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LANDSCAPE MANAGEMENT

INCORPORATING LAWN CARE INDUSTRY

'RIGHT-SIZING' YOUR STAFF

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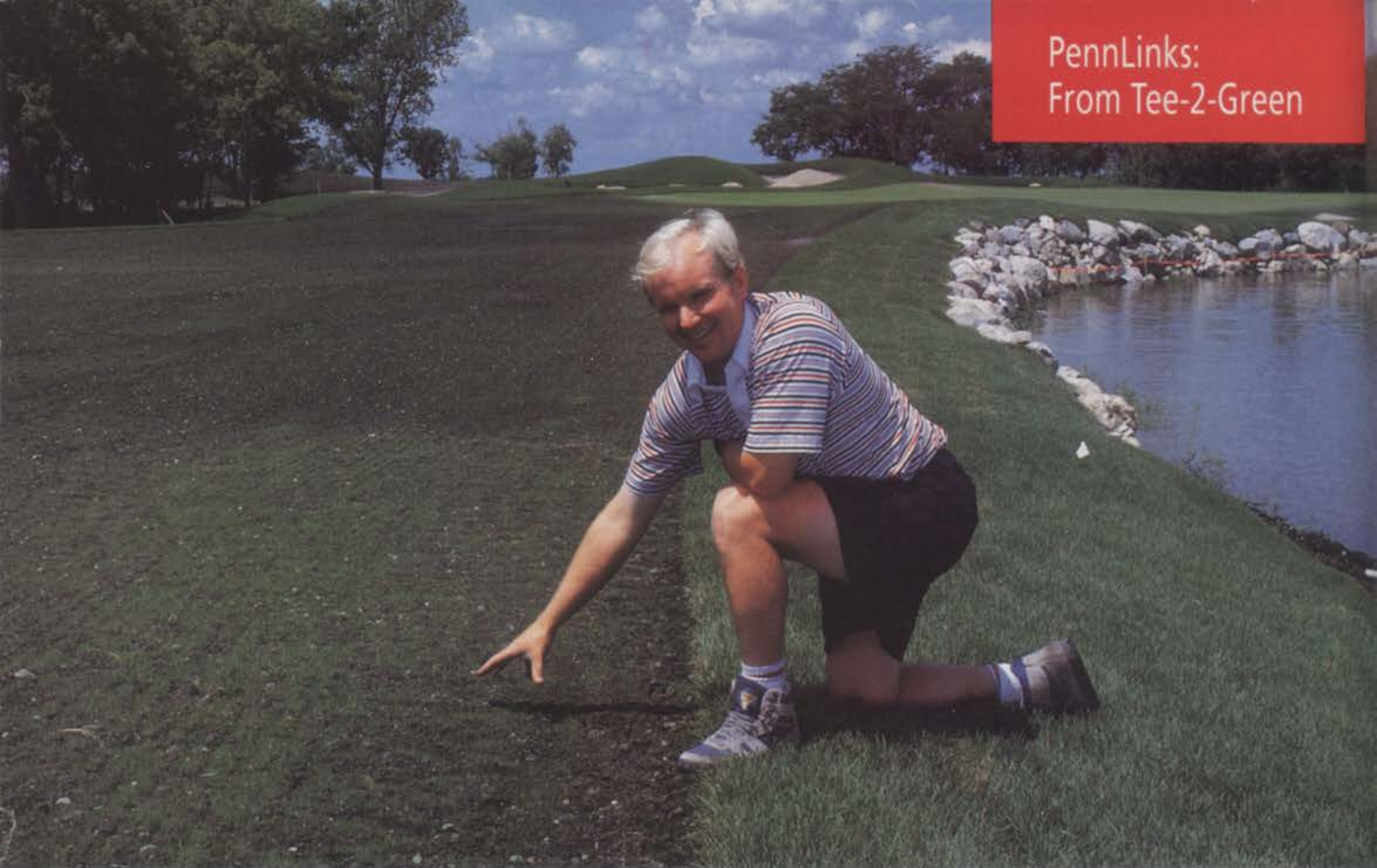
**Choosing your
next pick-up**

**Spring
fertilization**

**Bunker
maintenance**

**Controlling
fire ants**





Tony Kalina, First Assistant Superintendent, appraises the 12th Hole seven days after seeding at McChesney Golf Club, West Chicago, Illinois.

PennLinks Greens, Tees and Fairways Add Excitement to Excellence at McChesney Golf Club in Chicagoland

"This twenty-one hole public course is destined to be a Chicagoland showpiece when it opens in August, 1993. Nothing about this Robert Trent Jones, Jr. designed course is halfway" says Tony Kalina, Assistant Superintendent at McChesney

Golf Club in West Chicago. "The clubhouse focuses around a 2½ story brick structure moved three miles to the center of the 240 acre site."

Selecting the right creeping bentgrass for greens, fairways and tees was not left to chance, either. Superintendent Scott Nissley says, "I specified PennLinks because of its predictable germination and outstanding heat and moisture stress tolerance. I've found PennLinks to be more aggressive in cool soil temperatures than other bent varieties, and the best *Poa annua* competitor."

Tony Kalina, responsible for seeding and establishment, finds PennLinks germinates rapidly and establishes uniformly, with seedling emergence as early as four days. Tony says, "We were mowing our

fairways with lightweight mowers twenty days after seeding. After 50 days we're maintaining putting greens height at 0.2 inch."

Superintendent Scott Nissley sums it up: "The ball rolls truly on our greens and our fairway lies are excellent. I think Chicagoland golfers will enjoy this course as much as any course they play, and one reason will be PennLinks."



Left to Right: Assistant Matt Springer, Scott Nissley, CGCS, and First Assistant Tony Kalina

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Golf Course Superintendents Association of America, 1421 Research Park Dr., Lawrence, KS 66049-3859; (913) 841-2240.

International Society of Arboriculture, P.O. Box 908, Urbana, IL 61801; (217) 328-2032.

International Turfgrass Society, Crop & Soil Environmental Sciences, VPI-SU, Blacksburg, VA 24061-0403; (703) 231-9796.

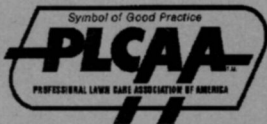
National Arborist Association, The Meeting Place Mall, P.O. Box 1094, Amherst, NH 03031-1094; (603) 673-3311.

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AS WE SEE IT

JERRY ROCHE, EDITOR-IN-CHIEF



Special projects for that 'cabin fever' time of year

If you're anything like me, the middle of February brings with it the effects of what the Alaska gold-rushers called "cabin fever."

Maybe you're blessed with living and working south of the Mason-Dixon line, or in New Mexico or Arizona or Nevada or southern California. But if you live and work in exotic places like Cleveland, Erie or Buffalo, you can relate to our tales of the "lake effect" that paints everything a gleaming white five or six times a year.

It's the time of year when the west wind blows across Lake Erie, slapping cold and warm air together and depositing sparkling crystals all over Port Clinton, Willowick, Geneva and Ashtabula.

It's the time of year when wildlife nestle in their burrows, and non-wildlife cuddle together in front of the fireplace.

So if, like us, you are suffering cabin fever, I've rounded up a list of projects you might consider to make those so-long February days seem a tad shorter.

1) How about an intense planning session for all top and middle managers?

"After the first of the year, we have a three-day planning blitz for our top people," says Chris Malham, director of business development at Scapes, Marietta, Ga.

He says January, or even February, is the perfect time. The holidays are over, and the staff can begin getting in focus for the 1993 season. "It's easier to plan for '93 when it's '93," he observes.

"Everybody has time to do what's urgent, but not what's important—and planning is important," says Ron Kujawa of KEI Enterprises, Cudahy, Wis.

2) Why not treat yourself and/or some of your valued staffers to a trade show or convention—maybe even in some warm part of the country?

All you have to do is take a look at our "Events" section to see all the educational seminars scheduled at this time of the year.

New Jersey and California are holding landscape expositions; the Irrigation Association has a series of short courses; the National Arborist Association is holding its annual management conference; and much, much more.

3) Go on a shopping binge. It might take the form of a real shopping binge, if you're in dire need of new equipment; or it could simply be window shopping. If you're anything like me, just visiting the different dealers to see what's new will be an invigorating process...and it'll get you out of that boring office, to boot.

4) Brainstorm and/or meditate. This might not be easy for action-oriented individuals, but it's important.

Go over last year's logs. Find out what went wrong and get all those brain neurons (the ones that were doubtless dulled by too much holiday fruitcake) working again. Try to come up with some interesting, different, creative solutions should last year's problems arise again this year.

5) Finally, why not take a vacation? A *real* vacation, away from the work and worries, away from that hated west wind and all the slush.

Pack Mom and Skipper and Janie and Bowser into the family wagon, point south, and enjoy yourself.

Why not? As we used to say in the Army, "you owe it to yourself"—and you certainly won't be able to take any time off *next* month!

12 MONDAY
JULY

193rd day
172 to come

7 A.M. - CREW MTG.
(FINAL PREPS FOR MEMBER (GUEST))

- TREAT DOLLAR SPOT ON BALK NINE
ESP. BAD ON #12, #14, #17
(GARY + MAC)

- CHECK ANTHRACNOSE NEAR LAKE ON #7
(BOB)

- TREAT SUMMER PATCH NEAR CLUBHOUSE
(MIKE)

- PLUG OUT BAD SPOT #14
(BOB)

NOON - LUNCH w/ DISTRIB. REP.
(ASK ABOUT BULK RATE DISCOUNTS)

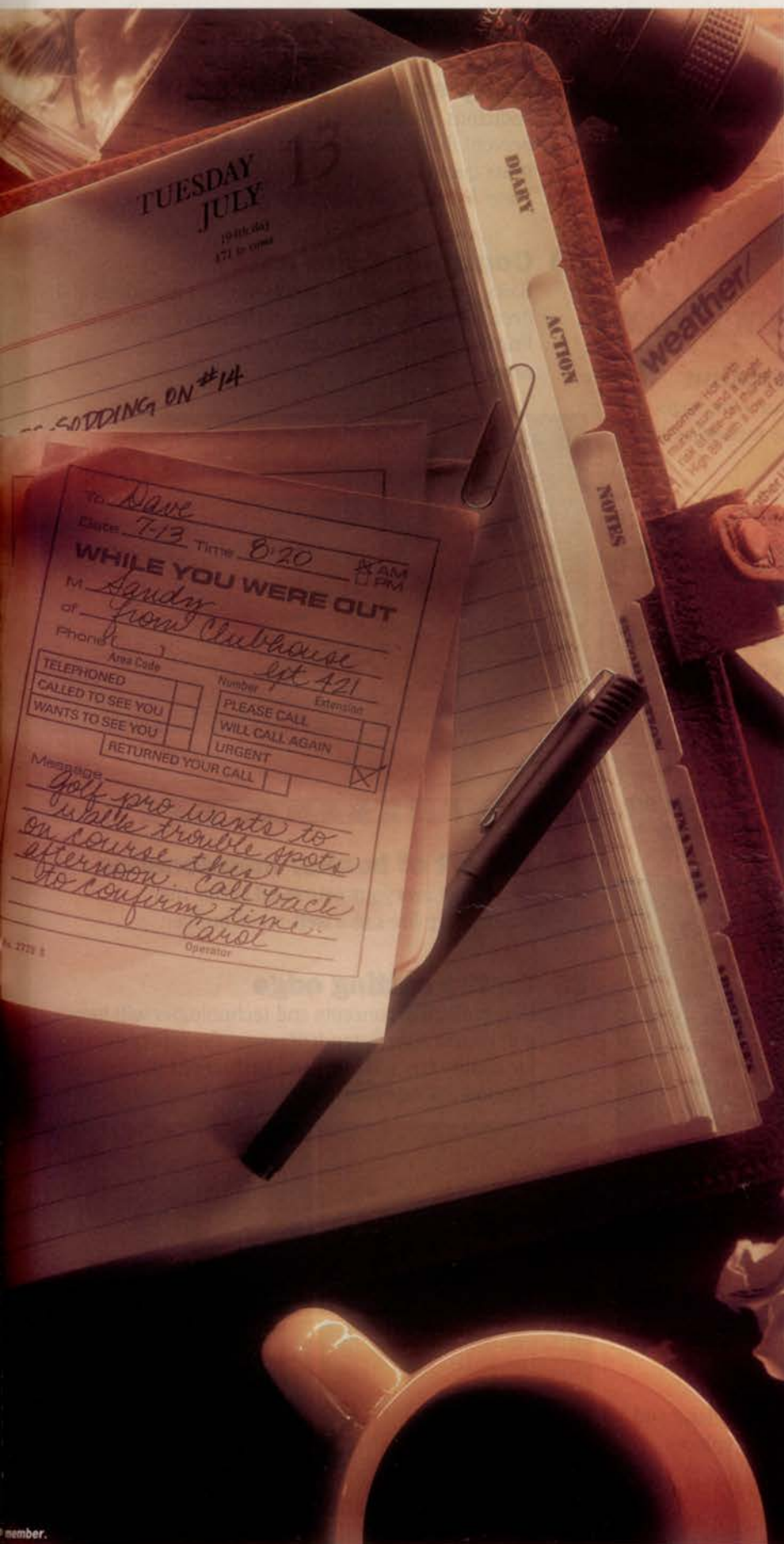
8:00 GREENS COMMITTEE MTG.
PRESENT REVISED FUNGICIDE BUDGET
ADVISE OF MAINT. Overage

JULY
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 31

AUGUST
S M T W T F S
1 2 3 4 5 6
7 8 9 10 11 12
13 14 15 16 17 18
19 20 21 22 23 24
25 26 27 28 29 30 31

2:45 - SUPP

- REPAINT
- NEW SH
- SPRINK



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LANDSCAPE MANAGEMENT

INCORPORATING LAWN CARE INDUSTRY

FEBRUARY 1993 VOL. 32, NO. 2

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Ron Hall, Terry McIver



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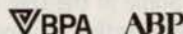
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ASK THE EXPERT

DR. BALAKRISHNA RAO



Weeds in nurseries

Problem: We are a nursery outlet. Our yard composition is a blue stone base. We have a continual problem with annual and perennial weeds. Can you recommend a pre-emergence or post-emergence herbicide which can be used around retail nursery stock effectively? (New York)

Solution: Annual and perennial weeds can present a serious and unsightly problem in a nursery situation. These weeds should be mechanically removed where practical (this is time-consuming!) or be treated with labelled herbicides at the proper time. Refer to your Cornell University weed control/pesticide guide to learn more about your specific need.

Often, the type of nursery plants you grow and the type of weeds you will be dealing with dictate the choice of herbicide. Since nursery plants differ in their tolerance to various herbicides, be sure to determine this before using a herbicide.

The following information might be useful in your situation:

1) For pre-emergence weed management in nursery housing areas: use herbicides such as simazine (Princep) plus Pennant, or simazine plus Surflan.

2) For pre-emergence weed management in containers: you can use herbicides such as Treflan 5G (must be watered-in immediately after treatment), Devrinol 50WP, Pennant 7.8E, Ronstar 2G, Scott's Surflan AS.

3) For post-emergence weed control: depending on the problem, products such as Roundup, Basagran or diquat can be used.

For additional details on the type of weeds managed by different products and their relative ease of handling, efficacy and other pertinent information, refer to the Cornell recommendation book.

Read and follow label specifications for better weed management.

Weeds around trees

Problem: How are broadleaf weeds managed around newly-transplanted trees in the lawn area? We have lost trees in the past, which we believe is related to herbicide injury. (Ohio)

Solution: To manage broadleaf weeds, you can use post-emergence herbicides such as Trimec containing 2,4-D, MCPP and dicamba. You can also use Turflon II Amine if you prefer 2,4-D with trichlopyr. For 2,4-D-free products, you can use herbicides such as Encore or Confront. To manage future broadleaf weed problems, the pre-emergence herbicide Gallery can be used.

From your statement above, I understand that you have lost a number of trees after transplanting, which you have attributed to herbicide injury. Although this is possible, in my opinion it's more likely that the trees were lost due to transplant shock, poor recovery after transplanting, or insufficient post-planting care.

Plants should be planted at the same depth they were planted in the nursery, or slightly higher. Deep-planted plants suffer from suffocation due to lack of oxygen to the roots.

Some of the tree loss could be related to post-planting care. After planting, during the establishment period, the plants need

proper watering, mulching and fertilizing.

From our research and field experience using herbicides in the lawn, we have not observed injury when the products are properly applied. Instead, it is most likely related to the above factors. Make sure you have selected the proper plant for the proper site and follow good planting and cultural management methods to minimize tree mortality.

Managing adelgids

Problem: How are pine bark adelgids managed? (New York)

Solution: To manage pine bark adelgids, use a horticultural oil in spring as a dormant treatment. An application of insecticides such as malathion or Dursban can be used to manage crawlers when they are active, usually around mid-May.

These adelgid insects feed on new shoots at the base where needles attach to twigs. Two applications of an insecticide at one-month intervals should provide adequate protection. If new generations appear, continue the treatment as needed when crawlers and/or white cottony patches appear on pines.

Read and follow label specifications for better results.

A difficult-to-control weed

Problem: Every year, summer oxalis infestations present a serious problem in many lawns. We have used Killex in past years with poor results. Are there some effective chemicals to manage this problem? (Ontario, Canada)

Solution: Oxalis is considered one of the most difficult-to-control weeds. The Canadian Ministry of Agriculture and Food recommends repeated use of mixtures containing amine formulations of 2,4-D with mecoprop, dichloroprop and/or dicamba.

The Killex you mention is a mixture of this type. Unfortunately, reports indicate that Killex doesn't provide adequate control, and the ester formulations available in the United States may not be registered for use in Canada. The only choice you have is to mechanically remove the plants or use repeated applications of Killex, as needed.

Remember that these herbicides adversely affect the root systems of turfgrass also. Therefore, it is a good idea to spot-treat an area for specific oxalis problems rather than to treat the entire lawn.

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.



PHOTOGRAPHED AT BLACK WOLF RUN, KOHLER, WISCONSIN.

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'Right-sizing': worth the risk?

The key to effective money and resource management is vision, says this veteran county groundsman.

■ Jeff Bourne's landscaping budget was \$6 million in 1989, but just \$4 million last year—a cutback of 33 percent in three years. Thus, he had every reason to speak on "Doing More with Less" at the Professional Grounds Management Society's annual meeting last year.

"We're making priority selections about how we can do more with less," noted Bourne, who is maintenance chief for the Howard County (Md.) Department of Parks. "You have to create a situation to maintain a certain look, but you have to do it more effectively."

Bourne says that the popular term in business has been "down-sizing" to describe cutbacks in manpower and finances—but the proper term might be "right-sizing." That is, having the right number of people and other resources to adequately meet your goals.

"You need to establish a goal to describe what is acceptable," he notes, "then evaluate priorities

and decide to work with alternatives.

"You've got to get yourself and your staff thinking about these alternatives. You make selective decisions in a number of areas. And you've got to involve middle managers in making these decisions.

"Part of the decision-making process is defining function and creating lists of resources," he notes.

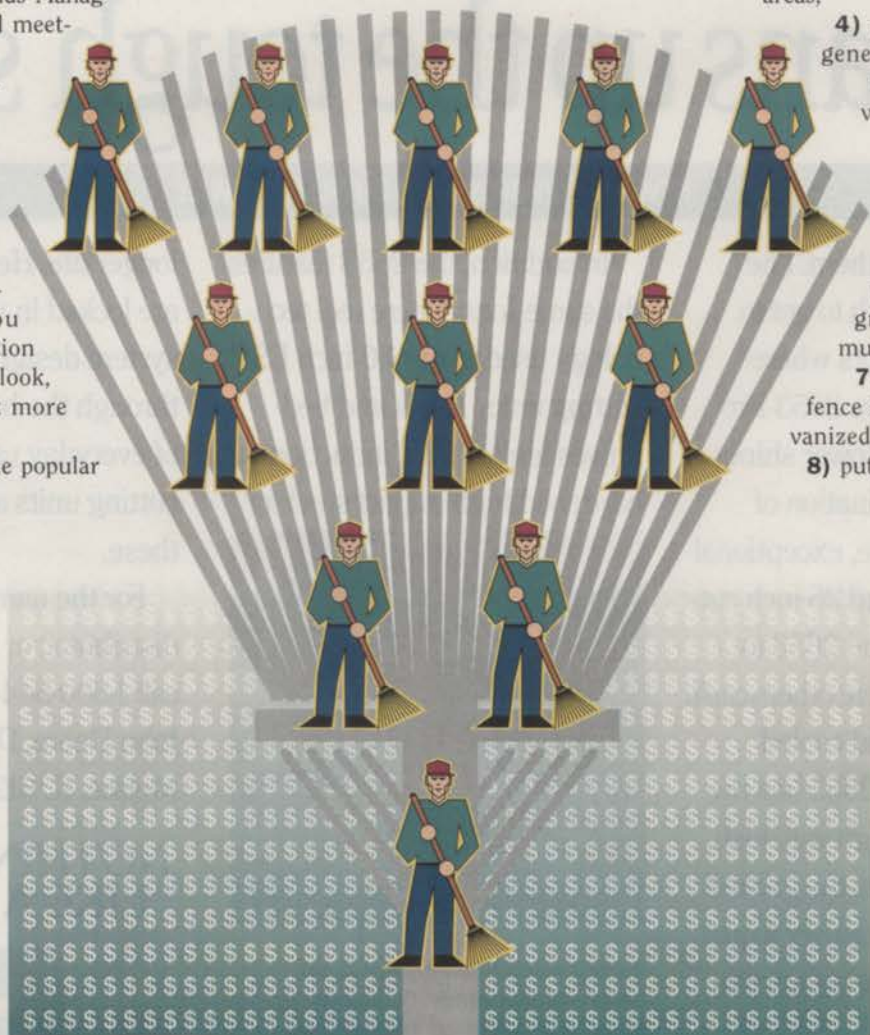
"The essential element is determining

your current costs and finding substitutes.

"The key to the whole thing is vision: seeing alternatives that we may have never seen before."

Here are some ways Bourne's department is doing more with less, with some additional suggestions added by his PGMS audience:

- 1) adapting a more natural look, thus decreasing maintenance demands;
- 2) collecting leaves less frequently;
- 3) renovating less turf in low-use areas;
- 4) renting pavilions to generate dollars;
- 5) letting secondary vegetation grow up to enhance wildlife areas in the parks;
- 6) getting single-shred pallets for free instead of purchasing mulch; using double-ground instead of bark mulch;
- 7) eliminating coated fence and going back to galvanized pipe fences;
- 8) putting an extra gallon of paint in athletic field striping mixes to get two additional weeks of stripe life;
- 9) alternative plantings in transition areas to eliminate mowing, which is the most expensive maintenance task;
- 10) re-designing and renovating areas that are expensive to maintain;
- 11) using larger mowers where feasible, and creating mowing strips;





Bourne: 'It's a whole new awakening for us in the public sector to be customer-driven.'

12) researching tasks: a video tape study cut mowing of one area from 1-3/4 days to 3-1/4 hours by using different equipment and crew configuration;

13) using the Boy Scouts to install paths as a community service (he suggests using condominium associations and neighborhood associations, too);

14) educating the customer or consumer as to what maintenance is appropriate; and

15) leasing land to local gardening enthusiasts so they can maintain it.

It may be a sad fact, but it's a fact of life indeed, that landscape management in the '90's will mean being more efficient and "doing more with less."

Using your imagination may help you not only survive, but thrive, in the decade of the '90's.

—Jerry Roche

'Flex-force' idea works for Delaware company

■ Larry Iorri was motivated to downsize his company eight years ago, when he realized it wasn't fun anymore.

President of Down to Earth, Inc. in Wilmington, Del., Iorri says he returned to the shop at the end of a day and noticed a number of things "out of place." He sensed a lack of appreciation from the crew, and realized he was spending a lot of time and effort and getting little in return. The business was doing well, but he was working as hard as he had been 20 years ago.

It was then that Iorri decided to downsize his company in a way that would keep it profitable and productive. The plan took five years to implement, during which time he:

- converted the eight full-time and 10 part-time work force into a part-time "flex-force," with one full-time supervisor;

- lowered the volume of work done by the in-house force;
- earned higher profit margins on each job, and was still able to maintain high quality work; and
- switched from two- to three-year contracts.

The flex-force is split into two wage divisions: a \$9- to \$14-per-hour force and one that is paid between \$4.50 and \$6 per hour. Clothing allotments are across the board.

Iorri is generous with salary increases in both wage brackets. "If I get somebody who's a great worker," he says, "I'm going to pay him well to show I appreciate him. Why should I try to save a couple thousand dollars a year by not giving (good raises)? That person ends up making me money, and I don't have to retrain him!"

Iorri's crew members are between 30 and 72 years old. They have one thing in common: strong motivation to work, primarily families.

"I realized that my best guys were always older, and had a lot of responsibilities," says Iorri.

Those of his crew who are not retired all hold full-time jobs, which takes care of their insurance and health care. There are no paid holidays for Iorri to worry about, and vacation pay is related to the number of hours each man works each week. For instance, an eight-hour-a-week employee gets eight hours of vacation pay. He pays less Social Security tax, less federal unemployment tax, and less liability insurance.

All employees benefit from the company profit-sharing plan.

Is it working? Iorri says he hasn't lost a man in eight years, and estimates that the entire crew has missed about five days

in eight years.

Iorri feels as if he has incorporated a genuine team approach, thanks to the crews' positive work ethic and flexible schedules.

'Satellite substitutes'—

These Iorri innovations are people who handle accounts with multiple locations—such as a bank or realty company—located at greater distances from the office. Iorri sets them up with the equipment, and they take it from there.

Iorri says he now has enough flexibility to sub-contract mowing, big mulching jobs, weeding and larger chemical applications. Size of job and geographic location are taken into consideration when choosing a sub-contractor.

His company handles lawn renovations, aeration, pre-emergence weed treatments, and athletic field jobs

A man who's bursting at the seams with ideas, Iorri has a few other tricks up his sleeve, designed to keep busy and promote the company:

- selling his services as a design consultant to homeowners, competitors and institutions such as hospitals;
- advertising "winter pricing" and off-season pricing to get customers locked in for the spring and summer;
- acting as a service broker. If a client wants a service done that Iorri can't handle, he'll do the legwork, secure a supplier for the service, and pocket a fair finder's fee (10 to 20 percent of the price of the job);
- acting as a third-party arbitrator in legal disputes; and
- concentrating on finding service niches that require one man and one piece of equipment.

Iorri suggests that the decision of whether or not to downsize depends on the stage your business is in. It might not work for a company just starting to grow, but could be just the ticket for an intermediate size company, or one whose owner is planning to retire soon.

—Terry McIver



Iorri: No health insurance costs with part-timers.

Discover The Bottom Line Advan



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Preemergent Herbicide.
It's tough against weeds,
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Weed control is top priority with PENDULUM™ WDG herbicide. It's highly effective against most annual grasses and many broadleaf weeds, stopping them dead in their tracks as they germinate.

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And when you get right down to it, PENDULUM costs less per treatment than Surflan¹ and other preemergents. The result? Top performance and a more beautiful bottom line.



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WDG herbicide

Good in beds.

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From soap to hot sauce, deer damage prevention gets creative

Landscape managers have to use their imaginations, a regularly changing combination of both taste and scent repellents, and fences.

■ Bambi, loved by millions of Americans, is becoming a landscape destroyer.

Bambi is the northern white-tailed deer. She nips off the soft tips of twigs, and munches branches and shoots no thicker than a match stick. Unfortunately, some of the plants she finds appetizing are valuable trees and plants in our landscapes.

The problem: too many deer.

Populations are at historically high levels in many areas of the country, particularly east of the Mississippi.

"The deer pressure is getting so high that the food source is getting very, very low," says Les Hulcoop, cooperative extension agent for Dutchess County, N.Y.

Unfortunately, as deer populations rise, deer habitat shrinks as people subdi-

vide prime deer browsing locations into suburban home sites and office parks.

It's no wonder that deer are increasingly invading landscapes. They're hungry.

Todd Mizen discovered this last April when, after a late-spring snow, deer chomped off all emerging tulips at the woodlot-encircled, three-acre office site he helps maintain just southwest of Cleveland.

Mizen, like other landscape managers, can't do much to keep it from happening again and again. These deer live in small woodlots surrounding the office, not in an area where they can be harvested during Ohio's brief deer season. Indeed, some of the office employees or neighbors probably wouldn't stand for it even if they could be taken.

"When you talk about deer, you're talking about a controversial subject," admits



Feeding by white-tailed deer distorted the shapes of these evergreens at the Holden Arboretum.

Hulcoop, who has been investigating the deer-repellent properties of the fertilizer Milorganite. "On one hand, people don't

continued on page 16



Todd Mizen sprays a homemade mixture, hoping that the deer in a nearby woodlot find it too 'hot' for their taste.

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Products to keep deer, landscapes apart

■ Just about any type of fence, provided it's at least eight feet high and there are no gaps in it, will keep deer from landscape plants. But fences look like fences..

A newer product on the market, **Benner's Deer Fence**, is a dark mesh polypropylene material that can be strung from tree to tree around a property or planting, and it's not as obtrusive, say users. Contact: Benner's Gardens Inc., P.O. Box 875, Bala-Cynwyd, PA 19004; phone (800) 753-4660.

Some popular taste or scent products used to repel deer from landscapes include:

- **Deer-Away**, Deer Away, 712 15th Ave., NE, Minneapolis, MN 55413.
- **Gustafson 42-S Thiram Fungicide and Repellent**, Gustafson Inc., P.O. Box 660065, Dallas, TX 75266.
- **Hinder**, Necessary Trading Company, 422 Salem Ave., New Castle, VA 24127.
- **Hot Sauce Animal Repellent**, Miller Chemical and Fertilizer Corporation, PO Box 333, Radio Road, Hanover, Pa 17331.
- **Milorganite**, 1101 N. Market St., Milwaukee, WI 53201-3049.
- **Ro-Pel**, Burlington Bio-Medical & Scientific Corp., 222 Sherwood Ave., Farmingdale, NY 11735.
- **Spotrete 75 WDG Turf Fungicide**, W.A. Cleary Chemical Corp., Southview Industrial Park, 178 Route 522, Suite A, Dayton, NJ 08810.

For an excellent overview of deer damage control, the pamphlet *Controlling Deer Damage in Wisconsin* by Scott Craven and Scott Hygnstrom is a good place to start. Write to Agricultural Bulletin, Room 245, 30 N. Murray St., Madison, WI 53717, or phone (608) 262-3346. There is a small charge for the pamphlet.

want to hurt them. On the other hand, they don't want deer damage."

Mizen tries to discourage deer from eating the *Taxus* near the entrance of his office site with a spray mixture of hot sauce, Wilt Pruf and water.

The spray may or may not work through the winter. He may have to re-apply it. He may have to try another type of repellent.

Most studies show that chemical repellents, even some homemade ones, are about 50 percent effective. That's probably a little bit better than the success rate for collecting human hair at a barber shop and spreading it around specific plants. Or hanging it in bags from branches. Or drilling holes in small bars of deodorant soap and hanging them on the branches of valuable plants. (Leave the wrapper on the soap, it lasts longer, says one landscape manager with deer control experience.)

Jim Mack, superintendent of grounds at Holden Arboretum in wooded northeast Ohio, fights an even bigger battle to protect trees and plants, some of them quite valuable, from deer. The 3,000-acre arboretum, besides being basically an outdoor tree museum, is also a game preserve.

The arboretum's staff protects its valuable trees and gardens with an assortment of fences and aviary netting. Some of the materials Holden Arboretum uses include electric fences around plant nurseries, welded wire fences around some free-standing trees, plastic fencing material in some wooded areas.

Mack acknowledges that fences protect trees and beds, but he questions whether homeowners would find them aesthetically pleasing. Fencing really doesn't solve the bigger deer problem anyway. They just deflect deer to another area, says Mack.

The solution, he believes, is for deer populations to be maintained at numbers that would be in balance with their avail-

able food source.

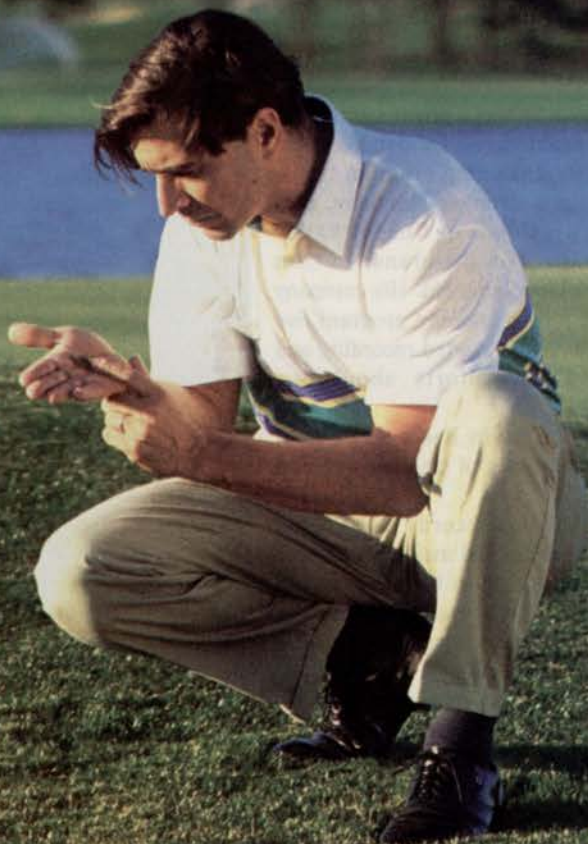
Beyond that, landscape managers will have to use their imaginations and, perhaps even, a regularly changing combination of both taste and scent repellents along with fences to keep deer from destroying and disfiguring trees and landscape plants, he says.

—Ron Hall



Jim Mack, at the Holden Arboretum, tends a wire mesh fence that keeps deer from this tree.

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BASF

Better training builds profits and sets standards for quality and safety

Maryland landscape firm discovers that company performance is tied directly to its employee training.

■ If you don't think you can reap real financial returns with your employee training program, think again, says J. Landon Reeve IV.



Reeve says a company-wide training program helps keep branch operations moving in the right direction.

A strong training program translates into a stronger company, says Reeve, president of Chapel Valley Landscape, a multi-branched firm based in Woodbine, Md. His company began a formal training program five years ago, and it started recording and tracking these efforts about four years ago.

Therein, claims Reeve, lies one of the cornerstones of training—record keeping.

The training records that Chapel Valley generates and maintains allow it to statistically gauge the effectiveness of its efforts. It actually matches the level of training its departments receive to their performance.

"The branches that are most productive and most profitable, did the most training," he says unhesitatingly.

Reeve maintains that a varied and well-thought-out program builds more self-reliant employees, employees that:

- ✓ produce more,
- ✓ have fewer accidents,
- ✓ maintain better morale, and
- ✓ are less apt to leave.

"You could see it just as clear as day," he says.

Initially, Chapel Valley's goal was to provide each employee 52 hours of formal training each year. However, the company's definition of training has since expanded to also include just about any extra or specialized knowledge an employee receives. That includes any employee, even managers.

Not too restrictive—"We don't try to write rules and regulations about what's training and what's not," says Reeve.

The company is, however, a stickler on recording and tracking its efforts. To get credit for the training, the employee must make sure it's recorded on the forms that the company makes available.

Actually, says Reeve, once employees see that training can help



Frank strengthened training because he didn't think new hires were getting the info or support they needed.



them with their own professional and personal goals, they become more responsive. That's one reason why his company refers to its training program as a Skills, Knowledge and Leadership Program.

David Frank, 34 years in the green industry, concurs that once employees understand that training can help them achieve their professional goals they're more likely to participate.

Let them do it—Participation is really what training is all about, says the president of David J. Frank Landscape Contractors, Germantown, Wis.

"We have to make training a participatory experience," says Frank. "We learn through our senses."

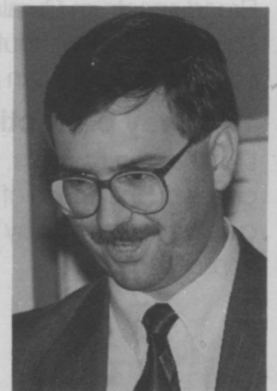
That's why he favors a mixed bag of training experiences, including question-and-answer sessions, hands-on demonstrations, and lots and lots of visuals. His company's video library contains about 350 titles.

"Probably the worst thing we can do is just stand up and lecture," he says.

Steve Leker, ISS Landscape, Tampa, Fla., suggests the following ingredients for a successful training experience:

- ✓ a comfortable location,
- ✓ willing employees,
- ✓ ample and appropriate training materials,
- ✓ a knowledgeable and enthusiastic trainer,
- ✓ a step-by-step approach to the material, and
- ✓ lots of repetition.

Says Leker: "If you can't find the time to train, you're not going to be able to find the time to correct the



Leker: show employees how to do something, then let them show you.

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The Ransomes 350D can. Because the engine is over the drive wheels, the 2-wheel drive Ransomes 350D is surefooted enough to tackle challenging terrain. For the ultimate in traction, there's the 4-wheel drive model that gives new meaning to the words rugged performer.
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The Ransomes 350D can. It offers 15.5 mph transport, while the Toro 450-D lags behind at 12.5 mph.
5. *Can the Toro 450-D mow in wet conditions without footprinting?*
The Ransomes 350D can. It doesn't leave its mark — even on wet ground. The 350D is designed to evenly distribute weight to reduce the ground pressure which causes footprinting.

* Toro[®] is a registered trademark of The Toro Company.

The Toro 450-D has met its match — and then some — in the Ransomes 350D. So go ahead. Ask your Toro dealer these five questions, and your next question will be: how soon can I get a Ransomes 350D?

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mistakes later on."

Setting standards—Bud Stephenson, owner of Caretaker Landscape Management, Inc. of Mesa, Ariz., and current president of the Arizona Landscape Contractors Association, recently began a training program in his maintenance-heavy company.

Initial training will be for crew leaders, and will show "how we want things done," says Stephenson. He says he realized the need to have some operational standards in place after six years in business, "before we get any bigger."

Continuity of work from one account to another is important in an industry where it's not uncommon to lose a contract to a lowballing competitor. The more professional and disciplined the crew, the better are your chances of retaining accounts from year to year.

Stephenson believes a good training program shows that the company cares about employee advancement. It also helps reduce or eliminate turnover.

Worker safety is part of the Caretaker program, which Stephenson has culled together from industry literature and videos, and some material offered by various suppliers.

Stephenson plans to videotape his own training program, custom-made for Caretaker personnel.

Leker, Frank and Reeve all spoke at the ALCA annual convention in Indianapolis this past November; Stephenson spoke from his office in Mesa, Ariz.

—Ron Hall, Terry McIver

Exchange programs provide peer group interaction

■ An interesting twist on employee training is the tried-and-true method of learning from others in your peer group. It's accomplished at the Chicago Botanic Garden through an exchange program.

Cindy Baker, director of education, says the program was started in 1989, "based on the premise that whenever two professionals meet, they have knowledge and experience to share with each other."

Participants in the program usually hail from area arboreta, zoological parks or universities, but just about any green industry professional is welcome.

"We invite (organizations and companies) to send their staff members here for two weeks, and so far 18 have participated."

According to Baker, having an opportunity to interact with someone from a different work environment is akin to re-learning or reinforcing some concepts and ideas that may have staled with time.

"And," adds Baker, "we find that people integrate new ideas into what they're already doing."

"The people who come to us wear many hats, so we try to specify what they do here. They spend two weeks in two different areas of horticulture."

The Chicago Botanic Garden staff is itself a group that's ready, willing and able to participate in continuing education. A recent poll by management revealed a need for training in basic "horticultural Spanish," and the classes were given soon thereafter.

—Terry McIver

Before you pick up your next pick-up

■ Dealers say emphatically that price is not as important as some other considerations when small businessmen purchase a pick-up truck.

"Service is probably number one to the buyer today," says John Kessen of Southwest Ford in Parma Heights, Ohio. "But service and trust run right together. It's important to the dealership that people come back again and again."

The overriding features that small businessmen look for in their trucks nowadays are, according to Kessen:

- 1) ruggedness, durability, "quality;" and
- 2) investment: how long it will retain a value.

Before you head to the showroom, try to picture how your new truck will fit into your overall operations over the next several years. Scratching out a list of jobs your new vehicle will perform will save time and confusion at the dealer.

"The first thing I want to know is how the truck is going to be used," notes

Landscape managers who run their trucks 'long and hard' need to be prepared before buying replacements.





Manhattan II helps smooth out the roughs at Inverness

Tom Walker on Endophyte:

"Using Manhattan II perennial ryegrass with endophytes gives me a biological alternative to managing chewing/ sucking insects. I have seen no damage from these insects, even though I have not applied insecticides. It makes good sense to work with nature whenever possible."

INVERNESS CLUB, TOLEDO — Superintendent Tom Walker chooses Manhattan II to overseed roughs at this prestigious club because of its wear resistance, quick establishment, dark green color and drought and disease tolerance. But Tom finds Manhattan II's big plus is *density*. Manhattan II actually produces more leaves per plant, an economy sometimes overlooked.

This increased basal tillering, coupled with Manhattan II's lower crown help 'heal' shallow divots by spreading laterally. This is why Manhattan II is used to overseed the range tees at Inverness, too.

Manhattan II was developed to take the abuses hard use areas demand, and look good while doing so. Give it a divot. Rough it up a bit. Manhattan II can take it. Just ask Tom Walker at Inverness Club.



Watch the 1993 PGA Championship from Inverness Club, August 12-15.

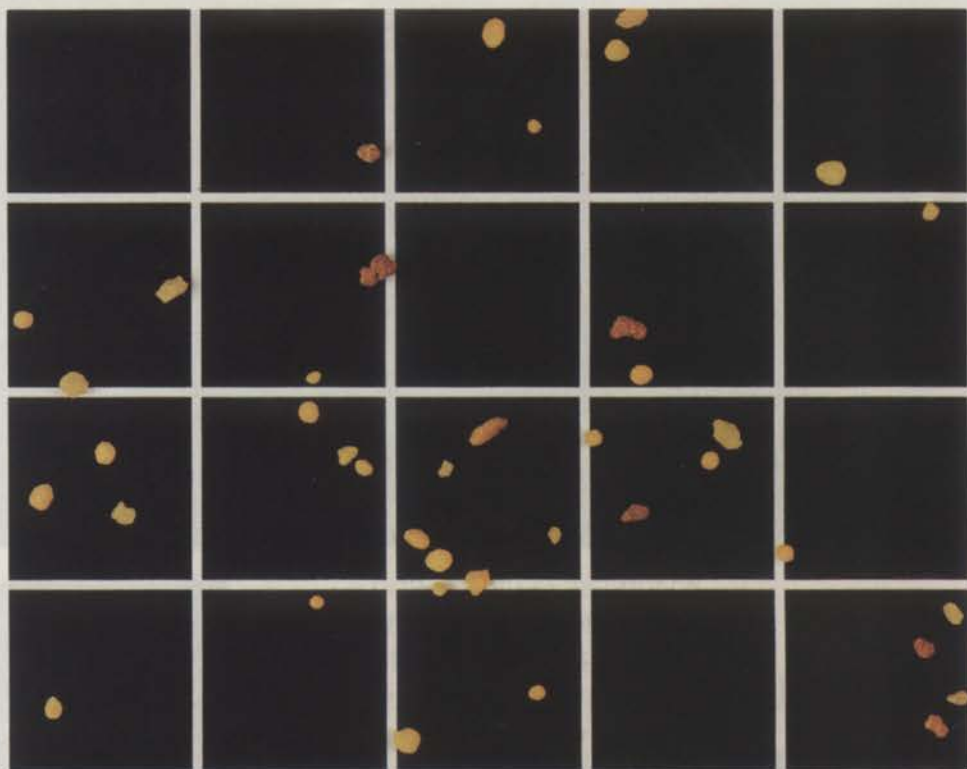
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Particle distribution pattern for typical blended product.

For maximum you need the finest par

SCOTTS fertilizer-based pendimethalin products are the most widely used preemergent combinations. And for three very fine reasons.

● The particles are smaller and more consistently sized than typical competitive physical blends, reducing segregation potential while providing up to 8 times the coverage per square inch. That better coverage means

fewer application breaks with more effective control of grassy and broadleaf weeds. Field tests show that poorly formulated combination products may sacrifice preemergent weed control by up to 15% or more.

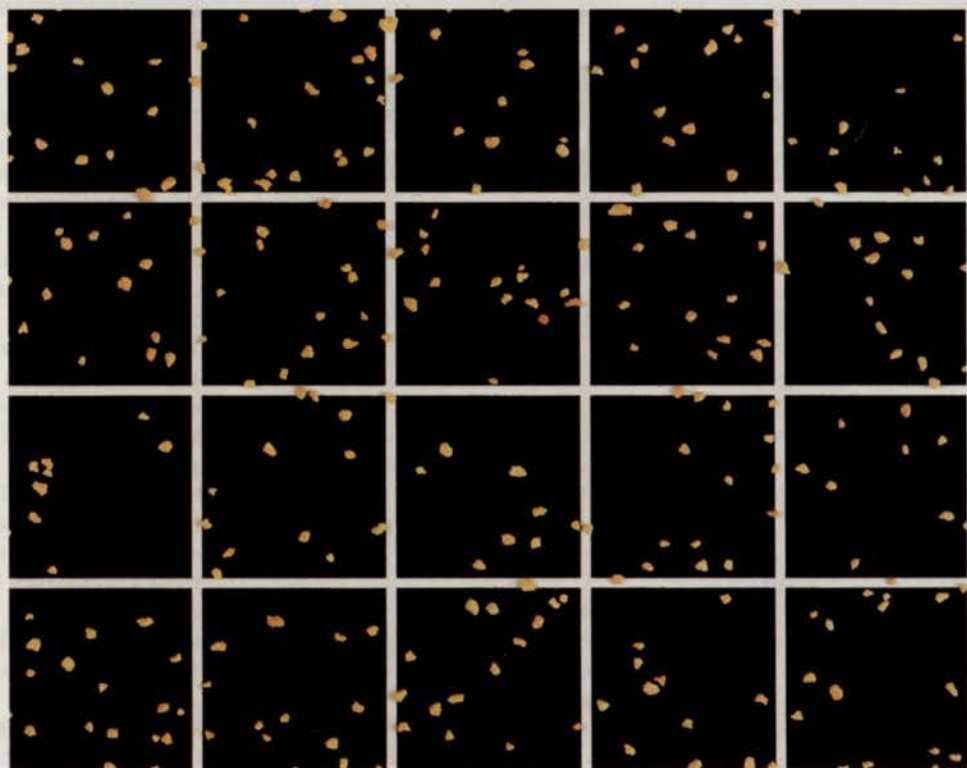
● No other preemergent herbicide can match pendimethalin's combination of broad spectrum weed control, control effectiveness and season-long performance.

Preemergent Control Comparison

	Crabgrass	Goosegrass	Foxtail	Poa Annua	Oxalis	Spurge	Henbit	Chickweed
pendimethalin	H	H	H	M	H	M	H	H
proflaminate (Barricade)*	H	M	H	M	NR	M	M	M
dithiopyr (Dimension)*	H	M	H	M	H	M	M	M

H - High M - Medium NR - Not registered (Based on Scotts/university data)

* Barricade and Dimension are trademarks of Sandoz Limited and Monsanto Company respectively.



Particle distribution pattern for SCOTTS[®] methylene urea fertilizer/pendimethalin product.

weed control, particles money can buy.

Season-long crabgrass control is just one consideration, and pendimethalin answers it. But pendimethalin also outperforms other preemergent herbicides on tough-to-control weeds like goosegrass and oxalis.

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Offering a broad line of different fertilizer/pendimethalin products, your SCOTT Tech Rep is ready to help you select the formulation that best meets your needs.

For more information, contact your SCOTT Tech Rep today. Or call 1-800-543-0006.



Pendimethalin Plus Fertilizer

'No-dicker' dealerships

■ No-dicker dealerships—where the sticker price is the only price—are catching on. They could revolutionize the way cars and trucks are sold, according to a new study.

The market research firm of J.D. Power & Associates of Agoura Hills, Calif. says new-vehicle dealers who skip the haggling are better liked and busier than traditional dealers.

Ninety-two percent of the dealers surveyed said their sales have increased since they adopted the system.

Among the differences customers like is avoiding the negotiation process with sales people while trying to sort through a maze of rebates and incentives, says Doris Ehlers, the J.D. Power account executive who conducted the study.

"We gave people the statement: 'I dread negotiations' and asked for a yes or no answer," she says. "Sixty-eight percent of the people answered yes." (The corollary: 32 percent of buyers don't mind haggling.)

No-negotiation car prices are like any other retail item: subject to frequent change. The J.D. Power study showed 33 percent of one-price dealerships changed prices as factory incentive programs changed, 29 percent changed based on inventory conditions, 14 percent changed weekly, 14 percent changed to sell more vehicles, and 10 percent changed every two or three days.

However, the J.D. Power study also showed that 54 percent of one-price dealers still haggle on trade-ins.

Kessen. Total miles per year, how many drivers, and what it will be hauling are key, he says.

"A lot of landscaping and lawn care companies are running their pick-ups long and hard," Kessen observes. "The length of service you get out of your vehicle depends on the number of drivers and amount of regular maintenance. I've had people destroy a truck in one year and others that get 150,000 miles or more."

Other considerations—Some other things to consider:

Size selection: Don't pick the truck that can handle those giant loads you haul three or four times a year. It's more economical to select the size suited to average loads, and then rent for the occasional large payloads.



Kessen: How are you going to use your pick-up?

Watch when you're comparing payloads to compare "apples to apples." Some manufacturers will give you the vehicle's payload capacity, others will give you Gross Vehicle Weight Rating

(GVWR). Here is how they compare: Payload equals GVWR (found on inside left door panel) minus Curb Weight (in manufacturer's specs) minus Passenger Weight (including driver).

Driving area: Suburban stop-and-go driving versus highway hauls makes a big difference when it comes to selecting transmissions, gear ratios and axle sizes.

Body type: The cheapest tailgate won't save you any money if it takes your crew longer to load the truck. Considering the cost of labor and workmen's compensation today, it may be more economical to spend more for an easy-loading model.

Simplicity: Are tilt-away steering columns and exotic engines really necessary? How much extra time and money will it cost to fix these items if they break down?

Ease of handling: Does the model make backing into driveways a major project? You want the truck that's wide enough for your loads, but not so big that it's a tricky ride down narrow streets.

Trade-in value: Unless you're into the habit of running them into the ground, some day your truck will end up on the market. Which models best retain their resale value?

Dealer reputation: The best "bargain" often isn't. What do other customers think of the dealer's service and reliability? He's the most crucial link between you and Detroit.

Lease or buy—Whether you choose to purchase the vehicle outright or lease it over a period of months will make a difference on your next income tax statement.

"Leasing programs have become more popular," notes Kessen, "mainly because, then, businesses know exactly what their program is. When leasing, though, annual mileage is a big factor."

Lease payments in a non-financing lease for equipment purchases are all deductible as they are paid or incurred, so cash outlays match expense deductions.

If purchased, however, equipment is generally depreciated over five years, regardless of the down payment amount. You are also usually allowed to deduct up to \$10,000 of the price in the first year. The remainder is conventionally depreciated like this: 1st year=20%; 2nd year=32%; 3rd year=19.2%; 4th year=11.52%; 5th year=11.52%; 6th year=5.76%.

—Jerry Roche

Accessory costs

■ Here is an approximation of what you can expect to pay for certain non-standard equipment:

Air conditioning	\$800
AM/FM stereo	\$300
Anti-sway bar	\$75
Auto trans. air cooler	\$100
Automatic transmission	\$800
Bed liners	\$250
Extended cab	\$800-\$1700
Heavy duty shocks	\$100
Larger engine	\$300 and up
Limited-slip rear axle	\$200
Upholstery & trim	\$1,100

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New standard features.

The 1672D & 1684D now come equipped with on-demand, all-wheel drive and power backlapping standard for the ultimate in triplex performance and



value, and the Tri-Kings' wide stance, lightweight design treads softly on delicate turf.

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HANG TEN

Balance nutrients for early fertilization

Organics, 'bridge products' and coated fertilizers now offer more choices.

by Tony Koski, Ph.D.
Colorado State University

■ Late-season fertilization is common in most cool-season turf programs, and even in some warm-season programs. However, quality turf cannot be sustained without some kind of early-season fertilization.

Certainly, applying too much N in spring causes more mowings and increases the likelihood of turf diseases. Concerns about the potential for water contamination via run-off and leaching force us to more closely consider N sources, application rates, and in which situations we should—or should not—be using that fertilizer.

Stimulate color, not growth—This is a good rule-of-thumb for the average turf that is not subjected to intensive wear. On a heavily-used soccer field, however, N must be applied more frequently to stimulate the growth that promotes better wear

tolerance and speeds recovery from intense foot traffic. Common sense must be used in determining frequency and amount of fertilizer to apply. The proper amount will vary with species, desired quality level, and what the turf is used for.

Some turf managers rely on residual activity of fertilizer sources to carry them from one application to the next.

In Table 1, note that those fertilizers which promote rapid greening possess short residual activity, and that the potential for fertilizer burn is higher with these quickly-available sources. On the other hand, the quickly-available N sources are less affected by temperature and are less expensive per pound.

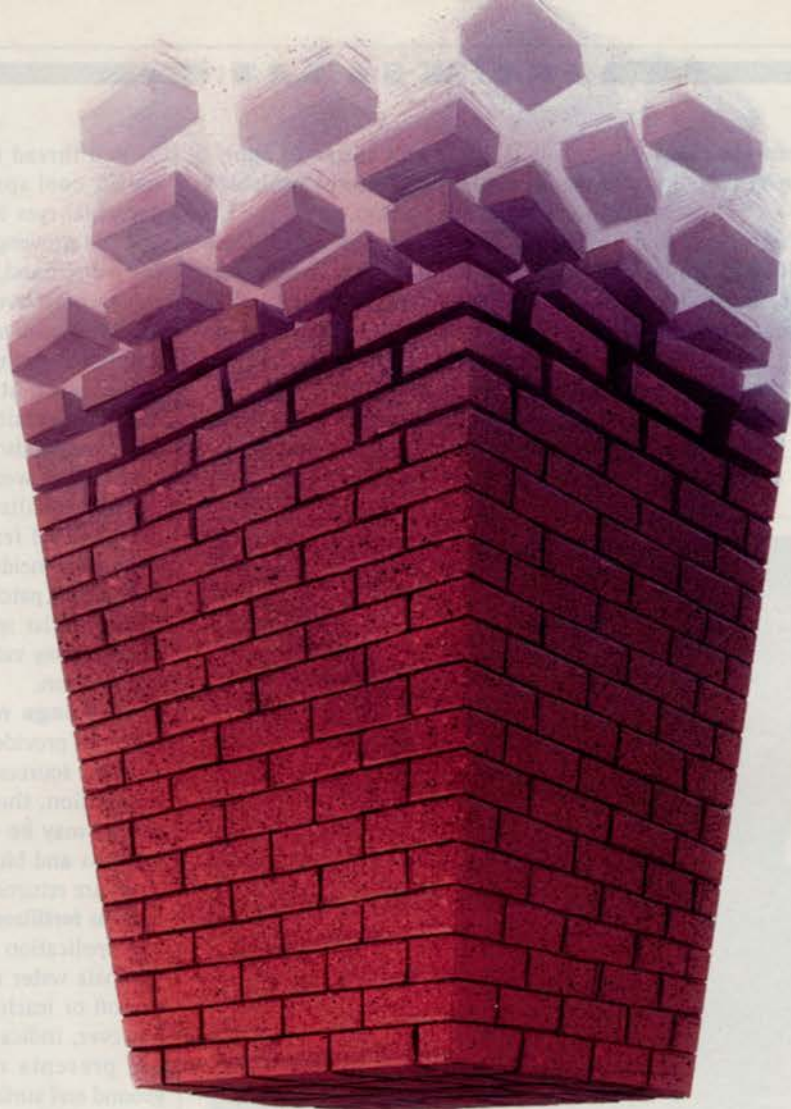
Slowly-available N fertilizers provide more even feeding and longer residual activity than fertilizers like urea or ammonium sulfate. However, some slow-

TABLE 1
CHARACTERISTICS OF NITROGEN FERTILIZERS

Fertilizer name	Analysis	Source of N	Moisture dependence	Low temperature response	Residual N activity	Salt index (per N unit)	Leaching potential
Quickly-available N fertilizers							
Ammonium nitrate	33-0-0	ammonium nitrate	minimum	rapid	4-6 weeks	3.2	high
Ammonium sulfate	21-0-0	ammonium sulfate	minimum	rapid	4-6 weeks	3.3	high
Ammonium phosphate	18-46-0	diammonium phosphate	minimum	rapid	4-6 weeks	1.6	high
Urea	46-0-0	urea	minimum	rapid	4-6 weeks	1.6	moderate
Slowly-available N fertilizers							
Slow-release sources							
Sulfur-coated urea	22-38% N	urea	moderate	mod. rapid	10-15 weeks	NA	low
Once	24-35% N	urea, nitrate, amon. N	moderate	mod. rapid	15-36 weeks	NA	low
Polyon	11-44% N	urea, potassium nitrate	moderate	medium	4-12 weeks	NA	low
Scotts Poly-S products	16-40% N	urea, methylene urea	moderate	medium	12-24 weeks	NA	low
Slow-soluble sources							
IBDU	31-0-0	isobutylidene diurea	high	mod. rapid	10-16 weeks	0.2	mod.-low
Ureaform reaction fertilizers							
Nitroform	38-0-0	ureaformaldehyde	high	slow	10-30 weeks+	0.3	very low
Fluf	18-0-0	urea/ureaformaldehyde	moderate	medium	6-10 weeks	NA	low
Nutralene	40-0-0	methylene ureas	moderate	medium	10-16 weeks	NA	low
Methylene urea	39-0-0	methylene ureas	moderate	medium	7-9 weeks	0.7	low
Coron	28-0-0	urea/methylene ureas	minimal	mod. rapid	7-9 weeks	NA	moderate
N-Sure	28-0-0	triazone/urea sol.	minimal	mod. rapid	6-9 weeks	NA	moderate
Natural organic fertilizers							
Ringer	6-1-3	blood, bone, seed meals	high	medium	10-12 weeks	0.7	low
Sustane	5-2-4	composted turkey waste	high	medium	10-12 weeks	0.7	low
Milorganite, Terrene	5-6% N	activated sludge	high	slow	10-12 weeks	0.7	low

Inclusion of products does not imply endorsement, nor does exclusion imply criticism.

Source: Dr. Koski



...And it's low-dust, too.

Now the powerful turf insecticide that lets you lower the boom on damaging grubs comes in an even more convenient, low-dust formulation. Introducing new CHIPCO® MOCAP® brand 10G pesticide.

CHIPCO® MOCAP® brand 10G works fast to knock out subsurface insects before they can inflict damage. Then, its broad-spectrum activity goes after surface feeders like chinch bugs and the larval stages of sod

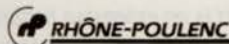
webworms and billbugs. And, applied at the nematicide rate, CHIPCO® MOCAP® is one of the most effective nematicides you can buy.

Best of all, you now get all this time-proven turf pest control in an easier-handling, low-dust formulation. CHIPCO® MOCAP® brand 10G pesticide. Available from your turfcare chemicals supplier today.

New Low-Dust Formulation

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ly-available fertilizers may provide a slow initial green-up, especially under cool, dry spring conditions.

Slow response can be offset with high rates (1.5 to 2 lbs. actual N/1000 sq. ft.) of the slowly-available sources, as is often done with straight ureaform and natural organics.

This is one of those rare instances in which more than 1 lb. of N/1000 sq. ft. can be safely applied. Unless you wish to adhere to a strictly natural organic pro-

gram, it is wiser and easier to apply a blend of quickly- and slowly-available N sources in the early season.

The resin-coated product called "Once" allows you to fertilize once in the spring and yet provide even greening throughout the growing season. This fertilizer has performed impressively in three years of testing at Colorado State University.

Disease control—Over- or under-fertilization, especially in the spring, can result in turfgrass disease problems.

Red thread can be a problem during moist, cool springs on fine fescue and perennial ryegrasses if they are under-fertilized and not growing at a satisfactory rate. On the other hand, diseases like stripe smut can become severe if susceptible Kentucky bluegrass cultivars get too much fertilizer during the spring.

Research at Cornell University and other universities shows that nitrogen sources may also help suppress certain diseases. That work suggests that natural organic fertilizers and composts, when used as turf fertilizers, can sometimes reduce the incidence or severity of diseases like brown patch, necrotic ring spot, red thread, dollar spot and pythium root rot. Success may vary depending on fertilizer and location.

Clippings return nutrients—Grass clippings provide legitimate and important nutrient sources when returned to lawns. In addition, the severity of rust and red thread may be dramatically reduced on ryegrass and bluegrass lawns where clippings are returned.

Use fertilizer responsibly—Any fertilizer application has the potential to contaminate water resources through surface run-off or leaching. Continuing research, however, indicates that careful fertilizer use presents negligible risk to most ground and surface water sources.

Using water-soluble fertilizers on sandy soils with high precipitation or irrigation rates greatly increases the potential for groundwater contamination.

Run-off from turf sites probably presents little hazard to water quality. However, sloppy application of fertilizer onto hard surfaces like driveways and streets will obviously present a problem when that fertilizer (which often is a pesticide carrier) is carried into storm drains with precipitation.

The responsible applicator will guard against this altogether, or clean up any mistakes by sweeping up the mis-applied material.

Benefits of other nutrients—Remember to test for and maintain adequate potassium levels for your soil type. Research shows that potassium can be an important enhancer of wear, heat and drought stress on both cool- and warm-season species. Try reducing the amount of N you use by making iron a more important part of your standard fertility program.

—Dr. Koski is an extension turfgrass specialist at Colorado State University's Department of Horticulture.

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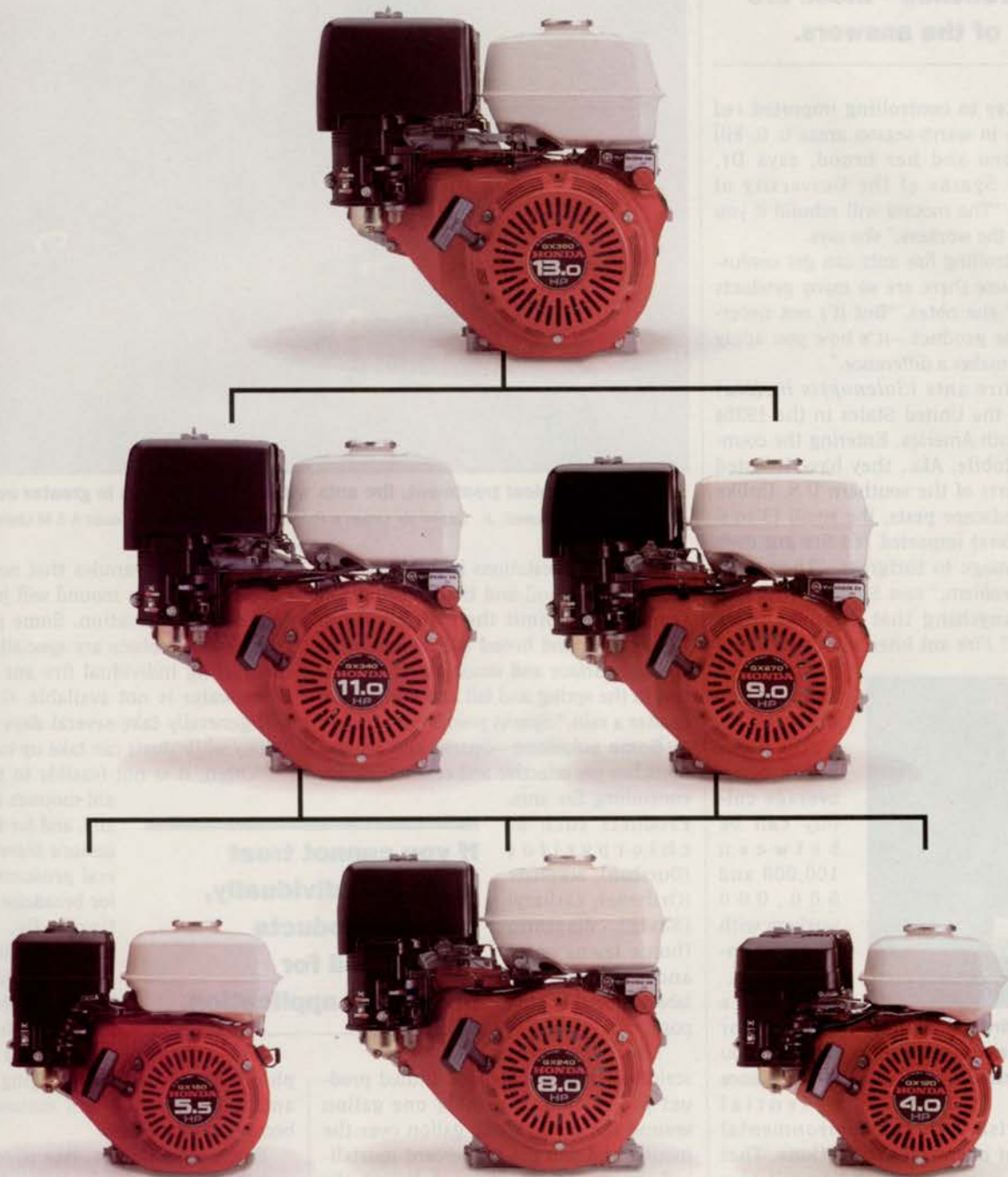
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Controlling fire ants in the South

Baits, dusts, broadcast sprays, mound injections and drenches—these are some of the answers.

■ The key to controlling imported red fire ants in warm-season areas is to kill the queen and her brood, says Dr. Beverly Sparks of the University of Georgia. "The mound will rebuild if you only kill the workers," she says.

"Controlling fire ants can get confusing because there are so many products labeled," she notes. "But it's not necessarily the product—it's how you apply it—that makes a difference."

Red fire ants (*Solenopsis invicta*) came to the United States in the 1930s from South America. Entering the country in Mobile, Ala., they have infested many parts of the southern U.S. Unlike most landscape pests, the small (3 to 6 millimeters) imported red fire ant does little damage to turfgrass. "They are a people problem," says Sparks. "They will attack anything that disturbs their mounds." Fire ant bites will cause white pustules to form on humans.



Sparks: fire ant control a long term program, over months.

health risk with the environmental impact of chemical applications. That decided, you must then commit to a long-term program.

You can temporarily control fire ants with chemicals. However, if you stop treatment, the fire ants will probably re-infest the area, perhaps at levels exceeding the original infestation.

One of the key principles in control-

ling fire ant infestations is that they tend to seek warm soil and that freezing soil temperatures limit their distribution. "The queen and brood will be closer to the soil surface and much easier to control in the spring and fall and immediately after a rain," Sparks points out.

Some solutions—Sparks says mound drenches are effective and economical for controlling fire ants.

Products such as chlorpyrifos (Dursban), acephate (Orthene), carbaryl (Sevin), diazinon (home lawns only) and others are labeled for this purpose.

The basic prescription is two gallons of diluted product per mound. "Sprinkle one gallon around the mound, one gallon over the mound and you get 90 percent mortality," she points out. "Do not disturb the mound before application, though."



After first chemical treatment, fire ants will re-infest an area in greater numbers.

Photo by Harry N. Howell, Jr., Center for Urban & Public Health Entomology, Texas A & M University.

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The main drawback to drenches is that they kill by contact and may require several days to be effective.

Granular products and dusts can also be used. Bendiocarb (Turcam), chlorpyrifos and diazinon (home lawns) are also

formulated as granules that need to be watered in, or the mound will just move to a different location. Some products containing acephate are specially labeled for dusting individual fire ant mounds when water is not available. Granulars will generally take several days to kill a colony while dusts can take up to a week.

"Often, it is not feasible to treat fire

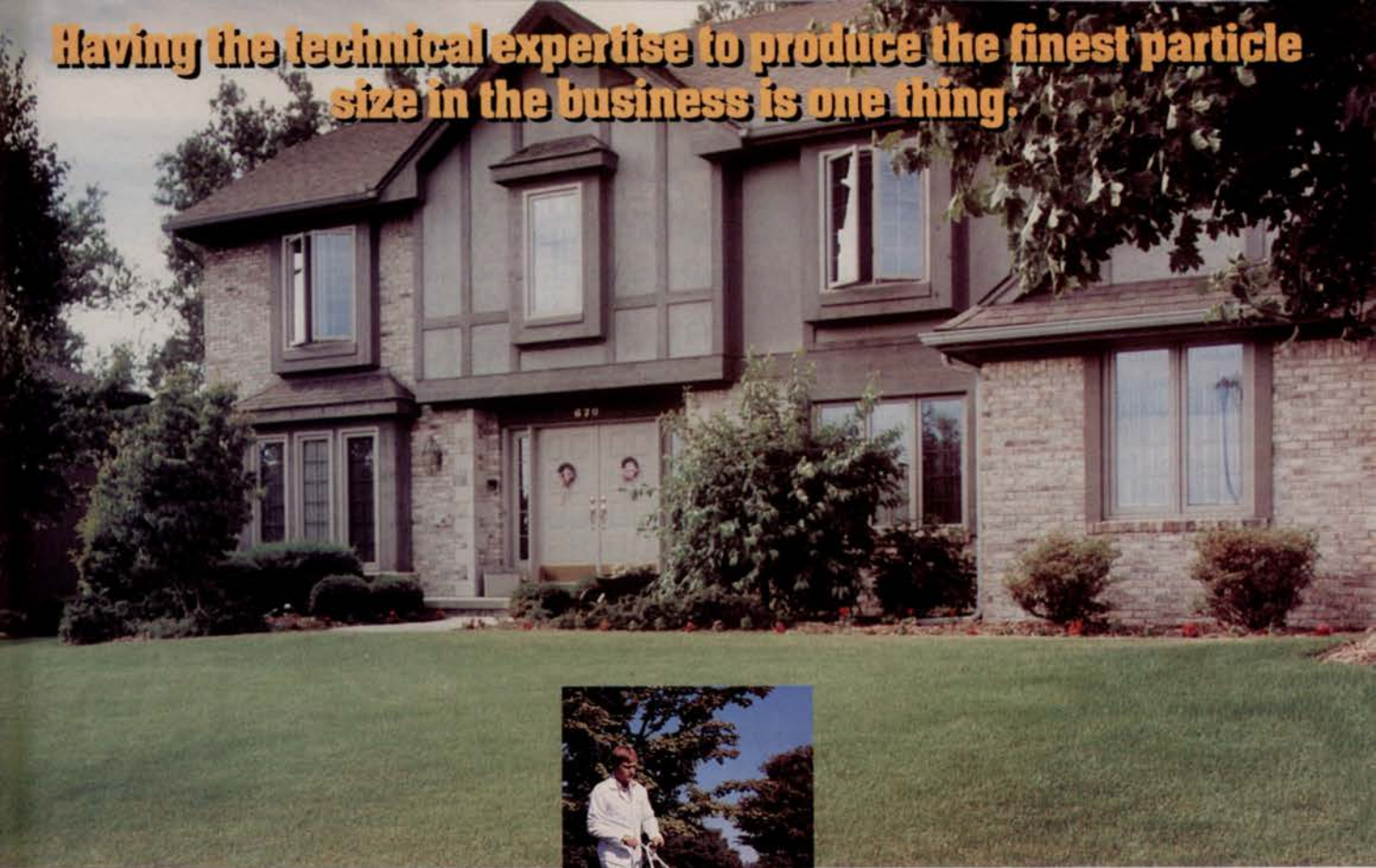
ant mounds individually, and for these situations there are several products labeled for broadcast application," Dr. Sparks notes. She lists granular or liquid formulations of chlorpyrifos, isazophos (Triumph) and isofenphos (Oftanol) to kill foraging worker ants and prevent small mounds from becoming established.

Some insecticides, like pyrethroids and chlorpyrifos, can be injected directly into the mounds. "However, at \$1 to \$1.50 per mound, this is a very expensive control procedure," Dr. Sparks says.

Liquid fumigants—methyl chloroform (MC96) in particular—have also proven effective. One to two ounces of the liquid poured into the mound rapidly

If you cannot treat mounds individually, several products are labeled for broadcast application.

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changes into a deadly gas that kills the fire ants within a matter of seconds. "This method is good on athletic fields and places where you're concerned with pesticide residues," notes Sparks.

Baits for the long haul—Baits can also be used as a two-pronged solution to fire ant infestations: (1) broadcast at 1 to 1.5 lbs./acre, and then, two to three days later, (2) follow with an individual mound treatment. Some products labeled as fire ant baits are hydromethy-lon (Amdro), fenoxycarb (Award, formerly Logic) and Bushwacker.

"In situations where immediate control is needed, I do not recommend baits," Dr. Sparks admits. "However, baits work well as broadcast treatments for control over a long period of time."

According to a University of Georgia extension booklet authored by Sparks, to achieve satisfactory results with baits, you should:

a) use fresh bait, preferably from an unopened container or one that has been tightly resealed and not stored for more than two years;

b) apply when the ground and grass are dry and no rain is expected for 24

hours;

c) apply in late afternoon or early evening when worker ants are actively foraging for food; and

d) treat individual mounds by sprinkling the recommended amount of product up to three feet away, but not on top of an undisturbed mound.

Treatment options

■ **For small areas of turf, or where preservation of native ants is desired:**

- 1) Treat unwanted fire ant mounds using the individual mound treatment of choice.
- 2) Selectively treat new or undesirable mounds as needed.

■ **For long-term suppression of ants in turf and non-agricultural lands:**

- 1) Make an annual or semi-annual broadcast application of bait formulated insecticide in the spring and/or fall.
- 2) At least two days after broadcasting the bait, begin treating individual mounds in sensitive or high traffic areas using the individual mound treatment of choice.

■ **To eliminate all mound building and foraging activity in turf:**

- 1) Make an annual or a semi-annual broadcast application of a bait formulated insecticide in areas where there are fire ant mounds; or treat individually.
- 2) Routinely broadcast or spray a contact insecticide every eight weeks or when new ants are detected.

"Baits take several weeks to six months to be effective," says Dr. Sparks. With a second bait application in the fall and annual treatments, you get 90 percent control for \$15 to \$20 per acre per year. "If you do get on this regime," she adds, "you need to stay on it."

—Jerry Roche

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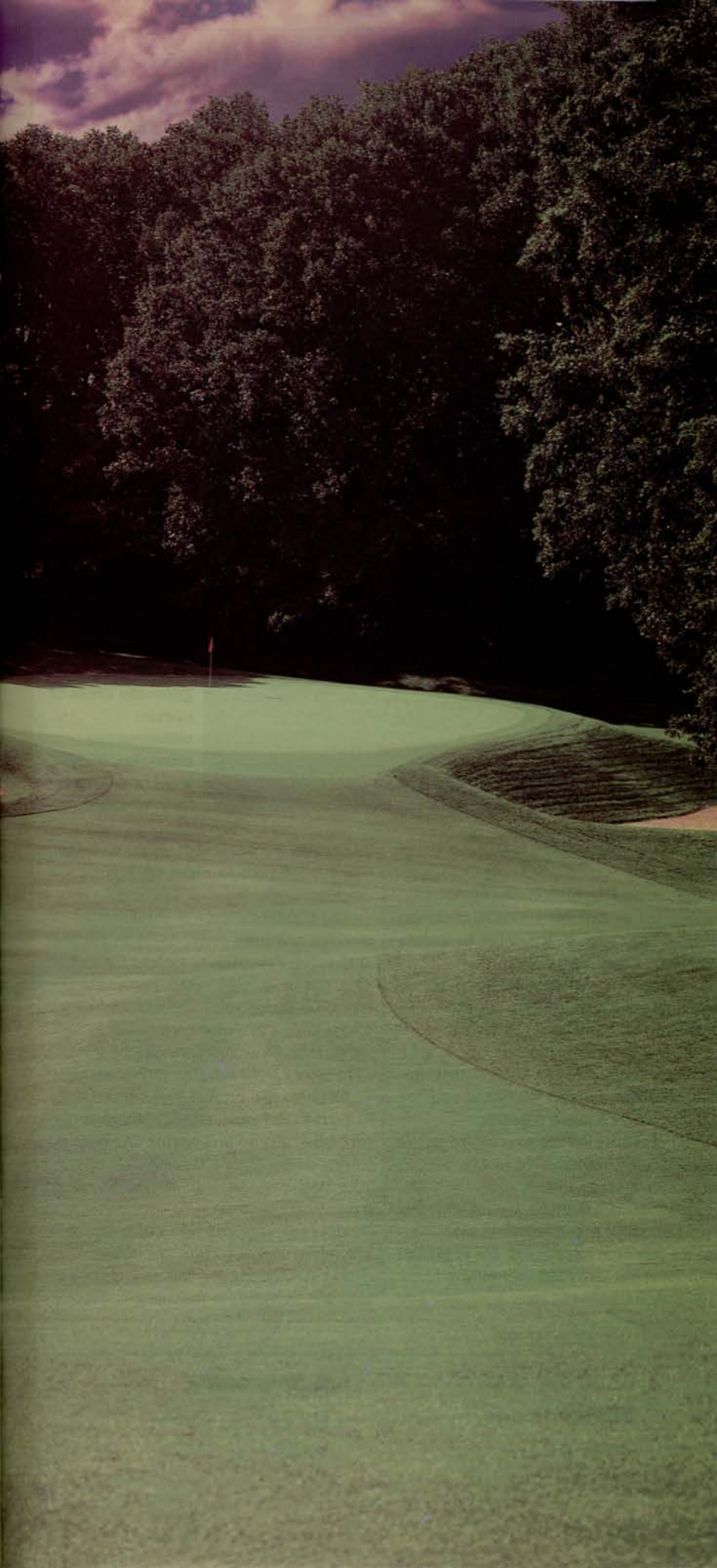
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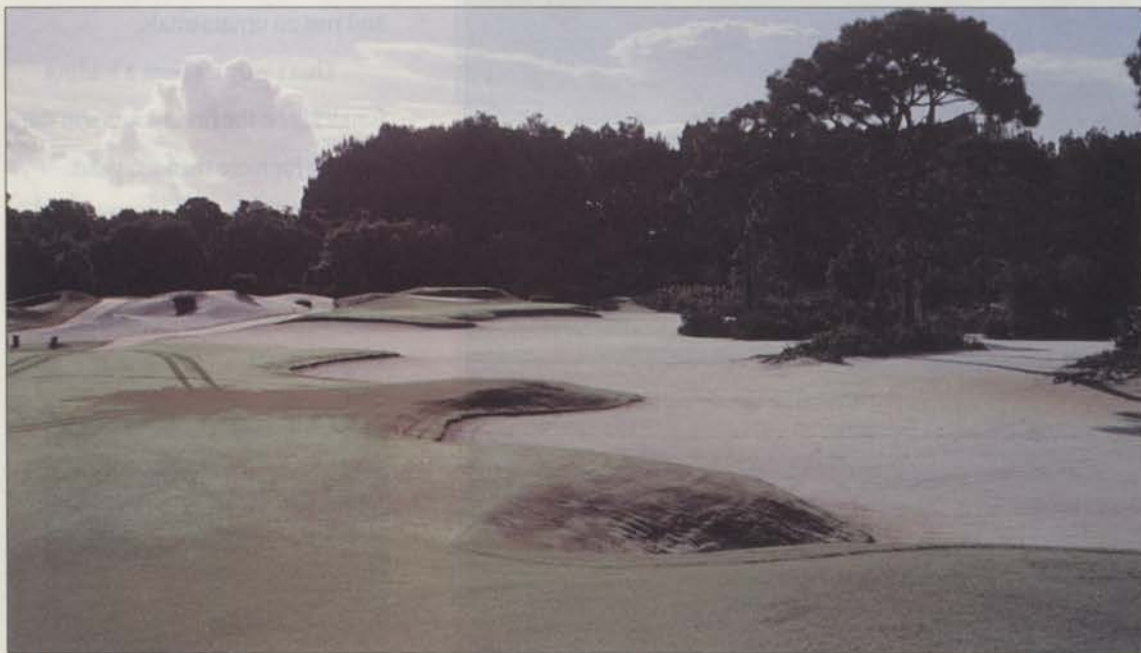
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The art of bunker maintenance



Sand bunkers come in all shapes and sizes: large and small, regular and irregular. But they are generally areas of special maintenance attention, if you want your course looking sharp.

Nothing shows your course off better than clean, sharp lines in a well-raked bunker.

■ A "hazard" is any bunker, water hazard or lateral water hazard, say the Rules of Golf.

By definition, a bunker is an area of bare ground, often a depression, which is usually covered with sand. Grass-covered ground bordering or within a bunker is not part of the hazard. So that settles the issue of "TV grass bunkers." TV announcers and architects take note: no such animal exists.

Since bunkers have no stakes or lines, the margin must be defined by the separation of turf and sand. That's why bunkers require so much edging and raking. Sand and turf must be kept separate. Sand raked onto the turf makes it impossible for the

player to determine if the ball lies in or out of the hazard.

Those maintaining bunkers must (1) provide the golfer with a consistent playing surface, and (2) allow the golfer to make a fair ruling in playing the shot.

Raking—Various methods and intervals are employed for raking bunkers, depending on budget, time and labor constraints.

(1) Hand—This is the best way to get a consistent surface and lie but it's labor- and time-intensive. Courses that hand rake are usually on a continuous schedule.

(2) Machine—This procedure is the quickest and cheapest. One or two persons can do the average 18-hole course in a day. The trade-off is a bumpier surface with tool marks that may trap a ball. Also, maneuvering the machine too close to the edges can break down the banks and spill sand onto the turf. Budgets may only allow this procedure

three times per week—but always on Friday. Use a hand rake to clean up behind the machine.

(3) Combination—A combination of machine and hand seems to be an effective alternative. The machine loosens the surface so it can be quickly raked. Hand-rake the edges. Let the operator continue around the course with a two-man crew following with hand rakes. This procedure may be restricted to twice a week and after each heavy rain.

Edging—No bunker looks maintained without some regular edging. Otherwise, the turf will close in and shrink the bunker, leaving an unsightly and unplayable margin. Your budget will tell you how much you can do.

How you edge and how much you edge will, again, depend on time and budget:

(1) Rotary edger—This is a quick and easy way to maintain the margins followed

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continued from page 36

by hand-raking the trash left in the bunker. However, this method leaves the raw edge exposed unless the sand is brought to turf level, eliminating the desired lip. Require the operator to wear goggles.

(2) **String trimmer**—It does a fair job in the hands of a good operator, but it's difficult to maintain a clean and straight edge. It also leaves the turf with ragged edges. Hand rakes are needed to remove the trash in the bunker after this operation. Require your string trimmer operator to wear goggles.

(3) **Hand edging**—The preferred method, by far, because pulling the runners that protrude leaves the turf with a groomed look and lets it drape over the edge. Also, it's easier to draw the sand under this drape and leave a good margin. This procedure is also labor-intensive and adapted to higher-budgeted courses. Normally, this is done at each raking to maintain the groomed look.

Regardless of the method, rhizomes

growing into the sand must be removed periodically. This takes the time-honored method of reaching into the sand four to six inches and pulling out the rhizomes. Left unattended, the bunker will close in and be unsightly. How often this needs attention depends on the species and season.

Drainage—The most vexing problem facing the superintendent in bunker maintenance is drainage. The three types of drainage designed into a bunker are: (1) internal; (2) surface; and (3) no drainage. The first, installed properly, gives the most lasting results. The second method starts out as a problem and gets progressively worse. The third requires your attention, today.

Drains must be kept open at all times; you never know when the next rain will hit. Following a heavy rain, water will percolate through the sand slowly, leaving a film of silt on the surface. The most important part of restoring your bunker is removing this layer. Skim it into piles and get it out before

any raking, as you will contaminate the entire bunker.

Surface-drained bunkers will wash the sand onto the turf at the lower end (usually in front of the green) following a rain. This means shoveling the material off the surface and brushing the residual into the turf. The only permanent solution is to install drains in the bunker and carry the water away from the playing ground.

Not having any drainage may or may not present an immediate problem, particularly if you have no sand in the bunker. That is not uncommon on many restricted budget courses. However, if you wish to provide a better playing surface in your bunkers, they will need some form of drainage. We shall discuss this next month.

—The author of this article, Al Frenette, CGCS, passed away in September, 1992. It originally appeared in "Through the Green," the publication of the Georgia Golf Course Superintendents Association, and is used with their permission.

On the cutting edge of bio-tech

New biological concepts and technologies will help golf course superintendents meet the future demand for quality trees, shrubs and herbaceous plants.

by Douglas J. Chapman,
Dow Gardens

■ Trees, shrubs and bedding plants provide interest and color, often the difference between an average and an exciting golf course. To better develop the course while not increasing maintenance, a superintendent should be aware of biological concepts that affect the type of tree, shrub and herbaceous perennial to be planted.

Some of these concepts are:

- native plant adaption to high and/or low temperature,
- photo-period's impact on vegetative and reproductive growth,
- disease-resistant cultivars, and
- unique pheno types (growth habits).

Provenance is adaptation of plants to regional environmental conditions. As many golf course superintendents know, *Acer rubrum* is native from northern Michigan to



Spirea blumalda

northern Florida. But northern Michigan red maples will not survive high temperatures south of Kentucky. Conversely, southern ecotypes will not survive low northern temperatures.

Further, as one moves north, native trees within the same species (plants in general) exhibit provenance by being more photo-periodic responsive (responsive to day length). Two results of this photo-periodic response are the beginning of abscission (dormancy) and hardening off (low temperature tolerance).

Photo-periodism was first discovered by Garnard and Allard in the late 1920s. Their basic research showed that some plants initiate a reproduction cycle by virtue of day length—like chrysanthemum, short days. As photo period was more extensively researched, it was shown that juvenile



Acer rubrum 'Northwoods.'

plants native to northern latitudes are more day-length responsive. When grown under continuous light, the plants remain vegetative. Some plants, like Japanese maple, Blumalda spirea, and paper birch can grow to at least three times their normal annual height in 12 months. The plant remains continually vegetative until it is allowed to go dormant by shutting off the supplemental light.

Using this technique, one can accelerate growth of many northern plants propagated by tissue culture, cuttage and/or seedage which dramatically reduces the time needed to produce landscape-effective conifers, birch and northern woody ornamentals.

Northern genotypes can be selected for unique habits of growth, fall color, etc. while being extremely low temperature hardy. Ecologists have shown that native

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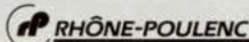
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maples in continental climates like Minnesota, North Dakota and South Dakota are taxonomically the same species as found in the Great Lakes region, but more xerophytic (can survive in droughty conditions).

These regional cultivars will be selected for local environmental tolerances, disease resistance, or adaption to extreme temperature variation found in the Dakotas and downtown sites. These regional cultivars should result in better plants with decreased maintenance requirements.

The University of Minnesota has embarked on a selection and hybridization program to introduce northern continental hardy trees, shrubs and herbaceous perennials.



Malus sugartyme

Some products of this program are 'Northern Lights' azaleas, 'Northwoods' red maple, and early-flowering hardy chrysanthemums.

Golf course superintendents will have the opportunity to landscape their courses with plants that are resistant to disease (such as apple scab), cold temperature hardy trees like *Acer rubrum* 'Northwoods,' salt tolerant sugar maples like 'Green Mountain,' and adapted shrubs like 'Dakota Sunrise' potentilla. Further, these tailored plants will assist management of the course and improve the overall ambience.

—Douglas J. Chapman is horticulturist-director of Dow Gardens, Midland, Mich.

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WHAT'S NEW IN COURSE MAINTENANCE

Supers' contributions requested

CHELSEA, Mich.—Dr. Trey Rogers of Michigan State University is soliciting contributions from golf course superintendents for his "Superintendents' Handbook for Golf Course Maintenance and Construction."

The book will be edited by Rogers and be published by Lewis Publishers. It will consist of a "cookbook" format with chapters divided into putting greens, fairways, roughs, wildlife management, equipment, IPM and more.

Each chapter will consist of contributions detailing techniques that superintendents have successfully used at their courses. Contributions should be one to five pages in length, and include photos.

For more information and/or to receive a contribution packet, please write: "Handbook for Superintendents," P.O. Box 799, Okemos, MI 48805.

'Menacing threat' to golf courses?

SAN FRANCISCO—Golf course architect Robert Trent Jones Jr. sees the nation's financial instability as playing a large role in

the downturn in golf course development. But, according to his "Reading the Green" newsletter, Jones sees a much larger "menacing threat" to golf development in the U.S.

"The major concern to our industry is the so-called 'environmental movement,' which has targeted golf courses for capital punishment," he writes.

"These folks...have become a part of the golf course permit approval process at every level of government, from the local planning commission to the Supreme Court.

"Their familiar refrain is that the golf course is a good idea, it is just in the wrong place. The fact is, they don't like golf courses anywhere...they just don't like the game. They see it as an elitist pastime. It occupies too much space; it takes too long to play; it is not the people's game."

Jones feels the answer to these people is for those who love the game to step forward and "shout loudly that golf is the absolute preservation of open space" and has more environmental benefits than drawbacks.

"Let's join together and actually sell the game to those who make land use decisions. Loud and clear, let's let them know that our vote is for open space, greenbelts, wetlands, animals...birds...and wholesome fun and exercise."

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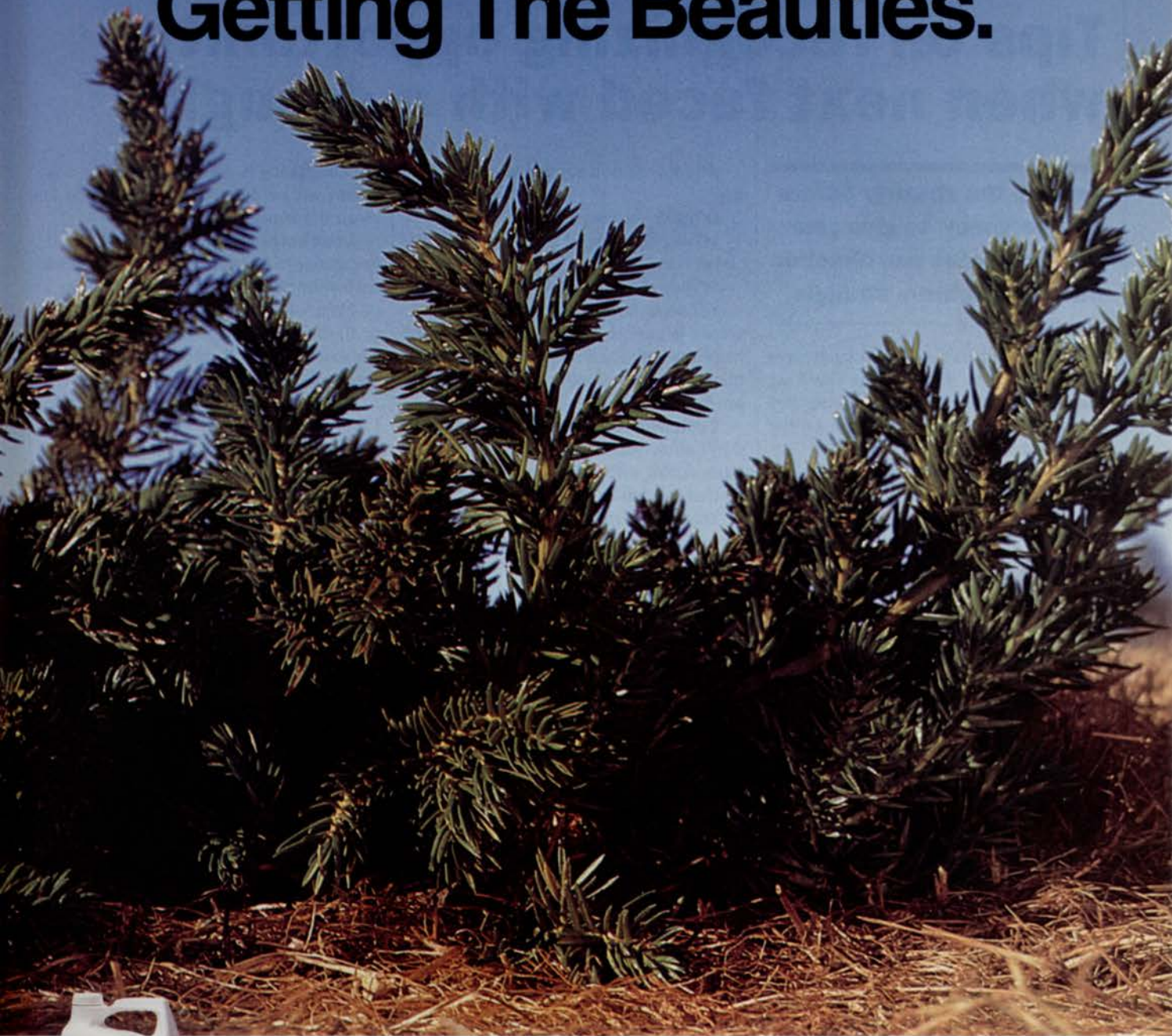
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LAWN CARE INDUSTRY

Tips on recognizing opportunity when next faced with a drought

Develop the strategy before an emergency to give your company focus and direction while competitors struggle.

■ Your customers' lawns and landscapes will probably be damaged by the next drought. Chances are they will survive; they can be repaired. Will you be able to say the same about your company?

Ask that question now. Develop a drought-survival/opportunity plan. It doesn't have to be intricate. It can be as simple as a checklist. It will be your roadmap and guide your company through the next drought and deliver it intact, and allow you to offer profitable repair or renovation services at emergency's end.

Build your plan optimistically, with an eye to harvesting opportunities.

There's often good news at the end of a drought. The 1988 Midwest drought led to unprecedented customer demand for property reseeding and renovation later that fall and throughout 1989.

Develop the strategy before an emergency begins. This will give your company focus and direction while competitors struggle. After all, drought and water shortages (bans) are recurring problems.

Realize that aiding customers' lawns/landscapes is just one aspect of a water emergency.

Your plan must focus on the bigger picture:

- 1) keeping your company functioning,
- 2) retaining customers, and
- 3) sustaining employee morale.

Here are some drought survival/ suggestions to address these concerns:

Customer education—Do you have literature ready to give to your customers as the next water emergency approaches? Handouts? Brochures? Can your technicians speak convincingly to your clients about:

- ✓turfgrass dormancy,

✓proper lawn/landscape watering practices,

✓higher mowing heights in summer,

✓limiting traffic on stressed turfgrasses, and/or

✓your company's role in building the overall vigor of the customer's lawns/landscapes to survive a water shortage (using more slow-release nitrogen sources, or fertilizers with less nitrogen and more potassium in summer)?

Customer retention—Some customers won't allow you to put anything on their lawns during a drought. Sometimes it's better that you don't.

That doesn't mean you can't inspect customers' properties anyway. Remember, your customers aren't paying you to make applications even though that's how you bill them. They're paying for results, healthy and attractive lawns/landscapes. Perhaps you can offer spot seeding later in the season at a reduced rate, provided they stay on your program. Be flexible.

Employee retention—While you fret over lost applications and lost revenue, your employees fret over the possibility of lost wages. If conditions won't allow them to

make applications, can they provide clients with flower bed weed control and turf aeration? When

A drought or watering ban can brown a customer's turfgrass, but it doesn't mean you lose that customer.

the emergency is over, you and your customers will need experienced technicians to repair the damage.

Leadership—Equipped with your knowledge of lawns/landscapes and armed with your plan, garner a reputation as a problem solver by speaking at local service or garden club meetings. Or, if you're comfortable with it, become a source for the media.

Keep your message positive. Emphasize how your company and the industry can help customers during and after the drought emergency.

Cooperative effort—Water boards ban lawn and landscape irrigation because they can get away with it. Usually, the green industry doesn't respond as a group until it starts to hurt, even though it has solid information that lawns/landscapes aren't water wasters. Lawns prevent runoff and erosion; landscapes enhance the environment.

Your plan should recognize the need to cooperate with other green industry professionals so that water boards and, hopefully, the public gets the facts.

—Ron Hall



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WOODS

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Circle No. 142 on Reader Inquiry Card

Mole control can be profitable

This professional mole trapper works all year long and gets many of his referrals from lawn care companies.

■ As a landscape or lawn care business owner, technicians often see mole damage on clients' properties. Customers sometimes ask what can be done. If we could solve their mole problems, we could certainly charge enough to make it worthwhile.

But few of us offer mole control. Either (a) we don't know enough about moles to even attempt to control them; or (b) we don't think we can make money doing it.

There is, however, one big reason why



Eastern mole: insectivore, extremely wary, doesn't hibernate.

we should have some basic information about moles: our customers. They look to us for information about any aspect of their landscapes or lawns, including the appearance of mole ridges or mounds.

If we can't help solve their problems, we should, at least, be able to direct them to someone who can.

Tom Schmidt of Cincinnati is one of just a handful of expert mole trappers in the United States. His company name is Mole Systems. His business card reads: *The Mole-Man*.

Several lawn care companies refer customers to him.

His services are always welcomed, particularly after a property owner has already tried and failed with the bubble-gum-down-the-hole routine. Or, by pok-



Tom Schmidt says trapping moles is simple once you know about the Eastern mole's habits and where to put traps.

ing poisoned grain into their tunnels.

These efforts never work. Moles are insectivores. They won't eat either chewing gum or grain.

Or sometimes the homeowner has

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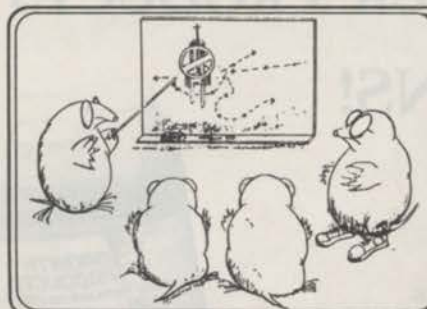
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FOR THE '93 TECHNICAL CATALOG



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Schmidt's
mole
cartoons in
Cincinnati
newspaper
attracted
attention.

tried to drown the mole by sticking a garden hose into its tunnel. Moles just move to another part of their underground system.

"People usually just don't know what they're dealing with," says Schmidt. He describes most home remedies for getting rid of moles as "kind of like drilling a hole in the floor of your flooded bathroom and thinking you've solved your problem."

Moles aren't rodents; they're more closely related to shrews. They feed on

**Mole control can generate
additional revenues.**

soil insects and invertebrates, particularly earthworms. Often the victims just wander or fall into their tunnels. The mole comes along and gobbles them up. An adult Eastern (or common) mole eats about 50 pounds of soil invertebrates a year.

Although moles eat many turf-damaging insects, they can survive without grubs. It's unlikely a property owner can rid his property of moles by just killing the grubs on his property. "When you're trying to treat a single yard, you're just dealing with the tip of the iceberg," says Schmidt.

That's because moles have both surface tunnels (the noticeable raised ridges), and deeper tunnels which they more commonly use as main runways.

Working in incredible bursts of energy, a mole can open 18 feet of new surface tunnel in an hour. It's not uncommon for a male mole to develop tunnels over a four-acre area, a female over about an acre of property. If disturbed, a mole can scoot through about 80 feet of tunnel in a minute. They're extremely wary.

Schmidt is a fulltime mole trapper. He works year-round because moles work year-round. They don't hibernate. They're patching and adding onto their tunnels, and searching for meals even in winter.

Most of the cold weather movement relates to final dispersal or migration of yearlings preparing home ranges that will support new litters in spring. The timing varies with climate.

Schmidt says nobody's been able to convince him there's a more efficient or humane way to rid a landscape of moles than trapping. He uses both harpoon and scissors-type traps, both of which kill instantly.



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LAWN CARE INDUSTRY

"Knowing where to set traps is probably 90 percent of the job," believes Schmidt.

It's unlikely he'll ever get rich trapping moles, Schmidt admits, but he's busier than you might think. He has about 200 regular customers. In 1992 he answered just over 200 calls, with about 30 percent of these contacts resulting in jobs.

"A lot of my new calls are just the curious," admits Schmidt. "Personal referrals from clients are the most reliable."

When he spoke at the Ohio Turfgrass Conference this past December, the room was packed. When he offered to help anyone in the audience start (for a fee) their own mole trapping operation, several attendees scheduled later meetings with him.

Schmidt believes any fair-sized metropolitan area with suburbs and populations of the Eastern mole can generate additional revenue in mole control.

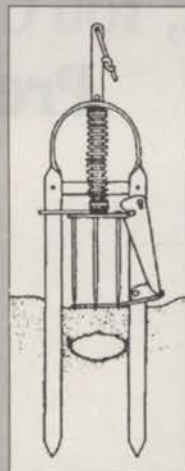
"I don't know why any fair-sized lawn care company wouldn't have somebody to do this work," he says.

How to trap a mole

■ Dr. Robert M. Corrigan, animal damage control specialist at Purdue University, says trapping is the most reliable method of mole control. "The key to success is patience, practice and persistence."

Generally, trapping is easiest and most effective during the spring and fall. Usually, the more traps the better.

Corrigan recommends the harpoon trap for beginners. It's available from most hardware and garden shops. He offers these suggestions for using the trap.



There are several types of harpoon traps.

1) Using the side of your hand, lightly press down a narrow section (about 1 inch in length) of an active runway so that the runway is collapsed to 1/2 of its original dimension.

2) Push the supporting spikes of the trap into the ground, one on either side of the runway, until the trigger pan just barely touches the depressed tunnel. Be sure the trap is centered over the runway and the supporting spikes do not cut into the tunnel below.

3) Set the trap and leave it, taking care not to tread on or disturb any other portion of the runway system.

4) Check the trap every day or two. If a trap fails to produce a mole within four or five days, move the trap to another portion of a main runway system.

5) Plastic pails can be placed over traps to prevent animals or children from tampering with them.

—R.H.

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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

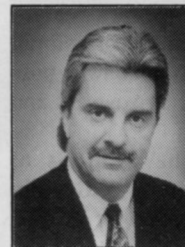
formed opinions of biological and organic products.

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 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
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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!!

BIOTURF NEWS

Bio-Turf: The Basics



Biological alternatives to conventional chemical control products are more than 30 years old, but are only recently receiving attention.

Biological control agents are organisms that attack and kill or otherwise harm a pest. They are used to control pests in agriculture, forestry, and turfgrass.

There are three main types of biological control agents: predators, parasitoids, and pathogens.

Predators are organisms that kill their prey by eating them. Parasitoids are organisms that lay their eggs inside or on the body of their host, which eventually dies from the effects of the parasite.

Pathogens are organisms that cause disease in their host. They can be fungi, bacteria, or viruses.

Biological control agents are used in a variety of ways, including releasing them into the environment, applying them to plants, and using them in combination with other control methods.

Biological control agents offer several advantages over chemical control agents, including being more specific, longer-lasting, and less likely to harm beneficial organisms.

However, biological control agents also have some disadvantages, such as being more expensive and taking longer to show results.

Despite these challenges, biological control agents are becoming increasingly popular as a sustainable and environmentally friendly alternative to chemical control.

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HOT TOPICS

Bystander exposure to 2,4-D is not big threat, study claims

Canadian study reaffirms importance of reading the label, wearing protective clothing.

GUELPH, ONT. Canada—Professional applications of 2,4-D to home lawns pose little exposure risks for homeowners and bystanders.

That was one of the findings of researchers at the University of Guelph. Directing the study were Dr. Keith Solomon, Dr. G.R. Stephenson, Shelly Harris, and Dr. Christopher Hall.

Hall, director of the Guelph Turfgrass Institute, recapped these findings at the PLCAA Convention this past November.

His message was encouraging to the 150-plus lawn and landscape professionals in the room. Most use products containing 2,4-dichlorophenoxyacetic acid, a popular broad-leaf weed control.

"If you do things right, there's not a lot of (2,4-D) exposure risk," emphasized Hall.

Actually, the Guelph studies investigated more than bystander exposure. They also measured 2,4-D exposures received by applicators—both homeowner and professional.

As part of the project, some of the volunteers applied 2,4-D materials as a layman might, with scanty instruction. They

wore regular regular clothing. The other group of applicators received detailed instruction and wore protective clothing—rubber gloves and boots, coveralls, etc.

A granular formulation of fertilizer (10:6:4) with 1% 2,4-D was used for the spring application, and a liquid formulation of 2,4-D for the fall application. Then for 96 hours following the applications, the researchers collected urine samples from the volunteers to measure 2,4-D exposures.

Measureable exposures occurred to applicators who hadn't worn protective clothing during hose-end applications. Only in a few cases could 2,4-D be detected in those who had worn protective clothing while working with liquid 2,4-D.

"The take-home message is to wear protective clothing," said Hall.

It didn't seem to matter much in applications of the granular product, since 2,4-D couldn't be detected in

either group.

"If you are an inexperienced applicator, probably the best way to go is with the granular formulations," Hall suggested.

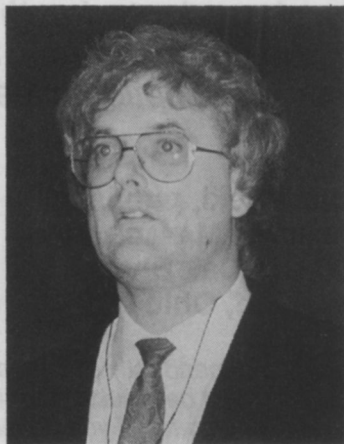
In related investigations, 10 volunteers (five in long pants, short-sleeved shirts, socks and shoes, and five wearing shorts and barefooted) alternately walked, sat and lay down on 2,4-D-sprayed turf an hour after application.

Four days later, detectable residues were found in urine samples supplied by three of the barefooted people.

When the volunteers waited 24 hours after a spray application to repeat their activities on the treated turfgrass, no detectable residues were found on any of them.

Hall said that people can reduce their potential exposure to essentially zero by staying off treated turf for a period of 24 hours or until after rainfall or irrigation.

—Ron Hall



Dr. Hall: 'In Canada, like the United States, we had a lot of trouble with people's perception about the health risks associated with 2,4-D.'

Give clients a say in how, how much pesticide used

CINCINNATI—Dr. Frank Rossi says bowling injures more Americans each year than pesticide applications. Yet nobody protests recreational bowling.

Why?

The answer lies in the makeup of the collective human psyche which sees voluntary and familiar risks—even obvious ones such as smoking and drinking—as somehow less threatening than less-well-understood risks, says Rossi, an experienced environmental educator.

Bowling, therefore, is the type of risk the public is willing to accept. Pesticide use sometimes is not.

"People are not certain about what we're doing, and that's what makes them uneasy," says Rossi, a New York City native and former golf superintendent. "We want people to have a better understanding of what we do."

In fact, Rossi feels it's not chemicals themselves that frighten the

ELSEWHERE

Industry events for, February and March, page 54

Books and literature for the green industry, page 55

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public. "Most of the public will not have the ability to decipher technical or toxicological information anyway," he says. What generates outrage is the perception by some individuals that they "don't get to choose how our chemicals get into their lives," says Rossi.

The solution: professional pesticide users must acknowledge the concerns of customers, and meet these concerns with accurate, easy-to-understand information, says Rossi. Then, to the extent that they can, they should give customers the power to choose how pesticides are used in their immediate environments.

Rossi is an assistant professor of turfgrass environmental management at the University of Wisconsin-Madison. He spoke at both the PLCAA Convention, Indianapolis, and Ohio Turfgrass Conference, Cincinnati, this past fall.

Dr. Rossi: professional pesticide users need to help the public understand that the dose makes the poison.



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GREEN INDUSTRY EVENTS

FEBRUARY

15: Georgia Golf Course Superintendents Assn. Spray Technician Seminar. The Standard Club, Duluth, Ga. Phone: (706) 769-4076.

16-March 16: Irrigation Association Short Courses: Feb. 16-17, Phoenix; Feb. 18-19, Los Angeles; Feb. 23-24, Denver; Feb. 25-26, Dallas; March 1-2, Houston; March 4-5, Seattle; March 8-9, Orlando; March 11-12, Connecticut; March 15-16, Toronto. Phone (703) 524-1200.

18: Turf & Grounds Exposition II, Holiday Inn, Suffern, N.Y. Phone: (800) 873-8873 or (518) 783-1229.

18-23: National Arborist Association Management Conference, The Registry Resort, Scottsdale, Ariz. Phone: (800) 722-2622.

22: Georgia Golf Course Superintendents Assn. Spray Technician Seminar, Doublegate C.C., Albany, Ga. Phone: (706) 769-4076.

22: New York Landscape Association Education Day and Trade Show, Holiday Inn Turf, Albany, N.Y. Phone: (518) 783-1322.

23-24: Landscape Industry Conference and Trade Show, Hammons Trade Center, Holiday Inn I-70 East, Denver. Phone: (303) 757-5611.

23-26: International Erosion Control Assn. Conference & Trade Expo, Indianapolis Westin Hotel. Phone (303) 879-3010.

24: New Jersey Landscape '93, Meadowlands Convention Center, Secaucus, N.J. Phone (201) 664-6310.

24-25: Landscape Industry Show, Long Beach (Calif.). Phone: (916) 448-2522.

24-26: Landscape Design Short Course, Sheraton Inn, Mars, Pa. Phone: Michael Masiuk at (412) 392-8540.

24-26: "Diversity: Recognizing Reality" Workshop of the Landscape Contractors Association of Md, DC, Va; Holiday Inn Crowne Plaza, Rockville, Md. Phone: (301) 948-0810.

27: Long Island Arboricultural Association Annual Tree Conference, SUNY Farmingdale, Long Island, N.Y. Phone: (516) 783-1001.

MARCH

4: Midwest Chapter/STMA Annual Meeting, Elk Grove, Ill. Phone: Mike Schiller at (708) 439-4727 or Mike Trigg at (708) 360-4750.

4-5: USGA Golf Course Wastewater Symposium, Newport Beach, Calif. Phone: Dr. Kim Erusha at (908) 234-2300.

4-5: Muni-Golf Course Developments,

Atlanta Marriott Marquis. Phone: (800) 285-2332.

6: Association for Women in Horticulture Conference, Bellevue (Wash.) Conference Center. Phone: Terri Arnold at (206) 935-7951 or Deb Powers at (206) 524-1672.

6-7: Tampa Bay Hort. Trade Show, Tampa Convention Center. Phone: (813) 920-4393.

9: USGA/Carolinas GCSA Conference, Forest Lake Country Club, Columbia, S.C. Phone: Roger Harvie at (404) 951-0766.

9-10: Healthy Urban Trees Conference, Iowa State University, Ames, Ia. Phone: (515) 294-6223.

9-10: Spring Training Conference/Colorado Assn. of Lawn Care Professionals, Jefferson County Fairgrounds, Colo. Phone: (303) 224-2293.

9-10: Sports Turf Management Course, Riverside, Calif. Phone: (714) 787-5804, x624.

12: Turf Management Seminar, Cuyamaca College, El Cajon, Cal. Phone: (619) 670-1980 x262.

15-21: Pacific Rim Golf Conference & Show, Internat'l. Merchandise Mart, Singapore. Phone: (800) 422-6381 or (913) 841-2240.

17-18: Reinders Brothers Turf Conference & Equipment Show, Waukesha (Wis.) Expo Center. Phone: Ed Devinger at (414) 786-3301.

23: Sports Turf Institute and Exhibition, California State Polytechnic Univ., Pomona, Calif. Phone: Dr. Kent Kurtz at (909) 869-2219.

25-28: Golf Asia '93, World Trade Center, Singapore. Phone: (714) 673-3596.

30-31: Turfgrass and Landscape Institute, Buena Park, Calif. Phone: Linda Knoche at (619) 723-0255.

INFO CENTER

Useful literature and videos for LM readers

GOLF ENVIRONMENTAL ISSUES..."Golf Course Management & Construction Environmental Issues" is now available through Advanstar Marketing Services. Contributors to the USGA publication include Dr. Bruce Branham, Dr. Vic Gibeault, James T. Snow, Dr. Jim Watson and Dr. Michael Kenna. To order, phone (800) 225-2569, ext. 839 or fax to (216) 891-2726. Cost \$65 plus tax, shipping and handling. MasterCard, Visa and American Express accepted.

ON WEED CONTROL..."Nursery and Landscape Weed Control Manual" provides the tools to effectively control weeds in nurseries, landscapes and turf, using an integrated approach of physical, environmental and chemical means. 290 pages for \$29.95. To order, write Thomson Publications, P.O. Box 9335, Fresno, CA 93791; or phone (209) 435-2163.

FLOWER VIDEOS...The Professional Plant Growers Association is offering "Success with Bedding Plants," a 20-minute video that covers selecting, installing and maintaining bedding plants. It covers soil preparation, color considerations, watering, fertilization and more. To order, send \$100 (PPGA members) or \$130 (non-members) to PPGA, P.O. Box 27517, Lansing, MI 48909 or phone (517) 694-7700.

SOIL NITRATE TESTS..."Current Viewpoints on the Use of Soil Nitrate Tests in the South" is a 62-page book that offers a detailed examination of the practical and economic usefulness of soil nitrate testing in the southern U.S. Edited by K.L. Wells and W.R. Thompson Jr., it costs \$18 in the U.S. Send orders to the American Society of Agronomy, Book Order Dept., 677 S. Segoe Rd., Madison, WI 53711-1086.

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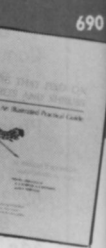
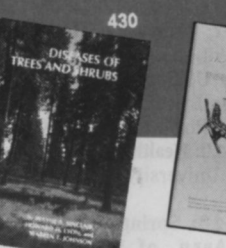
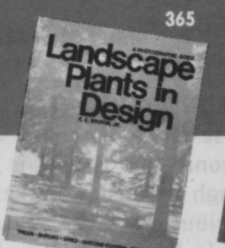
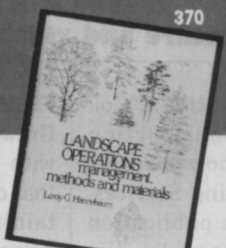
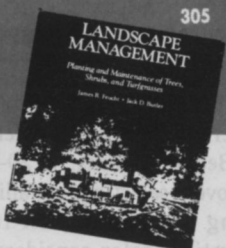


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Learn important principles of installed landscapes - tree, shrub and turfgrass soils and fertilizers, improved planting and pruning techniques, integrated pest and disease management, spray-equipment calibration and care. **\$42.95**

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by Leroy Hannebaum
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by Edward C. Martin
Annotated photographic guide to aesthetic and functional use of ornamental plants in landscape design. Trees, shrubs, vines, ground covers and turfgrasses are illustrated with over 1,900 black and white photographs. Contains a quick reference guide to particular design qualities, growing conditions. **\$75.95**

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Enjoyable and educational! Dr. Rao has revised and updated his popular "Problem Management" columns and arranged them in a convenient, categorized format. Dr. Rao sheds light on a wide range of questions. **\$39.95**

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by Sinclair, Lyon & Johnson
A comprehensive pictorial survey of diseases and environmental damage to trees and woody ornamental plants in the U.S. and Canada. Up-to-date developments in fungal biology, taxonomy, bacteriology, virology, and environmental stress. **\$52.50**

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by Johnson and Lyon
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by George Symonds
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TURF

220 - CONTROLLING TURFGRASS PESTS
by Shurtleff, Fermanian, Randell
No professional can be without this new comprehensive guide which provides the most recent information available on the identification, biology, control and management of every type of turfgrass pest. **\$56.95**

235 - LAWN CARE: A HANDBOOK FOR PROFESSIONALS
by H. Decker, J. Decker
An invaluable guide for playing field managers, golf course managers, lawn care practitioners. Written by turfgrass professionals, this handy reference covers all aspects of turfgrass management. **\$56.95**

640 - TURF IRRIGATION MANUAL
by James Watkins
Keep pace with the latest developments in turf and landscape irrigation. Rotary sprinkler and golf course design systems, and expanded engineering and reference material make this a great reference for engineers, architects, designers and contractors! **\$32.95**

620 - TURF MANAGEMENT HANDBOOK
by Howard Sprague
Practical guide to turf care under both healthy and poor conditions. Covers special turf problems in cool and warm regions, fertilizer use, regular turf care, weed and disease control. Includes useful seasonal schedules. **\$26.60**

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by James Beard
Used in many leading university turf programs, this comprehensive text and reference source includes findings of current research compiled from more than 12,000 sources. **\$62.95**

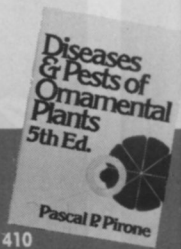
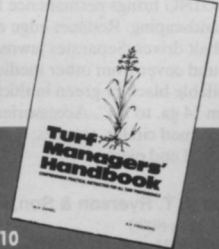
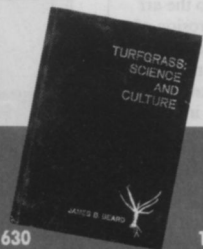
110 - TURF MANAGERS' HANDBOOK
by Daniel and Freeborg
Second edition.
Entirely updated! Innovations resulting from research and practice have been added to reflect current techniques. Chapters on grasses, growth regulators and diseases have had extensive modification. **\$39.95**

GOLF

615 - TURF MANAGEMENT FOR GOLF COURSES
by James Beard
Ideal reference and "how to" guide, this fully illustrated USGA sponsored text details all phases of golf course operations - design and construction, turf management, course administration, irrigation, equipment and disease and pest control. **\$74.00**

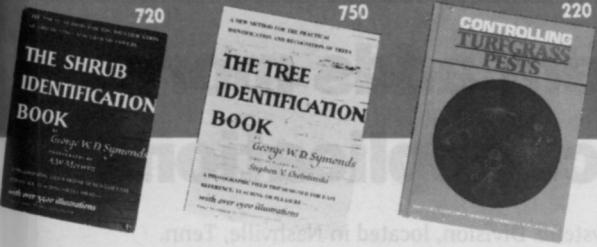
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Turfpak features a 15-gallon returnable container, electronic control module and dry-break couplings.

■ During the summer of 1992, Ciba-Geigy successfully tested its Turfpak packaging system, using Banner fungicide for golf course applications and Triumph insecticide for turf insect control.

According to the company, the dispensing system will be available to other regions. Subdue fungicide will be added to the arsenal of products available in returnable containers.

"This is a very slick system," says David Ward, superintendent of the Olympia Fields Country Club in Olympia Fields, Ill. "With the closed system, we have no contact with chemicals, it increases the speed and ease of loading a sprayer tank and there are no empty containers to rinse and dispose of."

John McLeod, Ciba-Geigy Turf and Ornamental Division Northern Region sales manager, says the most important benefit of Turfpak is increased applicator safety.

"According to research by our packaging group, 90 percent of pesticide exposure occurs during the mixing process," says McLeod. "By using a closed dispensing system like Turfpak, we've virtually eliminated that risk."

One Turfpak container replaces 15, one-gallon pesticide jugs.

The Turfpak uses patented Drylock Closed Dispensing System technology developed by Aeroquip Corporation's Fluid

Security Systems Division, located in Nashville, Tenn.

An applicator mounts the male half of the dry-break coupling on his sprayer tank lid. When applying pesticide, he snaps the female dry-break coupling on the dispensing hose to the male on the spray tank and enters the desired quantity of pesticide in a hand-held electronic control module. The Turfpak shuts itself off after that precise amount is dispensed.

Scott Moffitt, product manager in Ciba-Geigy's Turf and Ornamental Division, says such pinpoint accuracy is critical for pesticide products used in home turf applications.

"The Turfpak system calibrates to one-tenth of an ounce, which is what our customers need to meet their stewardship requirements," says Moffitt.

Charlie Jesky of the McHenry Country Club in McHenry, Ill. used the Banner Turfpak last summer and says it made pesticide application quicker and easier.

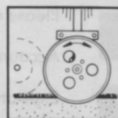
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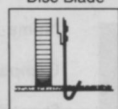
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TURFCO

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GREEN INDUSTRY SHOWCASE

New mower features larger cutting deck, 20-hp engine

The ZTR 560 from Dixon Industries, Inc. features a 60-inch cutting deck, with a powerful 20-hp Kohler engine.



The mower's drive system uses twin hydrostatic units with hydro gear drive. It features a large capacity reservoir, separate fans, and a charge pump to actively cool the hydraulic fluid, a feature important for commercial users.

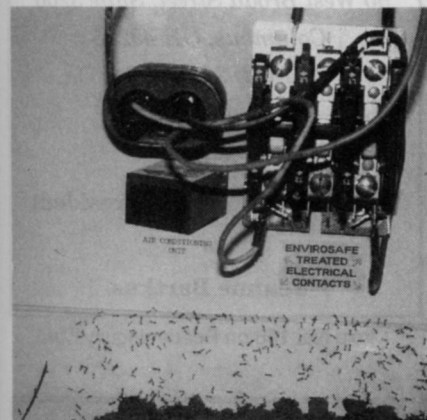
The 560 features a zero turning radius, for quicker mowing.

The unit is built with a tilt-up body, which allows instant and easy access to the fluid tanks, control adjustments, hydrostats and gear drive.

Circle No. 192 on Reader Inquiry Card

Teflon the secret to new spray-on insect barrier

Envirosafe is a new, non-pesticide, safe Teflon barrier spray product available for use on golf courses.



The product can be used wherever crawling insects create problems around people or equipment. Spray the product on

and the Teflon coating stops insects from crawling farther.

Envirosafe spray can be used on boots, gloves and tool handles and sprayed around the contact areas of electrical equipment. According to EnviroSAFE Solutions Corporation, EnviroSAFE saves money in reduced repair bills for equipment, medical and medication bills for workers and reduced pesticide application.

The Teflon barrier will last for years as long as it's not scratched or abraded, according to the company.

Circle No. 193 on Reader Inquiry Card

Half-ounce cap makes for easier product measure

New from DowElanco in 1993 is the one-ounce container cap for Gallery 75 Dry Flowable pre-emergence herbicide.

The container cap measures one-half ounce of Gallery, enough herbicide to treat 1,000 sq. ft. and prevent broadleaf weeds for six to eight months.

Users simply remove the cap and pour. In the interest of safety and accuracy, the company warns that the cap is to be used only to measure Gallery or other Dow-Elanco products.

Gallery contains the new chemical compound isoxaben, which allows Gallery to prevent the growth of 46 different broadleaf weeds. It can also be used in most established cool- and warm-season turf-grasses and in more than 400 field-grown and 236 container-grown ornamentals.

Circle No. 194 on Reader Inquiry Card

Accounting software brings key information together

Armor Systems, Inc. of Maitland, Fla., has developed Summit Management Information, which can consolidate Premier Accounting Software information into concise screen and report formats.

The Armor Premier modules that interact with Summit are General Ledger, Accounts Payable, Accounts Receivable, Inventory Control, Purchase Orders, Point of Sale, Billing, Order Entry, Job Cost and Time Billing.

Consolidating the information in these modules with Summit will give top management a more timely perspective of important data, essential for day-to-day

operations. Summit uses 63 pre-defined data elements, which allow the user to custom-design screen and report formats.

Circle No. 195 on Reader Inquiry Card

Give turf that much needed sodium of potash, low salt

Great Salt Lake Minerals Corporation's new Turf Blend line of sulfate of potash products was created especially for high-grade lawns, golf greens and fairways and offers the lowest salt index of any commonly used potassium sources on the market.

During periods of pronounced heat, cold and wear, low-salt potassium is good for roots and turf.

The company's secret lies in its solar evaporation and extraction process, which produces potash in its most effective sulfate form.

According to Great Salt Lake, Turf Blend products have been proven to produce less leaching losses than potassium chloride or potassium nitrate.

Circle No. 196 on Reader Inquiry Card

New 23-hp mower features direct drive wheel motors

The 23-hp Hustler 4100 mower from Excel features a dual-hydrostatic drive system with independent pumps and direct



drive wheel motors. According to Excel, the drive concept eliminates the need for high maintenance chains, sprockets and transaxles.

The Hustler 4100 can be matched with any one of Excel's deck options including the 60-inch or 72-inch 3-way decks which offer the option of side discharge, rear discharge or mulching.

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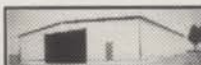
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Landscape Management Market Showcase

CLASSIFIEDS

MARKET
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EQUIPMENT FOR SALE

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BOX NUMBER REPLIES: Mail box number replies to: LANDSCAPE MANAGEMENT, Classified Ad Department, 120 W. 2nd St., Duluth, MN 55802. Please include box in address.

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BUSINESS FOR SALE

FOR SALE: Our company is selling all existing landscape maintenance and construction contracts, we now have in our files for the 1993 season. These accounts are located in the north and northwest Illinois suburbs. All list, personal contacts, addresses, phone numbers, bidding information past and present, etc., will have to be sold before March 1, 1993. All accounts are either commercial, individual, or corporate headquarters and will be sold as a package and not partially. If you are interested in more details send your letter to: Pro-Corp., P.O. Box 52, Lincolnshire, Illinois 60069-0052. 2/93

Cemetery For Sale: 15 acre cemetery 1 hour Metro D.C. in W. Va. For information contact John Thompson. RE-MAX. 301-739-4800. 2/93

EQUIPMENT FOR SALE

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REINCO HYDROGRASSERS and power mulchers in stock. Opydyke Inc., (Philadelphia Area) 215-721-4444. TF

BUCKET TRUCKS: Straight Stick, Corner Mount and Knuckle Boom Cranes. Brush Chippers - New Morbark Disc and Drum Style. New Rayco Stump grinders. Best prices anywhere. Used Chippers - Asplundh, Morbark, etc. 2 to 8 usually in stock. Sprayers, Dumps, Stakes, Log Loaders, Crew Cab Chip Box Dumps, Railroad Trucks, 50 in stock. Sold as-is or reconditioned. We also buy your surplus equipment. Opydyke's, Hatfield (Philadelphia Area). 215-721-4444. TF

BUCKET TRUCK: Hi Ranger 65', 57', 50'. Sky-workers with chip boxes. Asplundh bucket trucks with chip boxes. Asplundh brush chippers. Bean 55 gal. sprayers. Pete Mainka Enterprises, 633 Cecilia Drive, Pewaukee, WI 53072. 414-691-4306. TF

Finn Hydroseeders, Mulch Spreaders, Krimpers, Pit Burners, Fiber Mulch & Tackifiers. New & Used. **Wolbert & Master, Inc.**, P.O. Box 292, White Marsh, MD 21162. 410-335-9300, 1-800-234-7645. TF

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FOR SALE

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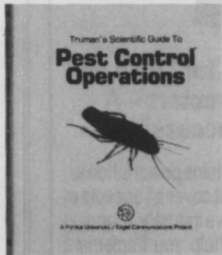
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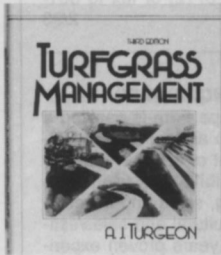
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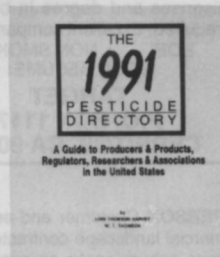
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
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2. Start with (month) _____ issue. (Copy must be in by 1st of month preceding).
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SIGNATURE _____ DATE _____

NAME _____ COMPANY _____

ADDRESS _____

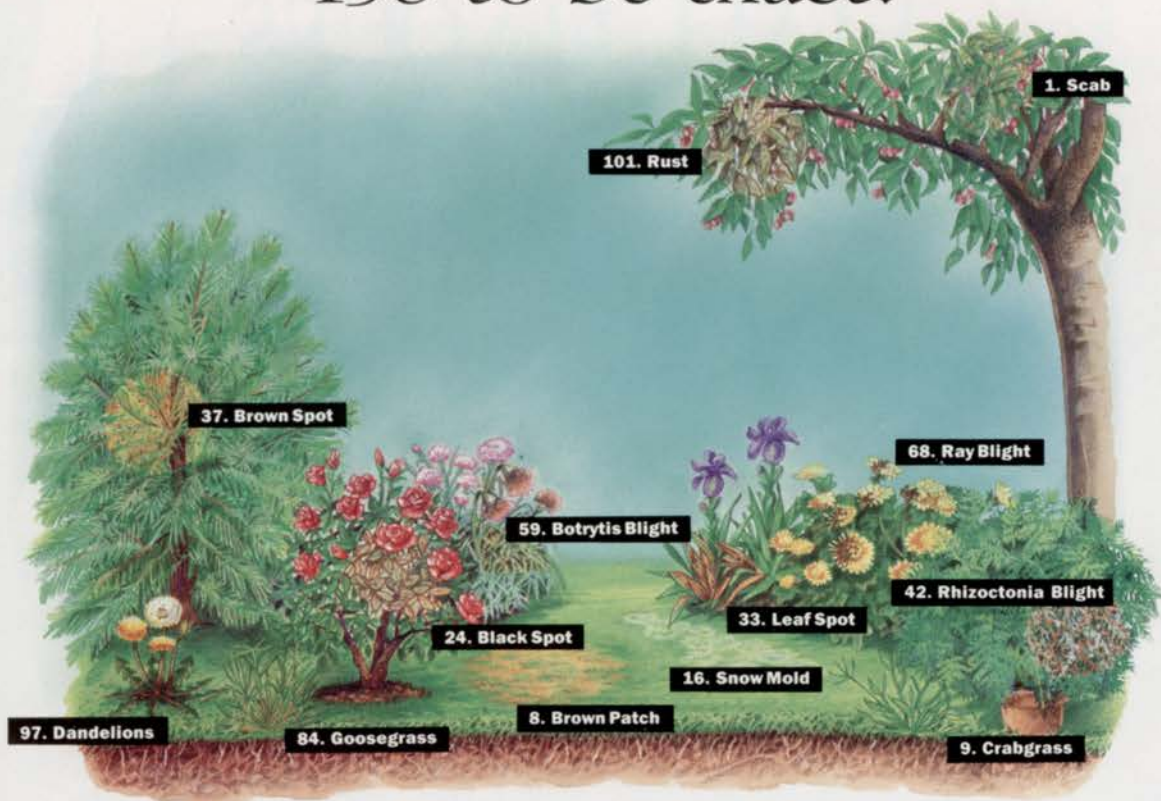
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PHONE NUMBER _____

Mail ad copy to: Paul Garris, **Landscape Management**, 7500 Old Oak Blvd., Cleveland, OH 44130 or call 216-891-2698.

RATES: \$1.25 per word (minimum charge \$40). Boldface words or words in all capital letters charged at \$1.50 per word. Boxed or display ads \$105 per column inch, one time; \$100, three times; \$95, six times; \$90, nine times; \$85, twelve times (one inch minimum). (Frequencies based on a calendar year). For ads using blind box number, add \$20 to total cost of ad per issue.

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