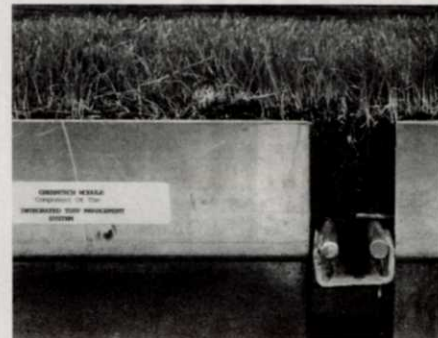
This durable turf can flourish in a wide range of soil types, as well as both sunny and shady areas. Its name: Sun & Shade.

Sun & Shade is available in a full line of lawn mixtures in limited areas.

Circle No. 319 on Reader Inquiry Card

### Unique turfing system perfect for sports turf

The Greenway Group has been issued a patent on a transportable natural grass playing surface called the Integrated Turf Management (ITM) system.



It is a turfing system that can be transported to, and erected upon, nearly any horizontal surface in a very short period, for "instant" use. The result is a playing field or other surface indistinguishable



# PRODUCT REVIEW

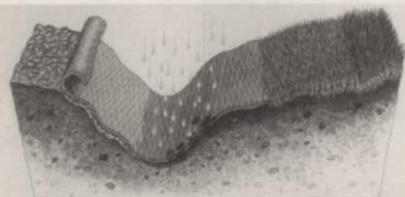
from fully-established, natural turf.

The ITM system provides modules of high density plastic or other material containing specially-formulated soil mixtures and fully mature turf plants. A light rolling following installation, and the field is ready from any sports activity or for social use in a lawn setting.

**Circle No. 320 on Reader Inquiry Card**

## Germination mat reduces growing time

Chemically-free Roll-Lawn seed germination blankets, made of natural wood fibers, help produce fast, lush, weed-resis-



tant lawns.

Inexpensive, easy-to-use biodegradable Roll-Lawn quickly bonds to ground contours to hold seed and water in place during the growing cycle.

A unique bonding to the soil eliminates the expense and labor of repairing seed washout and erosion problems often experienced with traditional planting methods, according to the manufacturer, Conwed Bonded Fiber.

In a few weeks, the green Roll-Lawn blanket begins to decompose to form an organic mulch which provides added nutrients to the young sprouts.

**Circle No. 321 on Reader Inquiry Card**

## Tree injection corrects iron deficiency in pin oak, others

According to Medi-Ject Tree Injections Systems, their tree injection process corrects iron deficiency in pin oak, silver maple, sweetgum, bald cypress, London planetree

and other trees.

Recommended treatment period is full leaf (May-June) to fall coloration (October).

Medi-Ject injections provide a visual green-up noticeable within seven to 10 days, sometimes overnight, the company says, and treatment with the system provides healthy green trees for three to five years.

**Circle No. 322 on Reader Inquiry Card**

## Tree care sprayers, needles made for green industry

For a full range of tree care sprayers and tree feeding needles, Northeastern Associates has 20 years experience in the green industry.

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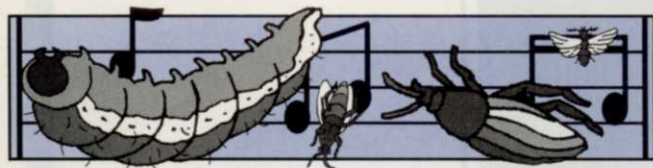
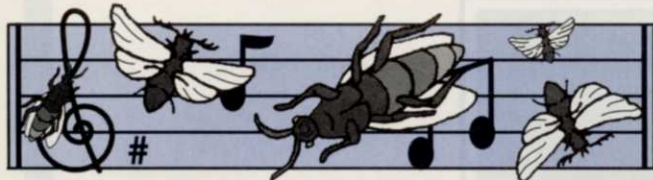
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## SHOWCASE

# PRODUCT REVIEW

against sunlight.

Feeding needles and spray guns manufactured by Northeastern include the FMC 785A spray gun, the new Deluxe Versatool, the 48R and SS36—both 36-inch HD models.

The Deluxe Versatool has a brass trigger handle, three-foot heavy duty feeding needle with a hardened non-clogging tip, 3/4-inch inlet and adjustable footpad.

**Circle No. 323 on Reader Inquiry Card**

### Building safely stores hazardous materials

Safety Storage offers its Model 10 pre-fabricated, movable steel building designed for storage and containment while mixing and dispensing pesticides and flammable materials.



Ideal for golf course and turfgrass uses, the buildings safeguard personnel, avoid the liability arising from soil and groundwater contamination, meet fire safety needs, and provide full compliance with federal, state and most local regulations.

Model 10 storage buildings are 10 feet long and provide up to 59 sq.ft. of floor space. A wide range of shelving and partitioning options permit convenient handling of all types of drums, buckets, bags, boxes and small containers.

**Circle No. 324 on Reader Inquiry Card**

### Stump grinder is lightweight, portable

According to Partner Industrial Products, its new stump grinder is "the most lightweight, portable stump grinder available today."

Using gas power, the unit eliminates the need for cumbersome,



difficult-to-manuever equipment, making it ideal for navigating through tight places in a homeowner's lot.

Weighing only 44 lbs., the Partner stump grinder is designed for easy walk-behind control, and does not damage delicate landscaping as heavy commercial equipment can.

The stump grinder comes with an 8-inch grinding wheel and a 70 cc engine.

**Circle No. 325 on Reader Inquiry Card**



# BIOTURF NEWS



## For the Latest Developments in Biological, Organic and Natural Turf Care!

With our October premier publication of *Bioturf News*, we at *LANDSCAPE MANAGEMENT* magazine continued our commitment to give you the best possible coverage of green industry happenings.

*Bioturf News* is our new, bi-monthly review of current research and development in "biological, organic and natural" turf care. In 1993, it will exist independently of *LANDSCAPE MANAGEMENT*.

Alternative turf care products can't be ignored. University research has determined them to be viable forms of insect, weed and disease control.

Many of our readers have also

formed opinions of biological and organic products.

Some say biological and organic products are too expensive and take too long to show results. Others believe customers should have a choice. And still others are probably wondering what all the excitement's about.

Our job, as an industry information source, is not to tell you what to think, but to simply relay the information to you—as soon as we can and in the best way possible—and let you take it from there.

There are two sides to every story. Your opinions count, and we want to know what you think of

these products. Have you tried alternative products? If so, what were the results? To make *Bioturf News* the most useful news source it can be, we will always welcome your questions and comments.



Jon Miducki  
Publisher



Terry McIver  
Editor

### BIOTURF NEWS

#### Bio-Turf: The Basics



*Bioturf News* will be a bi-monthly newsletter reporting on biological, organic and natural products for the specialty turf market. But you have to subscribe in order to receive it. To receive your free one-year subscription, please return the coupon below to:

Jon Miducki, publisher  
LANDSCAPE MANAGEMENT  
7500 Old Oak Blvd.  
Cleveland, Ohio 44130

*Bioturf News* will appear independently of *Landscape Management* beginning July 1993. You must be a subscriber to receive it! We've had a terrific response so far. If you haven't sent for your free subscription yet, please do!!

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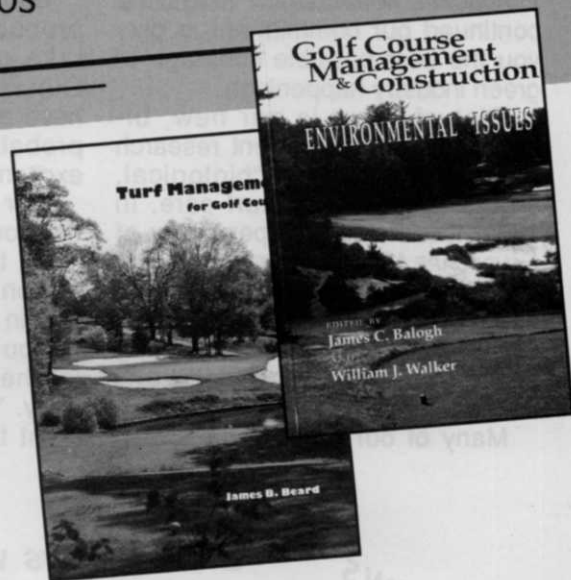
### Golf

#### **Golf Course Management and Construction: Environmental Issues**

edited by James C. Balogh, Ph.D., William J. Walker, Ph.D.  
For turfgrass specialists, landscape and golf course architects, developers, superintendents and land-use regulators, this volume summarizes and assesses environmental effects of turfgrass system construction and maintenance. Covers water resources, fertilization, pesticides, integrated management systems, wildlife, wetlands, aquatic and terrestrial toxicity tables. 976pp. BK-617—\$65.00

#### **Turf Management for Golf Courses** by James Beard

Written by the eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide for your bookshelf. This comprehensive guide details all phases of golf course operations including course design and construction, turf management, course administration, irrigation, equipment, and disease and pest control. 642pp. BK-615—\$74.00



### Turf

#### **Turf Managers' Handbook** by Daniel and Freeborg

2nd. ed. Totally revised and updated, this valuable and practical guide targets the turf practitioner. Chapters on grasses, growth regulators and diseases have had extensive modifications. Innovations resulting from research and practice have been added to reflect the current techniques available for turf manager. 437pp. BK-110—\$39.95

#### **Controlling Turfgrass Pests** by Shurtleff, Fermanian, Randell

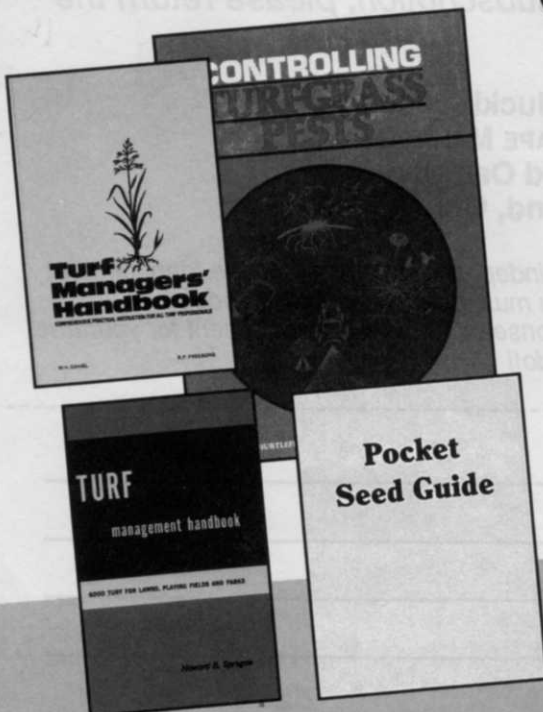
New comprehensive guide provides the most up-to-the-minute information available on the identification, biology, control and management of every type of turfgrass pest. 449pp. BK-220—\$56.95

#### **Turf Management Handbook** by Howard Sprague

This is a practical guide to turf care under both healthy and poor turf conditions. Chapters cover turf in cooler and warmer regions, fertilizer use, regular turf care, weed and disease control, and special turf problems. Useful seasonal schedules for management of turf areas. 255pp. BK-620—\$26.60

#### **Landscape Management's Pocket Seed Guide**

You'll refer to this handy guide again and again. It provides sections on why seed?, overseeding, Florida study, adaptability and disease susceptibility. Section 2 covers the National Turfgrass Evaluation Program results about perennial rye grass, Kentucky blue, Bentgrass, and Fineleaf fescues. Quick supplier listing included. 36pp. BK-655—\$10.00





# TURFGRASS SCIENCE AND CULTURE

JAMES B. BEARD



**Turfgrass: Science and Culture** by James Beard  
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### VIDEOS!

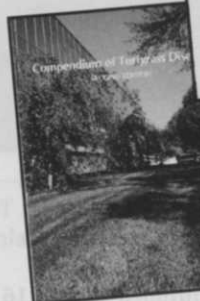
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021935P2

# PRODUCT REVIEW

## Infield graders perfect for all types of jobs

To help create and maintain optimal infield surfaces on baseball diamonds, the Toro Company has introduced the versatile Infield Pro 5000 and Infield Pro 2000.

"The Infield Pro's attachments give groundskeepers a way to create the peak



playing surfaces that are expected—no matter what conditions exist," says Toro commercial marketing manager Helmut Ullrich.

The 5000 is equipped with a 16 hp Vanguard engine, the 2000 with a 12 hp Kohler engine. Both have hydrostatic drive, zero turning radius and adjustable down pressure for precise grooming.

Attachments include a finish grader, drag mat, infield conditioner, spring rake, tooth rake, weeder/cultivator, drum roller, dozer blade, spiker/aerator and more.

**Circle No. 326 on Reader Inquiry Card**

## Three new cultivars available this autumn

E.F. Burlingham & Sons will have three new turfgrass seed varieties available this fall: Opal and Majestic Kentucky bluegrasses and Falcon II turf-type tall fescue.

Opal was ranked along with Midnight as the darkest green of all Kentucky bluegrass cultivars in 1992. It has a fine leaf texture, excellent pink snow mold resistance and greens up rapidly.

Majestic is a re-introduction of a variety bred by Dr. C. Reed Funk of Rutgers University. It has a prostrate growth habit, fills in well, excellent genetic color and disease resistance.

Falcon II is a semi-dwarf, moderately high endophyte variety, brown patch disease resistance, dark green genetic color, denser growth from more tillering, and excellent insect resistance.

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## Revolutionary way to anchor trees safely

With Lawson & Lawson's Professional Tree Anchoring Kit, only rubber touches the tree, eliminating girdling. The high strength rubber, which resists sun and chemicals, also serves as a shock absorber.



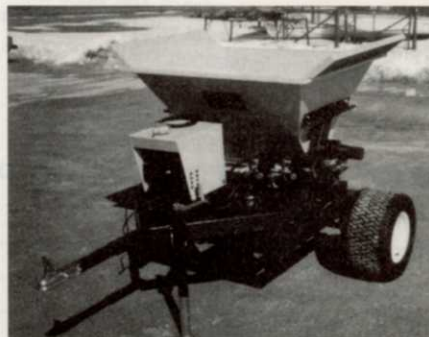
In addition, installation is very simple, pounding a stake that is flush to the ground with a hammer—less than five minutes. There are no turnbuckles, special tools or pieces of garden hose involved.

**Circle No. 328 on Reader Inquiry Card**

## Sand top dresser is completely hydraulic

Terracare Products now offers the green industry a top dresser that will fit on all utility carts which accommodate a fifth-wheel attachment.

The unit is completely hydraulic. The spinner speed can be controlled for width of spread and material the operator is



## COMING NEXT MONTH in LANDSCAPE MANAGEMENT:

- Guide to Ornamental selection, planting and maintenance
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using. The auger speed can also be varied for amount of material applied. There is a remote control to start and stop the flow of material.

The unit is powered with a 5 hp Briggs & Stratton engine. It has 24x13.00-12 four-ply tires.

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## Wildflower seed blends for western states

Selkirk Seed Company has a new line of wildflower seed blends available.

The Pacific Northwest Wildflower Mix is made up of 35% perennial wildflower, 10% biennial wildflower, 50% annual wildflower and 5% inert. "It is attractive, long lasting, and longer flowering," says Selkirk president Ervin Madson.

The Rocky Mountain Wildflower Mix is made up of 60% perennial wildflower, 6% biennial wildflower, 22% annual wildflower, and 12% inert. It is said to be attractive, long, lived, long flowering and cold adaptable.

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## Turf sprayers have professional precision

Land Pride announces its new Chem-Pro Turf Sprayer line, a quality line that provides professional precision and dependability in trailer or vehicle mounts.

Corrosion-resistant stainless steel tanks are available in 100-, 220- and 370-gallon sizes and a poly tank in a 100-gallon size.

Level float booms, available in a 20-foot length, feature breakaway arms to eliminate the boom bounce that distorts nozzle pattern. The outer arm can be folded to



spray a 15-foot swath.

The stainless Metercone nozzle's circular spray pattern provides excellent coverage, Land Pride says, less drift, and is less susceptible to streaking with boom height variations.

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# MARKET SHOWCASE

**Rates:** \$105 per column inch for 1x insertion; \$100 for 3x insertion; \$95 for 6x insertion; \$90 for 9x insertion; \$85 for 12x insertion (one inch minimum). Frequency based on calendar year. For ads using a Reader Inquiry Number, add \$30 to the total cost of the ad per issue. For ads using a second color standard red, blue, green or yellow only, add \$65 to the total cost of the ad per issue.  
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## SOFTWARE

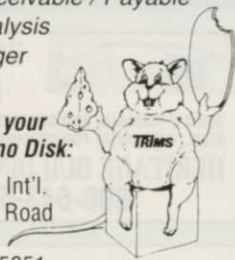
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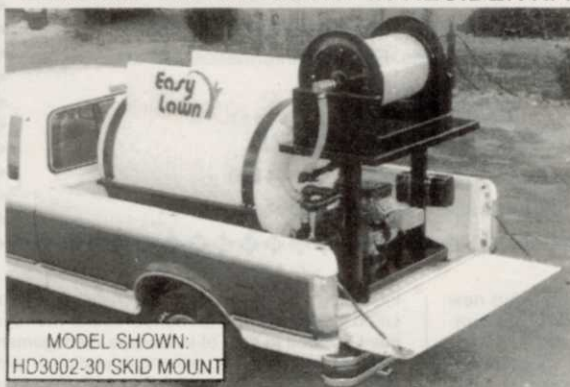
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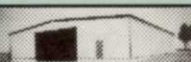
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
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**FOR SALE:** International Loadstar 1600 with 375 gal. tank and two 250' of 1 3/4" "trigger" style hose lines on automated reels. Truck has John Bean high pressure pump with output capacity of 70 gpm. Compact body measures 18'2"Lx8'6"Hx7'9"W and easily gets into areas with limited access. Five speed manual transmission: 345 cu. in. V8 engine: positraction rear. Ample storage compartments for tools and/or 50# bags. Mint condition. Meticulously maintained by fire department on Long Island. **7000 original miles! \$12,000 or best offer. Contact Bill Kaiser, Foreman, Halesite Fire District, Halesite, NY (516)427-1910.** 7/93

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In national trials under both low and high maintenance conditions, Ram I ranked third and fourth respectively in overall turf quality.

Mean Turfgrass Quality Ratings of Kentucky Bluegrass Cultivars for Each Month Grown Under **High Maintenance** at Seventeen Locations in the U.S. & Canada 1991 Data

Turfgrass Quality Ratings 1-9; 9=Ideal Turf: Months 1/

NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
Midnight	5.3	5.7	5.2	5.2	6.4	6.4	6.3	6.3	6.3	6.6	5.9	5.0	6.2
Unique	6.3	6.7	6.3	5.6	6.2	6.3	6.4	6.3	6.4	6.5	5.5	5.2	6.2
Glade	3.0	3.8	5.1	5.5	6.1	5.9	6.0	5.8	6.4	6.6	5.7	4.7	6.2
<b>RAM-I</b>	<b>4.7</b>	<b>4.7</b>	<b>5.3</b>	<b>5.5</b>	<b>5.8</b>	<b>5.8</b>	<b>5.9</b>	<b>5.7</b>	<b>6.3</b>	<b>6.5</b>	<b>5.9</b>	<b>5.5</b>	<b>6.1</b>

Under high maintenance, Ram I ranked fourth out of 125 entries.

Mean Turfgrass Quality Ratings of Kentucky Bluegrass Cultivars for Each Month Grown Under **Low Maintenance** at Sixteen Locations in the U.S. 1991 Data

Turfgrass Quality Ratings 1-9; 9=Ideal Turf: Months 1/

NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
Midnight	5.3	4.7	6.0	4.8	6.7	5.7	5.3	5.6	6.5	5.7	5.6	6.0	5.7
Barmax	6.3	5.0	6.0	6.1	6.8	5.8	5.0	4.9	5.5	5.0	4.9	5.0	5.7
<b>RAM-I</b>	<b>5.3</b>	<b>5.3</b>	<b>4.0</b>	<b>5.1</b>	<b>6.4</b>	<b>5.7</b>	<b>5.1</b>	<b>4.9</b>	<b>5.3</b>	<b>5.6</b>	<b>5.3</b>	<b>4.3</b>	<b>5.5</b>

Under low maintenance, Ram I ranked third out of 62 entries.

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