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MARCH 1992 • \$3.00

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INCORPORATING LAWN CARE INDUSTRY



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SELECTIVE BIDDING

Knowing your strengths

**Post-emergence
weed control**

**Mixing fertilizers
and pesticides**

**Park maintenance
on reduced
budgets**





PENNEAGLE
Creeping Bentgrass

13th hole, North Course, Des Moines Golf and CC

“SINCE WE REPLACED OUR BLUEGRASS FAIRWAYS WITH PENNEAGLE, PLAYER SATISFACTION IS UP 500%”

Bill Byers completely renovated all 36 fairways at Des Moines Golf and CC over a period of three years ... nine in 1985, nine in 1986 and the remainder in 1987.

Three days after spraying the existing bluegrass/Poa annua fairways with a non-selective herbicide, Penneagle

*Bill Byers, CGCS
Des Moines Golf and CC, Iowa*



was slit-seeded into the surface. When play resumed in seven days, members had the option of playing from the germinating fairways or taking a drop in the rough.

Bill finds that lightweight mowing keeps the Poa population in control. “I used the clippings for garden mulch one year, that resulted in a terrific stand of Poa. This illustrates the effectiveness of removing clippings and seed heads.”

Overall, the new Penneagle fairways require less water than trying to maintain the old bluegrass/Poa fairways, and Penneagle proved to be drought tolerant during the dry summers.

“Bentgrass fairways are in demand in our area. Other courses in Des Moines have

made the switch,” says Bill, “And we find that our player satisfaction is up 500%.”

Oregon Certified PVP 7900009
Penneagle is one of the “Penn Pals”



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organizations:

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Associated Landscape Contractors of America, 405 N. Washington St., Falls Church, VA 22046; (703) 241-4004.

American Sod Producers Association, 1855-A Hicks Rd., Rolling Meadows, IL 60008; (708) 705-9898.

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.

National Golf Foundation, 1150 South U.S. Highway One, Jupiter, FL 33477; (407) 744-6006.

Ohio Turfgrass Foundation, 2021 Coffey Rd., Columbus, OH 43210; (614) 292-2601.

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Professional Grounds Management Society, 10402 Ridgland Rd., Suite 4, Cockeysville, MD 21030; (301) 667-1833.



Professional Lawn Care Association of America, 1000 Johnson Ferry Rd., NE, Suite C-135, Marietta, GA 30068-2112; (404) 977-5222.

Responsible Industry for a Sound Environment, 1155 15th St. NW, Washington, D.C. 20005; (202) 296-6085.



Sports Turf Managers Association, P.O. Box 98056, Las Vegas, NV 89193-8056; (702) 739-8052.

Turf and Ornamental Communicators Association, 8500 Normandale Lake Blvd., Suite 1200, Bloomington, MN 55437; (612) 831-8515.

AS WE SEE IT

JERRY ROCHE, EDITOR-IN-CHIEF



Public relations: we're still not doing enough

Spring is just around the corner. And you know what that means: the media muck-rakers will be pounding on your door, asking pointed (and usually leading) questions about that smelly, noxious *stuff* you're spreading all over the place.

"In our polls, readers say they want to read more about environmental issues," says Tim Wheeler, environmental reporter for the *Baltimore Sun*. "They (the public) don't think government is tough enough (on these issues), so you can guess what the future holds for you."

Yes, Tim, we know. We know about the hatchet jobs that have been done on the industry in the past by *USA Today*, *Home Mechanix*, *20/20* and other media.

"Sometimes we do a good job, sometimes we don't," Wheeler admits. "We only have a limited time and space to boil down issues and do justice to all the complexities."

Adds Scott Broom of WMAR-TV, Baltimore: "The reality is that most people have lawns and that's why we spend so much time talking about them."

But the problem lies not in the publishing and broadcasting industries: it lies in the green industry. That problem is spawned by an utter lack of communication with customers, the media, and government legislators. (And before you green industry mavens take issue with that statement, you had better look at the ratio of positive to negative press and legislation you've been saddled with over the past five or six years.)

Whatever the green industry is doing, it's simply not enough.

"I hadn't thought about the benefits of what you're doing until I read this pamphlet from the Lawn Institute," says Bob Mead of Smith-Mead Public Relations, Baltimore. "You're unsung heroes."

Hooray. Have we actually begun to make an impact?

Not really. For public opinion is a very nebulous, mercurial thing. We may have

effectively swatted a fly here or there. But we've never really found the nest.

And the media aren't about to help us.

"There is an issue of responsibility that rests with the editor and reporter. It's never our job to buy into everything that's told us," says Broom. "So that sets up an adversarial relationship right away."

Adds the ever-pragmatic Wheeler:

"There is always going to be a lack of full knowledge. It's up to us to get the information. But we have to make decisions every day based on the knowledge we do have."

Wheeler, Mead and Broom, sitting on a panel at the Maryland Turfgrass Conference, made these suggestions:

1) "You need to work on direct communication with your customers through newsletters, brochures, videos." (Mead)

2) "Take the responsibility to write letters to the editor, call in to talk radio shows, distribute fact sheets." (Mead)

3) "IPM and nutrient management is catching on. It makes environmental and good business sense." (Wheeler)

4) "Be prepared to talk about the positives. Be prepared to speak almost in clichés. You need to get your point across in a sentence, a metaphor." (Broom)

5) "Chemicals are very hard to deal with. People are scared of death of chemicals. So it may make more sense to talk about turf." (Broom)

6) "Don't ever say any more than what your message is. That's hard to do. It becomes almost surreal to try to manipulate the media. There is no way to control an interview." (Broom)

Finally, adds Mead (a man who should know): "You must remember this: the press always has the last word."

Jerry Roche
Editor-in-Chief

LANDSCAPE MANAGEMENT

INCORPORATING LAWN CARE INDUSTRY

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VBPA ABP

ASK THE EXPERT

DR. BALAKRISHNA RAO



Why lilacs won't bloom

Problem: We are a small company doing a number of landscape activities. We pruned some lilac plants which were overgrown and unsightly. We pruned most of the old canes. The plant produced new growth but there were no flowers. The clients are upset and we are concerned. (N.Y.)

Solution: Like many landscape plants, lilac plants require some pruning every now and then to maintain their landscape beauty. In your situation, you removed most of the older canes to ground level. This practice is all right as long as you don't expect the new growth to produce flowers.

Lilacs require three- to four-year-old stems and branches to produce flowers. Since you removed all of the old plant materials, the plant failed to produce flowers on young new growth. It may take three to four years for new growth to mature and then produce flowers. During this recovery period make sure that the plant gets proper fertilizing, watering, mulching and pest management as needed to improve plant health.

In the future, put the lilac plants on a three- to four-year cycle for pruning, and prune about a third of the mature plant material.

For example, if a lilac bush has 10 multiple stems, remove no more than three stems in one year. Remove about a third the next year. These old three- to four-year woody tissues will maintain the flowering cycle.

Pruning after stress damage

Problem: Should any pruning be done to trees following severe drought or frost damage? (Calif.)

Solution: Trees damaged by severe drought or frost may require some pruning. The buds and cambium of trees affected by drought and/or frost can be examined for viability. If they are discolored and dry there is little chance for recovery. However, I have seen sweetgum recover after the cambium turned a butterscotch color as a result of cold temperatures. There is also the possibility that latent or adventitious buds may produce new growth when lateral buds are killed. Therefore, it is best to wait until new growth occurs before pruning.

Reports also indicate that the effect of severe drought and/or frost can continue to affect the overall health of plants for several years. Shallow-rooted, newly-transplanted or even large established trees can be affected by exposure to extremes in moisture and/or temperature. Due to these abiotic stress factors, trees will be stressed and weakened and become susceptible to canker diseases and/or mite infestation. Along with corrective pruning, severely affected trees can be further helped by providing proper fertilizing, watering, mulching and pest management as needed.

Treating for birch borers

Problem: We have seen a number of birch trees dead or dying in many landscapings. We think it is due to bronze birch borer damage. How can we identify and manage birch borers? (Mich.)

Solution: We (in Ohio) have also seen a large number of birch trees affected by bronze birch borer. This insect establishes on stressed and weakened trees, which often occurs when trees aren't tolerant of site conditions.

White birches are better adapted in Canada than in the U.S. Exposure to excessive heat and/or drought reduces tree vigor, predisposing it to secondary pests. In addition, poor soil conditions and other pest problems such as leaf minor aphids further weaken birches, increasing the potential for borers.

Bronze birch borers are black, half an inch long. Sun-loving, the beetles crawl on the trunk during late May/early June. They deposit eggs on bark which hatch in two weeks. The larvae, a flat-headed borer, tunnels under the bark and occasionally into the xylem to molt and overwinter. Larvae development is completed in one to two years.

Adults emerge only from dead wood leaving a characteristic "D"-shaped exit hole. Birch trees die from the top downward and welts grow on the trunk and branches.

Valuable trees can be protected by treating with materials like Turcam or Dursban in late May and early- and mid-June. Treatments should be made when adults lay eggs and repeated at least once at three week intervals.

Provide proper watering, fertilizing, mulching and pest management as needed to improve plant health.

Storing horticultural oil outdoors

Problem: Can horticultural oil be stored outdoors during the winter without being heated? (Ohio)

Solution: Horticultural oils can be stored outdoors. However, if the oil containers are small—such as five gallons—it is not a good idea. The product(s) should be warmed indoors for several days prior to use the following spring. Make sure that the oil has not spoiled.

In general, spoiled pesticides may show discoloration and/or precipitation at the bottom of containers. If in doubt, do not use suspected oil without checking with experts or the manufacturer first.

Read and follow label specifications for better results.

Balakrishna Rao is Manager of Technical Resources for the Davey Tree Co., Kent, Ohio.

Questions should be mailed to ASK THE EXPERT, LANDSCAPE MANAGEMENT, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2 to 3 months for an answer to appear in the magazine.

**It's not only your job.
You live and breathe it.**

It could be something you realized a long time ago, when you were a kid looking out the classroom window wishing you were on the other side. Maybe it

was years later, when you couldn't wait for the weekend to come so you could get *out there*. Or maybe you just always knew. That, for you, forty hours a week stuck inside an office was no way to live.

So here you are, with a job that lets you be outdoors a good portion of every working day. And love for nature and the environment had a lot to do with it.

At DowElanco, we know those



Wasn't it love for nature that got you into this bu



feelings play a big role in the way you approach your job. Of course you want beautiful turfgrass, but you want to protect the environment while



you're creating it. So we're doing some things to help you out. One example is the work we're doing to develop better product packaging. In fact, right

free training materials for your staff, and free equipment that will help you handle and use pesticides more safely.

And, most important, we're sharing information that can help

re and the environment siness in the first place?



now, we offer some of our products in water-soluble packets, and others in returnable containers.

We've also developed a research staff

you use pesticides more effectively, and in smaller amounts.

You'll find it in our free books on responsible pest management. We'd like to send you one. Return the coupon below, or call our toll-free number. It's the first of

many steps you can take to protect the environment.

Send me the following Management Guide(s):

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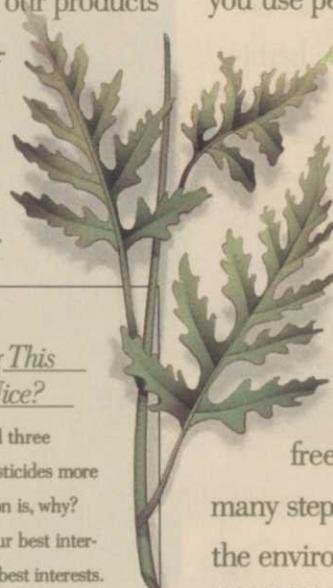
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Are We Doing This Just To Be Nice?

We've just published three books on how to use pesticides more responsibly. The question is, why? Well, we believe it's in our best interests to look out for your best interests. By helping you create an effective, responsible pest management program, we'll make a customer instead of just a sale. When that happens, everybody wins.



that's entirely devoted to turf and ornamental projects. Their work is leading to concentrated products that require less volume and fewer applications.

Then there's our Responsibility Comes First program. It gives you the opportunity to receive

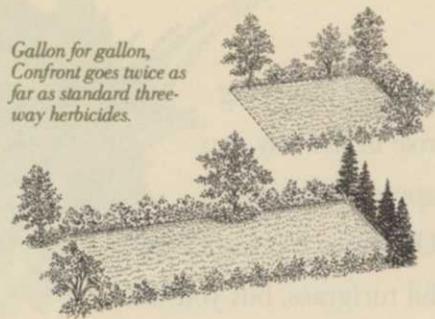
The thing we're trying to help you avoid is overkill. Because if you can control weeds, isn't that enough?

So here's a less

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

Also, calibrate your equipment frequently, and use the correct

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



At last. A herbicide a like eradicate, eliminate

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

First, look for weedy areas

A Young Weed Is A Vulnerable Weed.

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

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



 DowElanco

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

And it's important to select a

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

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



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

d that doesn't use words or destroy.

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

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



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

For a free copy return the coupon, or call our toll-free number. After all, why use any more herbicide than it takes to do the job?

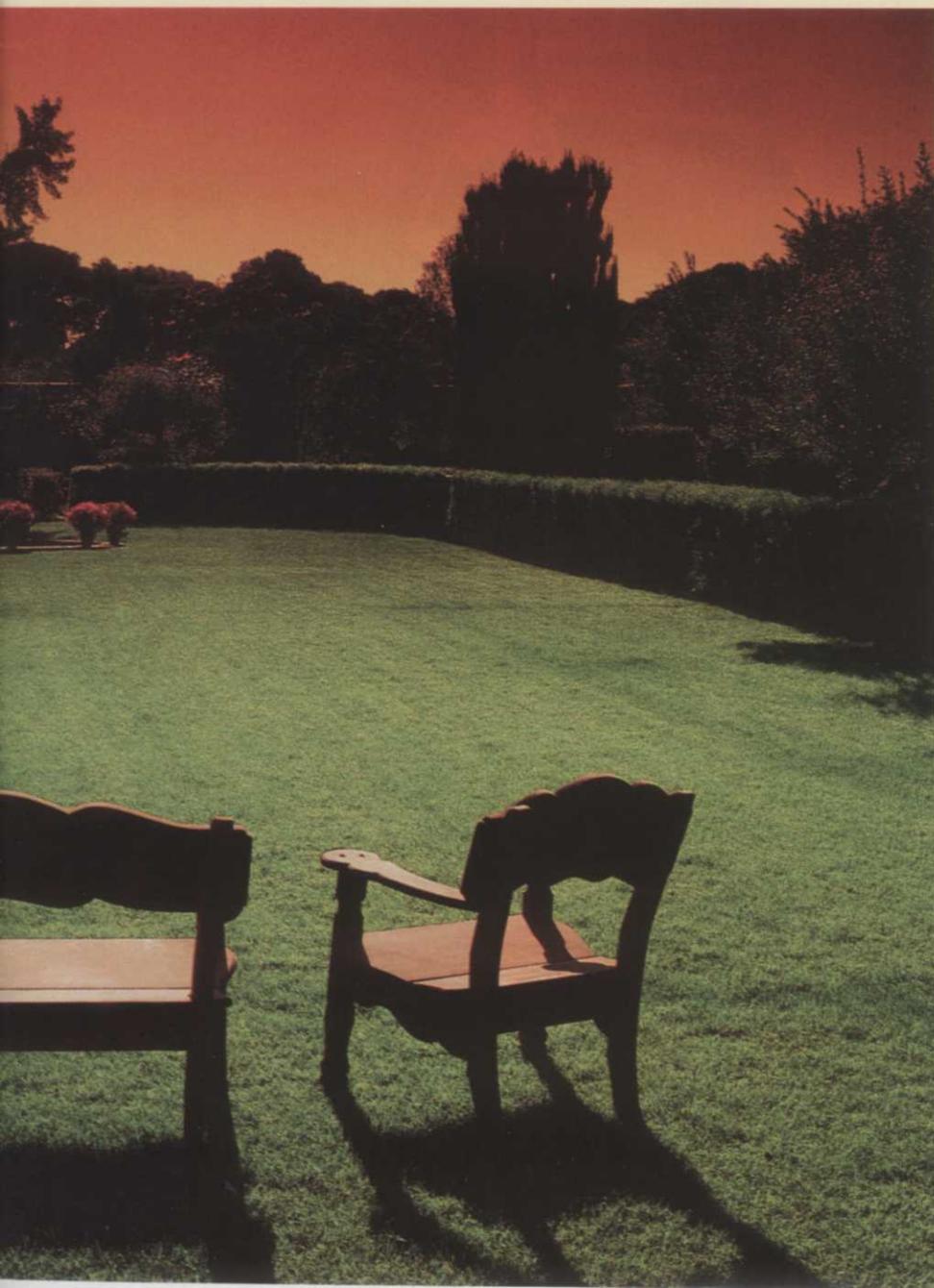
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Goosegrass



Crabgrass

copy return the coupon,
 or call our toll-free
 number. And start sav-
 ing some wear and
 tear on your herbicide
 applicator.

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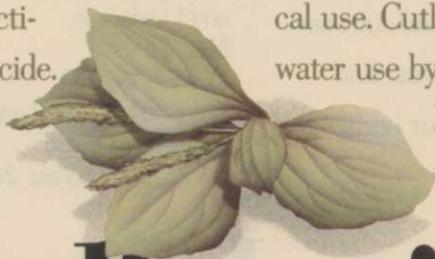
for people interested in



Nothing controls weeds in turfgrass better than turfgrass itself. That's because thick, healthy turfgrass doesn't give weeds any room to grow.

from insects and disease, you'll need less insecticide and fungicide. All of which means Cutless

can reduce your overall chemical use. Cutless also reduces water use by up to 30 percent. Makes turfgrass more drought-



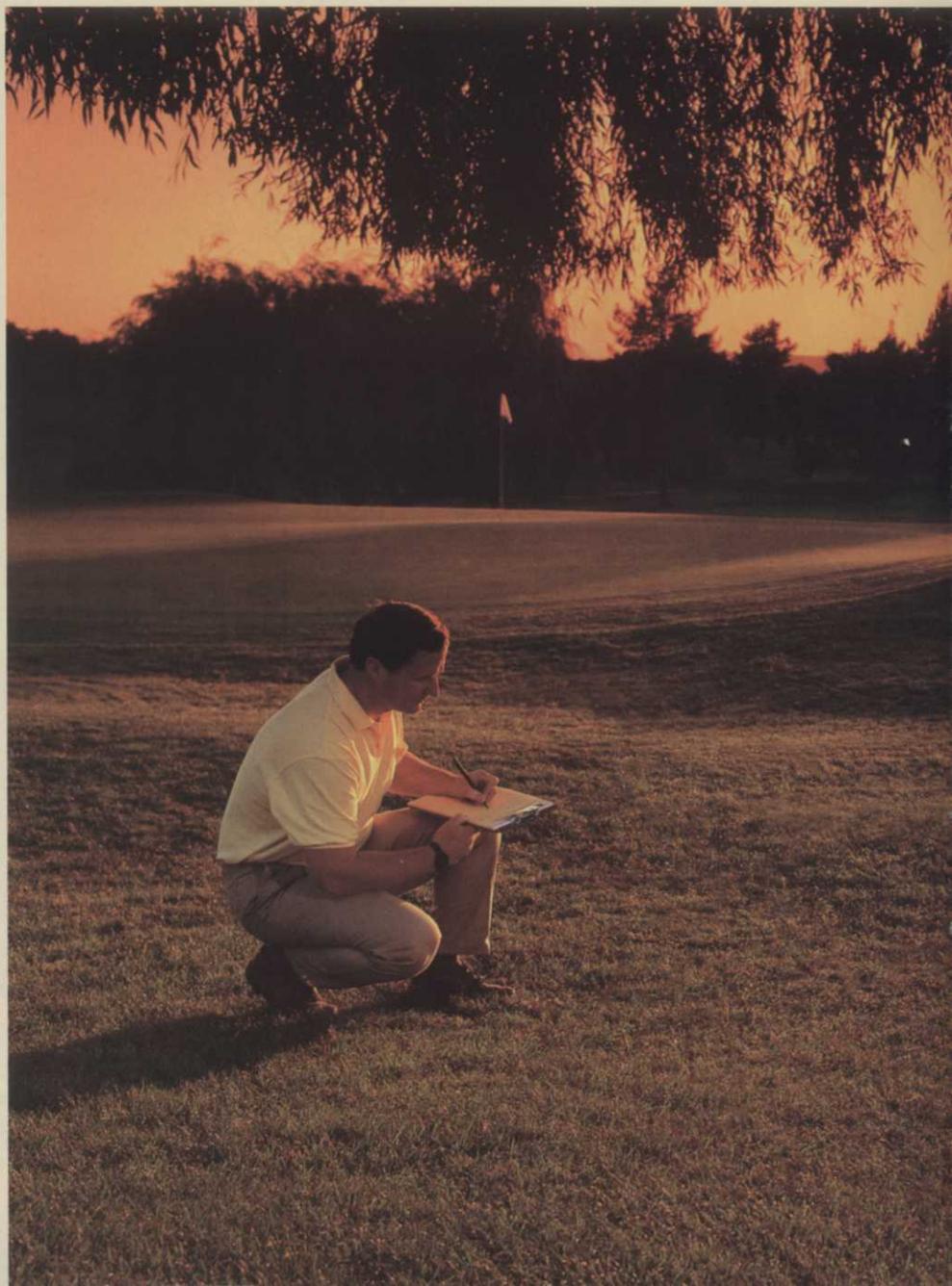
Why live with a few less weeds to live with a few less chemicals

So, if you make your turfgrass thicker and healthier, you won't need as much herbicide.

One good way to do it is by adding Cutless* turf growth regulator to your maintenance program. Cutless makes turf thicker and more competitive by slowing its growth while encouraging more tillers and stolons. It also inhibits weed growth. This results in a gradual crowding out of weeds.



And because your turf is thicker, healthier turf will be more resistant to damage



tolerant. Reduces mowing by about a third. Cuts clippings by about two thirds. And makes



greens faster and fairways more playable.

Plus, Cutless can help you gradually convert *Poa*

80 percent *Poa* on his fairways to 90 percent bentgrass over a five-year period.

There are many things you can do to grow thicker, healthier

Why more weeds in order chemicals?

annua to more desirable turf-grass species. It helped one golf course superintendent go from

turf. They're explained in our 44-page book, The Turf Manager's Guide To Responsible Pest Management. It'll also show you better



ways to control insects and turf diseases. For a free copy return the coupon, or call our toll-free number. Because a thick blanket of turf doesn't need a thick blanket of chemicals.



Thicker turf crowds out weeds, reducing the need for herbicide.

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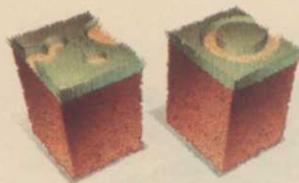
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We're talking about a control program that's very hard on fungus, yet very easy on your turfgrass. Some things you can do to reduce turf stress, use

less fungicide and still get an excellent level of control.



Rubigan controls all five patch diseases, making diagnosis less critical.

It starts with cultural practices. Like replanting disease-prone areas with resistant

cultivars. Careful watering. Providing adequate fertilizer. And removing thatch. They'll make your turf less susceptible to disease, which means you can use less

Just imagine. A a stranglehold on fungus



fungicide to protect it.

Knowing when to use a fungicide is important, too. By watching for conditions in which turf diseases thrive (weather patterns and soil temperature



fewer applications.

And, of course, it helps to choose your fungicide carefully.

Fungus attacks plants from within. The results can be devastating.

Gentle, long-lasting Rubigan* fungicide is a very

Pest Management. It also contains complete "how to" information on tactics you can use to control weeds and insects more responsibly. For a free copy just return the coupon below, or call our toll-free tele-

kind, gentler way to get

S. provide some very reliable signs), you can put down fungicide with perfect timing, and make

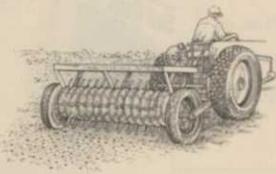
good choice. It controls 14 diseases, including dollar spot, necrotic ring spot and summer patch. It's very easy on your turf. And it lasts longer than other fungicides, which

phone number. And learn some very nice alternatives to applying a lot of fungicide.



A Short Course On Preventing Dollar Spot.

Leading universities recommend the following cultural practices to protect your turf from dollar spot. Eliminate excess thatch. Provide proper aeration. Increase nitrogen. Remove dew and water deeply and infrequently in the early morning (taking steps to keep your turf dry reduces the risk of dollar spot).



means you don't have to apply it as often.

For brown patch, you can use Broadway* fungicide. Its two modes of action provide excellent brown patch control. It also controls a dozen other turf diseases. It's easy on your turf. And its long-lasting action means fewer applications.

Of course, there's a lot more to fungus control than what we could fit in this ad. You'll find it in our 44-page book, The Turf Manager's Guide To Responsible

Rubigan and Broadway last longer than other fungicides, so you don't have to apply them as often.

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What you're looking at is a way to go an entire season on a single herbicide application—a control zone in the top inch of soil that keeps weeds from

one application gives you up to eight full months of control. If you like what Surflan does, but prefer a granular form, you can use XL* herbicide. It



Surflan is so mild it can be applied over the top of delicate ornamentals.

our 40-page book, The Nursery And Landscape Guide To Responsible Pest Management. It also contains information on better ways to con-



Actually, the mo this picture is containi

germinating all season long. It can greatly reduce your use of post-emergence herbicides and hand-weeding in your ornamentals.

contains the same active ingredient as Surflan. Apply it in the spring, and you'll get a full season of broad-spectrum grassy weed

How To Make Your First Roundup Your Last Roundup.

Here's a way to make your first application of Roundup herbicide last all season. Mix 3 oz. of Surflan per 1000 square feet with ¾ oz. of Roundup per gallon of water and apply when weeds are less than 6" tall. Roundup will knock the weeds down, and Surflan will keep them from coming back for the rest of the season.



We have three different pre-emergence herbicides that make this possible. All of them are very gentle on your plants. And they bind tightly to soil particles, which makes them very resistant to leaching.

control. And for woody ornamentals, you can use Snapshot* herbicide. It controls both grassy and broadleaf weeds. A single application lasts up to eight months. And it's available as a sprayable or in a granular form.



Our preemergence herbicides set up a gentle control zone that keeps weeds from germinating all season.

If you're looking for grassy weed control, you can use Surflan* preemergence herbicide. Surflan is, in fact, so gentle that you can spray it directly over the top of delicate ornamentals. Yet

We can show you lots of ways to control weeds more safely and effectively. They're explained in





Control insects and diseases.

For a free copy mail the coupon, or call our toll-free number.

Because you don't need a lot of herbicide to get beautiful results.

Send me the following Management Guide(s): Cool Season, Warm Season, Nursery and Landscape.

Mail To: DowElanco, P.O. Box 3064, Cedar Rapids, IA 52406. Or call: 1-800-729-3693 ext. 2492.

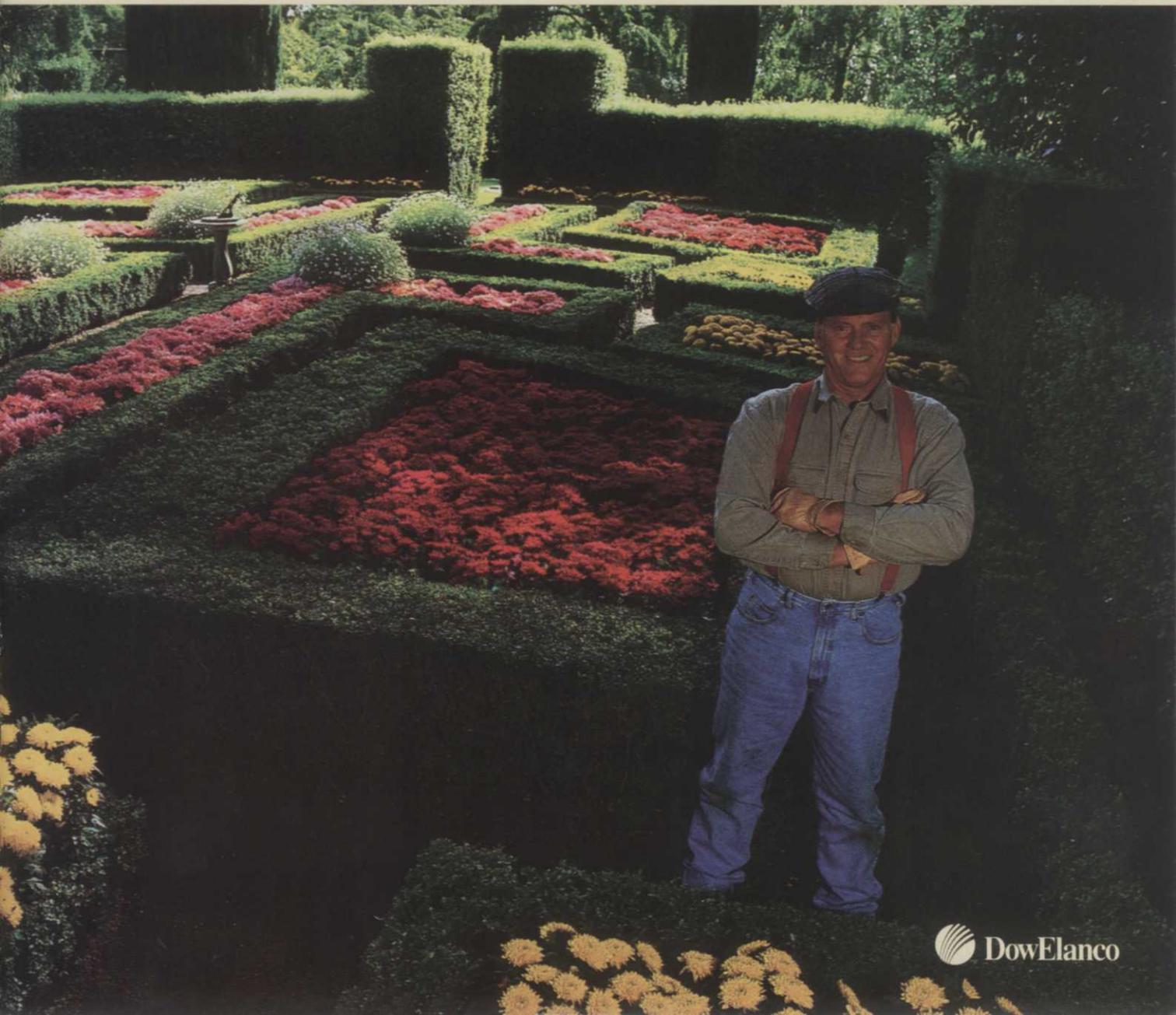


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The chemistry is right.™

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Best beautiful thing about found in the top 1" of soil.



You might think using less insecticide means you'll have to put up with more insects. But that's not necessarily the case. Because *how* you use your insecticide is as important as *how much* you use. With

the right tactics, you can use a lot less and still get excellent results.

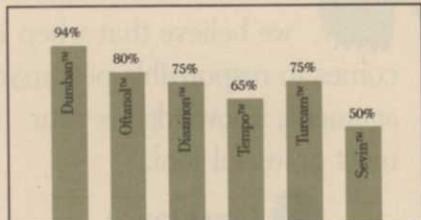
Here's a good example. By mixing insecticide with insecticidal soap, you can reduce the amount of insecticide you need on your

ornamentals by about fifty percent. Insecticidal soap controls most soft-bodied insects and mites. By adding insecticide, you'll also take care of tougher insects, like scales and worms. University studies



A few ways to balance with your love for the env





Studies show that Dursban delivers better chinch bug control at lower rates than other insecticides.

suggest you may get better control than you get with insecticide alone.

Knowing exactly when to apply insecticide helps, too. For example, adult black turfgrass aetinius are

cide gives you so much control at such a low rate. It's available in water-soluble packets. And it can be bio-monitored, which can reduce the likelihood of over-exposure.

Now, we realize you probably

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first present at the same time the black locust tree blooms. Make your insecticide application then, and you'll get the most efficient, effective control.

Your insecticide it-

have some questions. That's why we created The Turf Manager's Guide To Responsible Pest Management. It's 44 pages packed with

information on the latest techniques for

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insects,

weeds and

turf diseases.

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just return the coupon, or call our toll-free telephone number.

Because when you apply a little knowledge, you don't need to apply as much insecticide.

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Dursban is available in liquid, dry flowable, granular and fertilizer formulations. *Trademark of DowElanco. ©1992 DowElanco. 03



Why Adults Should Spend Time Catching Bugs.

If you want better results from the insecticide you use, insect traps can help. They allow you to find out when certain pest insects are present and time your insecticide applications accordingly. Insect traps are inexpensive, easy to use, and they'll help you get greater control using less insecticide.



self can also make a difference.

After all, different insecticides work at different rates. Which is why Dursban* insecticide could be your best choice.

Just one pound active ingredient per acre controls chinch bugs, billbugs, sod webworms and a host of other insects. No other insecti-



What you've read on the preceding pages only begins to outline a responsible pest management program.

You'll find a lot more in our guides to responsible pest management (see

coupon on previous page), and in the literature listed below.

If you have questions on our products, call one of our technical specialists at 1-800-352-6776. We'll be happy to help you out.



Because at DowElanco, we believe that when it comes to responsible pest management, knowledge is your most powerful tool.

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If we've piqued your interest, keep reading.

The literature below is some of the best information you can get on responsible pest management. Check your state university or write the publisher to find out where it's available.

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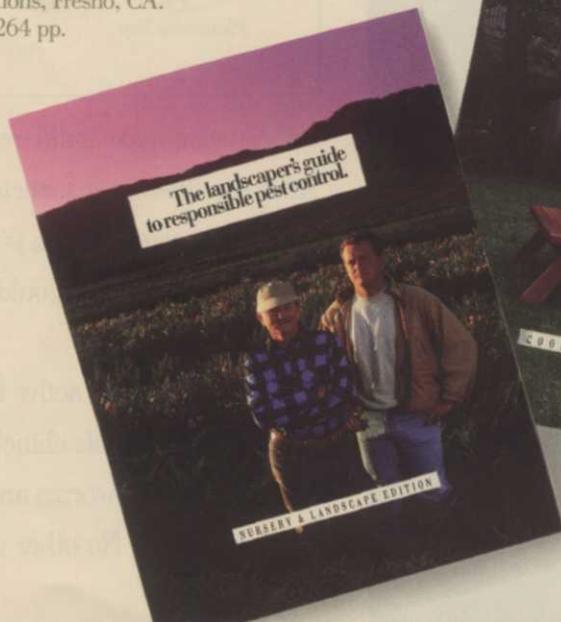
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LANDSCAPE MANAGEMENT

COVER STORY

Know your strengths before you bid

In Part I of a series, the author stresses the importance of realizing which jobs your company can and can't handle.

by Sylvia Hollman Fee

■ In project bidding, never take on more than you can handle.

Licensing, regulation and liability can be a bad trip. Knowing and assigning roles and responsibilities can expedite the job. Determining what, when, where, why and how is your first task, even before determining whether or not your firm should bid the job.

Fig. 1 depicts the typical assignment of roles on a commercial project. However, the extent of direct communication with owners, designers and general contractors varies considerably on each project. It's not uncommon for an owner to prefer one party—usually the designer or general contractor—to manage all the subcontractors. This means that even though the landscaper works from the plans and specifications of the designer, there may be no formal contact between the two. Another source of confusion may be the titles. Similar titles may even be held by different parties, or one party has the combined title; for example: owner/general contractor or designer/landscape contractor.

The responsibilities shown in Fig. 1 may also shift. But however complex the management, the landscaper should have a clear agreement with the party with whom they will be contracted. Knowing the roles and responsibilities listed in Fig. 1 will smooth the way when you are on the job. You can easily pinpoint who does what by picking up the phone, or asking a few fact-finding questions at the next meeting.

Bidding suggestions—For the purposes of bidding, keep these tips in mind:

1) Not all work is suited for all companies. The experienced landscaper should only seek the jobs best suited to the firm's present capabilities and short-term goals.

The purpose of marketing is to obtain business. The purpose of estimating is to obtain accurate operating costs in order for that business to remain profitable.



Sylvia Hollman Fee

2) Every bid you make is a marketing venture for your firm. And every marketing venture needs to be cost-effective, appropriate, and targeted. When it comes to bidding and proposing new work, are you targeting your goals, or are you scattering your shot in the hopes of hitting something out there? Stop wasting ammunition, select your market and focus your fire power.

3) A list can help you determine prospective markets. Write down the names of the persons in your firm, including yourself. Under each person jot down four unique capabilities. Next, list the markets you are presently serving. With the information you gain from evaluating your firm's capabilities, you can make your own decision to bid or not to bid a particular project.

An example—To illustrate why it's not advisable to bid a job just to get a job, here's an example of a firm that overshot and lost:

The excavator on a recent project my company ran decided to include the landscape work in his next (and last) bid. The

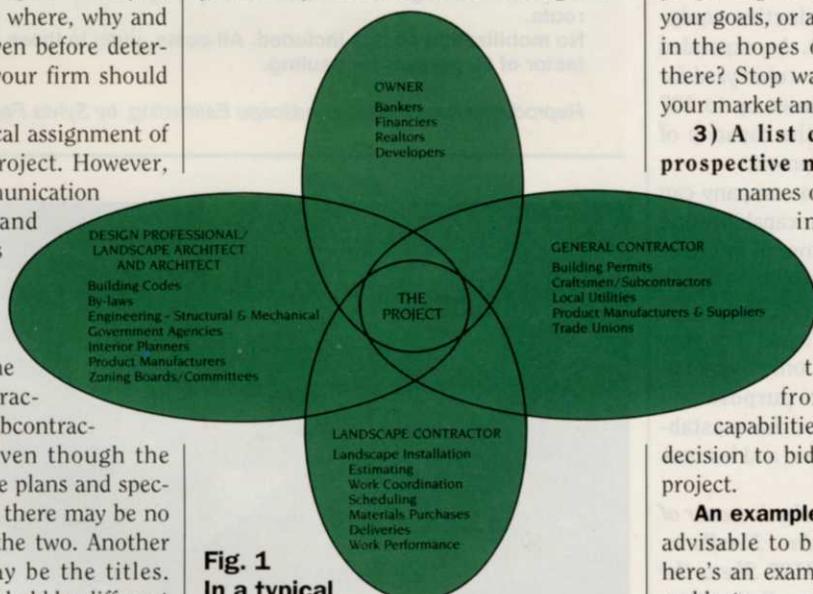


Fig. 1
In a typical commercial landscape project: their interactions and responsibilities

Reproduced from Means Landscape Estimating, by Sylvia Fee, R.S. Means Co., Inc. 1-800-334-3509.

excavator won the bid but "lost his shirt." His heavy equipment was unsuitable and not cost effective for handling landscape materials. He lacked knowledge of his costs for the specified plant materials, and was not familiar with the most efficient sequence of work. The cost advantage of his equipment went right out the door, as access to planting areas was constrained by finish paving and other details.

The excavator's decision to bid was based only on desire for work, and had no basis in the firm's capabilities.

Target your work—Successful companies target only the work they are best equipped to perform, because those are jobs where their greatest profit can be made. Not all jobs should be bid by every landscape contractor. Before spending a lot of time performing a takeoff and estimating job items, take a look at the situation surrounding the job. Be objective. Consider all the negative factors involved.

Remember, not all types of work in the same town are profitable. And identical work in different towns is not always manageable.

Mature companies have a routine that helps them target potential work. Their selection process is based on their own particular capability and capacity. The capacity of a landscape company is more than just the purchasing power assessed by its insurers and banks and clients. Many other factors such as available labor, trucks, equipment and tools have a major effect on productivity and costs.

Table 1 illustrates the dramatic impact of choosing the most productive equipment to own, hire or rent. An expanded listing suggests the cost per cubic yard for equipment and for labor varies up to 107 percent depending up on the capacity of the excavating/hauling equipment.

From self-examination, a company can define for itself its particular capability and capacity. It draws upon a store of information from hands-on experience.

As Joe Dallorso, owner of Botanical Artisans, Peperrell, Mass., says: "I'm very specialized. I know I've got only one audience, and that's partly on purpose and partly accidental. Once you have established your groove, stay there, and become the best at that."

—*Sylvia Hollman Fee is owner of Sylvia Fee & Associates, Inc., Needham, MA 02192; (617) 449-0167. She is the author of Means Landscape Estimating.*

NEXT MONTH: Project Take-Offs

Table 1

EXPANDED SYSTEM LISTING

EXCAVATE COMMON EARTH	\$ Cost Per Cubic Yard		
	Equipment	Labor	Total
1/2 cu.yd. backhoe; two 6-cu. yd dump trucks; 1 MRT	2.70	2.92	5.62
Three, 6-cu.yd. dump trucks; 3-mile round trip	5.15	4.64	9.79
Two, 12-cu.yd. dump trucks; 4-mile round trip	3.35	3.67	8.02
3/4-cu.yd. backhoes; three cu.yd. dump trucks; 1-mile round trip	2.61	2.33	4.94
Five, 6-cu. yd. dump trucks; 3-mile round trip	4.95	4.15	9.10
Two, 12-cu. yd. dump trucks; 2-mile round trip	3.39	2.65	6.04
Two, 16-cu. yd. dump trailers; 3-mile round trip	3.45	2.16	5.61
Two 20-cu. yd. dump trailers; 4-mile round trip	3.51	2.30	5.81
1-1/2 cu.yd. backhoe; eight, 6 cu.yd. dump trucks; 3-mile round trip	4.80	3.54	8.34
Four, 12-cu.yd. dump trucks; 2-mile round trip	3.05	2.09	5.14
Six, 12-cu. yd. dump trucks; 4-mile round trip	3.95	2.56	6.51
Three, 16-cu. yd. dump trailers; 2-mile round trip	2.97	1.61	4.58
Two, 20-cu. yd. dump trailers; 1-mile round trip	2.30	1.31	3.61
Three, 20-cu. yd. dump trailers; 3-mile round trip	3.03	1.65	4.68
2-1/2 cu. yd. backhoe; six, 12-cu. yd. dump trucks; 1-mile round trip	2.41	1.48	3.89
Eight, 12-cu. yd. dump trucks; 3-mile round trip	3.30	1.98	5.28
Four, 16-cu. yd. dump trailers; 1-mile round trip	2.41	1.18	3.59
Six, 16-cu. yd. dump trailers; 3-mile round trip	3.22	1.61	4.83
Six, 20-cu. yd. dump trailers; 4-mile round trip	3.15	1.60	4.75
3-1/2 cu. yd. backhoe; six, 16-cu. yd. dump trailers; 1-mile round trip	2.86	1.16	4.02
Ten, 16-cu. yd. dump trailers; 4-mile round trip	3.98	1.66	5.64
Eight, 20-cu. yd. dump trailers; 3-mile round trip	3.29	1.38	4.67
1/2 cu. yd. shovel; four, 6-cu. yd. dump trucks; 2-mile round trip	3.93	3.18	7.11
Two, 12-cu. yd. dump trucks; 1-mile round trip	2.54	2.02	4.56
Four, 12-cu. yd. dump trucks; 4-mile round trip	3.86	2.64	6.50
Two, 16-cu. yd. dump trailers; 2-mile round trip	2.87	1.87	4.74
Two, 20-cu. yd. dump trailers, 4-mile round trip	3.30	2.18	5.48

The excavation of common earth system balances the productivity of the excavating equipment to the hauling equipment. It is assumed that the hauling equipment will encounter light traffic and will move up no considerable grades on the haul route.

No mobilization cost is included. All costs given in these systems include a swell factor of 25 percent for hauling.

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You've got a lot of jobs ahead, including that big office park.

Your first cup of coffee hasn't started working yet. Fortunately, your new Honda mower starts easier. And all



the controls are right in front of you, so you can ease into the morning without any hassle.



You've finished the first job ahead of schedule. Maybe it's



Before you move on, you stop to admire your handiwork.



that powerful Honda 13 horsepower OHV engine. Plus, those slopes aren't tiring you out. That's because the twin hydraulic pump system lets you control power to each drive wheel independently. You simply balance the power with two levers and the mower tracks straight, even on slopes. You do more work with less fatigue.



After lunch (a novelty you could get used to) you stop by your Honda dealer for some supplies.



You haven't needed oil in a while, so you grab a little just in case. The dealer then reminds you about Honda's

Honda's two-step deck combines high-vacuum with a unique baffle design and a wide chute. The result is a clean, even cut. It's more efficient, so your work is finished on time

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he introduces you to some of their trained service people. It's nice to know they're available to help. But with a Honda, you probably won't need them very often.



remove the retaining pins to adjust the cutting height without any special tools. And aren't you glad Honda offers a choice of 36" or 48" cutting width?



All your work is finished, and the truck's loaded. You could actually squeeze in an extra job.



You noticed Honda's larger drive wheels when you had to navigate around a bird bath and squeeze between two boxwoods. Honda's zero-turn radius makes it easy to maneuver in tight spots. And



But that's up to you. Because while this new Honda is a better way to get to work, it also makes it easier to leave on time.



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The office park. They like their grass trimmed a little higher. Instead of taking your mower back to the shop to adjust it, you simply



if you have to release the controls, Honda's interlock system offers you the safety and peace of mind you've come to expect from Honda.

ces a better way o work.

Before buying string trimmers, consider these different features

■ Since their inception less than two decades ago, string trimmers have become a labor-saving device and a staple in the professional landscape manager's equipment arsenal.

They can be used for trimming grass around walks, buildings and plantings; for areas too steep or rocky for a mower; or for attacking high weeds. Some models can be converted to edgers, cultivators, blowers, vacuums and even snowthrowers.

With so many different sizes and shapes on the market now, the conscientious prospective buyer should consider numerous factors before making a purchase.



The Maruyama BC320H: 12.5 lbs., with four- and eight-tooth blades.

Professional models (as opposed to consumer models) generally use gasoline engines. However, if you're going to be using them for extremely lightweight trimming, you might investigate the electric and battery-pack models, which are somewhat less expensive (but also less powerful).

Some other considerations:

1) Curved or straight shaft? Though the curved shafts are generally easier to use, straight shafts generally offer fewer maintenance problems with the driveshaft and are a bit safer, since the cutting head is farther from the operator.

Curved shaft trimmers use a flexible driveshaft to carry the engine's power to the head while straight shafts use a rigid drive that is generally more power-efficient.

2) Rotary or reciprocating head? Rotary heads, which usually incorporate either one or two nylon filament lines, make complete 360-degree revolutions. Reciprocating heads, on the other hand, move back and forth in the two- to three-inch range.

Though rotary heads are more versatile, reciprocating heads maintain a clean cut but are safer to use because flying debris is minimized. Reciprocating heads can also get quite close to obstacles without doing damage.

Curved shaft string trimmers—like Husqvarna's 26RLC—are said to be easier to use, but less power efficient.



3) Balance and maneuverability? On some models, the engine is placed at the back end of the unit; on others, it is down at the head. In either case, balance is the key to efficient user operation.

The best way to determine whether the unit meets your needs is to actually visit a dealer and get "the feel" of the instrument.

Remember, too, when you're testing the unit that considerably more physical stress is placed on the user who has to trim for hours on end.

4) Engine vibration? Some models feature anti-vibration systems that include rubber mounts to block engine vibrations from the handles. This should be one of your prime considerations, if you're going to have people working long hours with the tools.

5) Engine power? Cubic centimeter engine displacement and horsepower should be considered. If the instrument is to be used for light weed trimming around home and office landscapes, you'll not need as powerful a unit. If, however, the operator will be trimming tall, heavy weeds, you'll want more power.

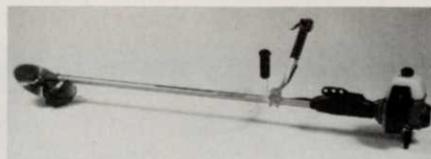
The Homelite HBC-30: 13 lbs., with tri-arc blades.

6) String advance? Most manufacturers make manual feeds, bump-feed heads and automatic heads. On the manual feed models, the unit must be turned off to feed string out. Bump-feed heads feature an under-carriage button that feeds string out by bumping it on the ground. (Be careful: according to consumer reports, some units need just a light tap, others a much firmer bump. Test and buy the unit that meets your needs.)

7) Options? Most units will come with options and interchangeable parts that include safety equipment (like goggles), different style handles, shoulder harnesses and cutting edges (saw blades, machete blades and tri-arc blades are those listed in the accompanying chart). Check with your dealer.

—Jerry Roche

Robin's NB-411 weighs 16 lbs., has a quick-release harness.





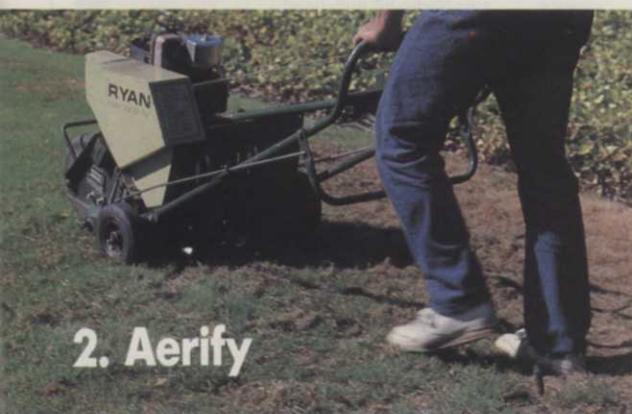
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	25S	24.4 cc	17"	12.5 lbs.	straight	heads, blades, handlebar	
	30S	30.8 cc	17"	15.0 lbs.	straight	heads, blades, handlebar	
	38B	37.4 cc	15"	18.2 lbs.	straight	adjustable handlebars, additional heads, blades	
Echo	GT-1100	21.2 cc	16"	9.4 lbs.	curved		302
	GT-2400	23.6 cc	16"	10.3 lbs.	curved		
	SRM-1501	21.2 cc	17"	11.1 lbs.	straight		
	SRM-2400	23.6 cc	17"	12.1 lbs.	straight		
	SRM-2410	23.6 cc	17"	12.5 lbs.	straight	u-handle standard	
	SRM-2501	24.4 cc	17"	13.3 lbs.	straight		
	SRM-2510	24.4 cc	17"	13.7 lbs.	straight	u-handle standard	
	SRM-3000	30.8 cc	17"	15.8 lbs.	straight	right-hand grip design	
SRM-3800	37.4 cc	14"	18.1 lbs.	straight	u-handle standard		
Hoffco	WW88	85 cc	18"	38 lbs.	curved		303
	JP890A	30.5 cc	16"	21 lbs.	straight	handlebar kit	
	JP800B	26.5 cc	16"	21 lbs.	straight	handlebar kit	
Homelite	HBC-40	40 cc	20"	18 lbs.	straight	harness, tri-arc, machete, saw blade	304
	HBC-38	40 cc	18"	16 lbs.	straight	harness, tri-arc, machete blades	
	HBC-30	30 cc	18"	13 lbs.	straight	strap; saw, machete, tri-arc blades	
	HBC-18	30 cc	18"	13.5 lbs.	curved	tri-arc, machete, saw blades	
	ST-385BC	25 cc	17"	13 lbs.	straight	saw blade	
Husqvarna	26RLC	26 cc	16"	11.8 lbs.	curved		305
Landscape's Supply	18CC	18.4 cc	n/a	10 lbs.	flexible		306
	24.1CC	24.1 cc	n/a	13 lbs.	straight		
	33CC	33.3 cc	n/a	18 lbs.	straight	10-inch 80-point blade, bullhorn handle	
Lesco	LST2100	21.2 cc	17"	11.1 lbs.	straight		307
		23.6 cc	16"	12 lbs.	straight		
Maruyama	BC200C	19.8 cc	16"	9.7 lbs.	curved	manual head	308
	BC200	19.8 cc	17"	10.6 lbs.	straight	4-, 8-tooth blades	
	BC260	25.4 cc	17"	11.2 lbs.	straight	4-, 8-tooth blades	
	BC260H	25.4 cc	17"	12.1 lbs.	straight	4-, 8-tooth blades	
	BC260C	25.4 cc	17"	9.7 lbs.	curved	manual head	
	BC320	31.8 cc	17"	11.7 lbs.	straight	4-, 8-tooth blades	
	BC320H	31.8 cc	17"	12.5 lbs.	straight	4-, 8-tooth blades, manual head	
	BC402M	40.2 cc	17"	17.9 lbs.	straight	saw blade, full auto head, 4-, 8-tooth blade	
BC480M	48.0 cc	17"	17.9 lbs.	straight	saw blade, full auto head, 8-tooth blade		
RedMax	BT17	17.2 cc	n/a	9.5 lbs.	curved		309
	BT220	22.5 cc	n/a	8.8 lbs.	curved		
	BC220DL	22.5 cc	n/a	10.2 lbs.	straight		
	BC260DL	25.4 cc	n/a	13.3 lbs.	straight		
	BC340DL	33.6 cc	n/a	15.3 lbs.	straight		
	BC440DWM	41.5 cc	n/a	18.5 lbs.	straight		
	SGC220DL	22.5 cc	n/a	14.1 lbs.	straight	reciprocating head	
Robin	NBF171	16 cc	12"	9.6 lbs.	flexible		310
	NB211C	20.3 cc	15"	8.9 lbs.	straight	quick-release shoulder strap	
	NB231C	22.2 cc	16"	9.3 lbs.	straight		
	NB26	25.6 cc	16"	12.2 lbs.	straight	saw blade, handlebars, harness	
	NB351	34.4 cc	18"	15.9 lbs.	straight	saw blade, quick-release harness	
	NB411	40.2 cc	18"	16 lbs.	straight	saw blade, quick-release harness	
	NB50L	51.7 cc	18"	19 lbs.	straight	saw blade, quick-release harness	
Stihl	FS74	23.8 cc	n/a	12.0 lbs.	flexible	shoulder harness, goggles, 8 heads	311
	FS76	23.8 cc	n/a	11.7 lbs.	straight	shoulder harness, goggles, 11 heads	
	FS86AVE	25.4 cc	n/a	15.0 lbs.	straight	shoulder harness, goggles, 8 heads	
	FR106	34.4 cc	n/a	23.8 lbs.	str/flex	goggles, 9 heads	
	FS180	35.2 cc	n/a	15.7 lbs.	straight	shoulder harness, goggles, 6 heads	
WeedEater	XT20T	22 cc	15"	10.9 lbs.	curved		312
	XT50	30 cc	17"	11.8 lbs.	curved		
	XT85	30 cc	18"	14.8 lbs.	curved		
	XT100/125	30 cc	18"	13.4 lbs.	straight		
	GTI 15T	22 cc	15"	10.7 lbs.	curved		
	GTI 16	30 cc	17"	10.9 lbs.	curved		
	GTI 18	30 cc	18"	13 lbs.	curved		

Source: LM mail survey, Dec. 1991/Jan. 1992

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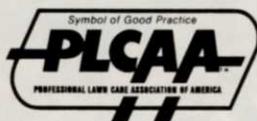
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Helpful hints for tank-mixing your pesticides, fertilizers

Watch for foaming and gel formation when mixing pesticides and fertilizers in tanks, says an agronomic consultant.

■ Former Purdue University agronomist Jeff Lefton, now an independent consultant, reminds us that "pesticides are not perfect," that they rarely get 100 percent control, and that sometimes mixing errors make them even less effective.

"We have to understand where the problem is—in the leaf, the crown or the roots—and then target one chemical to the problem.

"There's a lot of information on the label," Lefton says. "But many times we don't read the label or the information we need isn't on the label. That's when you have to learn from your experiences. You have to keep a lot of notes."

Here are some cardinal rules Lefton says to keep in mind when mixing pesticide and fertilizer products:

1) Only one soluble chemical can be

tank-mixed with one or more insoluble chemical.

2) If two soluble chemicals are tank-mixed, you can avoid phytotoxicity by cutting the rates in half.

3) All insolubles can be tank-mixed without phytotoxicity, as long as you use recommended rates.

4) Do not mix organic fungicides with alkaline compounds or with insecticides using xylene as a solvent.

5) Never mix a contact fungicide with a subsurface insecticide.

"Try mixes on a test area similar to where you plan to apply," Lefton suggests. If they are physically incompatible, you will probably see one of the following indicators:

- * precipitation
- * foaming
- * gel formation
- * flake formulation
- * separation of components

When tank-mixing, tanks should first be filled to one-fourth capacity with water, and agitation should begin. Then add fertilizer first, followed by any wettable powders or wettable dry granules (pre-slurry).

Liquids, flowables or solubles should be



Photo courtesy of ChemLawn Services Corporation.

next, followed finally by emulsifiable concentrates.

Lefton says to watch out for alkaline hydrolysis, which can occur under high water pH. "Some compounds have very short residuals, sometimes just hours," he says. "Temperature, salts and formulations also affect alkaline hydrolysis."

Powder Blue, liquid ureaformaldehyde, fluid lime and water are all high-pH, as are many cleaning detergents.

To avoid alkaline hydrolysis, Lefton suggests:

- 1) checking pH;**
- 2) using a buffer to bring the pH down to 5.5 to 6.0; and**
- 3) applying the same day as mixing.**

In summary, Lefton says:

- 1) Collect all the information you can.**
- 2) Use a jar test, or test the tank-mix on a test area.**
- 3) Know the solution's pH.**
- 4) Use the right product for the right problem.**

— Jerry Roche

Mercurial costs merit close tracking

Direct and indirect costs must be passed on to customers if you want to stay profitable.

■ If you don't track increasing costs carefully each year, profits will shrink before you know it, says Bill Hoopes of Barefoot Grass.

Hoopes defines **direct costs** as those costs which are closely identifiable with

the rendering of service, including trucks, product and labor.

An **indirect cost** is one not directly identifiable with rendering of service, and includes rent or utility bills.

The gross profit margin—or the sum total of sales minus the direct costs—can dip dramatically when costs increase, as they are sure to do each year.

What happens when costs change, but business people fail to react?

"Assume you have 1,000 customers," says Hoopes, "each paying \$200 per year

for lawn care (five treatments each year at \$40 each); your revenue is \$200,000."

Gross profit is now \$73,500 and has dropped from 40 percent to 36.75. Selling and administrative costs have jumped by 0.4 percent (\$2,000). It's now \$52,000 or 26 percent, further eroding bottom line.

Before-tax profit is now \$21,500 (10.75 percent).

More than 28 percent of profit has been lost to cost increases.

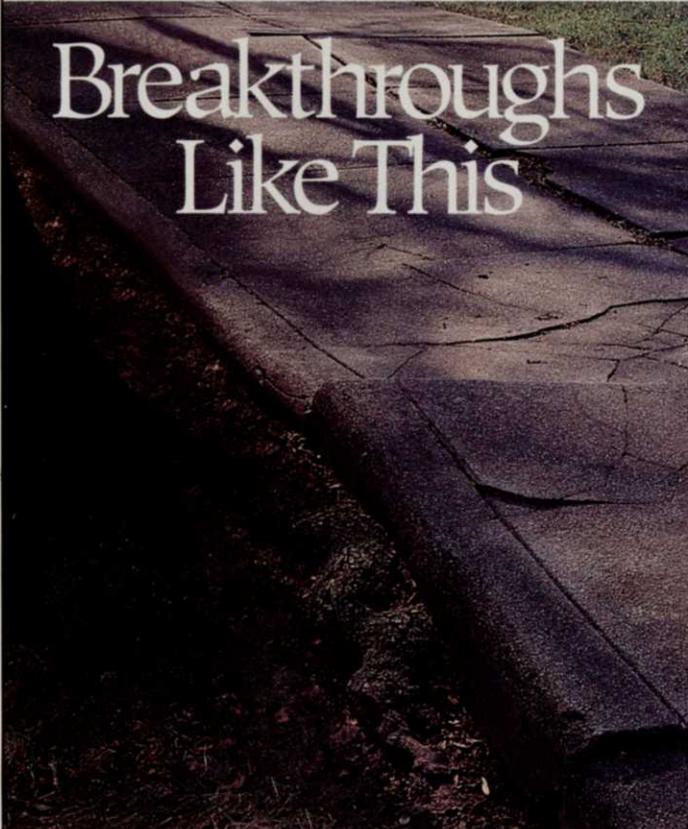
"You could increase sales," suggests Hoopes, "but the percentages will stay the same. If you don't think you can get more efficiency from labor, and can't control price increases, you have to pass it along to customers in the form of a price increase.

"If your treatment price per customer is \$40, the example shows a 4.25 percent

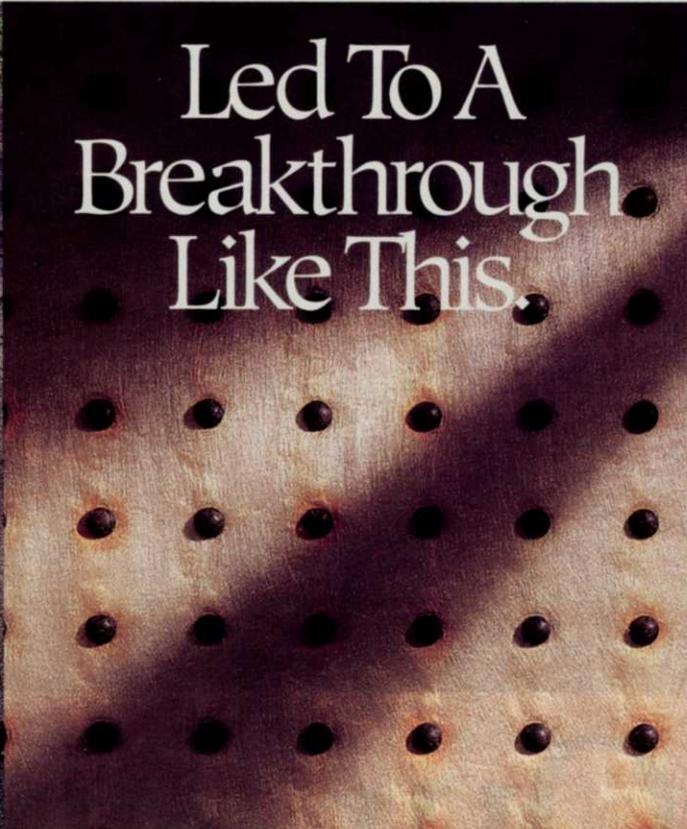
 Tree roots break through sidewalks. They can break through into greens and sand traps. They can even break through into hazardous waste sites and contaminate everything around them. In fact, wherever you need to maintain the integrity of the soil and vegetation around an area with trees, you need a root control system that works.

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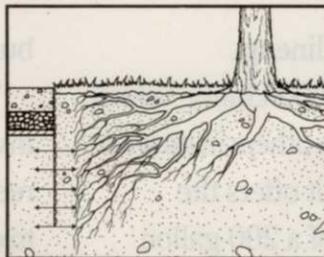


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cations, and can remain effective for up to 100 years in some applications. Plus, its fabric flexibility allows it to be cut, shaped, or formed to meet virtually any configuration your site requires.

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drop in profit," explains Hoopes. "So to equalize the \$8500 loss—from 30 percent to 21.5 percent—we need to raise prices 4.25 percent. All that means is \$1.75, which is not critical."

The downside risk is the chance that you won't sell as many customers. So do you raise the price or try to get it from elsewhere? "If you don't (raise prices)," warns Hoopes, "28 percent of profit flies out the window."

Hoopes also offers some good advice for telemarketing and direct mail programs.

"Target your marketing, make sure it's specifically detailed, and keep a history of what you do and all results," he says. "As the year goes by, target what you do so you spend advertising and marketing dollars only when you believe it will bring a good return."

Hoopes made his remarks at the Green Industry Expo in Tampa, Fla.

—Terry McIver

Direct costs (as percent of sales) and annual increase assumptions

Labor	25% (6% increase each year)
Product cost	20% (5% increase each year)
Vehicle costs	15% (5% increase each year)
Selling/administrative costs	25% (4% increase)

Labor	\$50,000.
Product cost	\$40,000.
Vehicle costs	\$30,000.
Total sales costs	\$120,000. (60% of sales)
Gross profit	\$80,000. (40% of sales)
Sales/admin	\$50,000. (25% of sales)
Before tax profit	\$30,000. (15% of sales)

Cost increase assumptions:

Labor	(up 6% or \$3,000).....	\$53,000. (26.5% of sales)
Product.....	(up 5% or \$2,000).....	\$42,000. (21% of sales revenue)
Vehicles ...	(up 5% or \$3,000).....	\$31,500. (15.75% of sales)
Total sales costs		\$126,500. (63.25% of sales)

Independent go-getter finds new profit centers

If it's not a nursery, it's a community composting facility for this Kansas City entrepreneur.

■ John Cazzell, one of the industry's original lawn care operators, found a new way to make money.

How's that? He opened a garden center.

In September, 1990, Cazzell—owner of Four Seasons Lawn & Landscaping in Kansas City—opened a seven-acre garden center that was immediately profitable, enabling him to cope with the slowdown in business precipitated by the economic recession.

"I saw it as an opportunity to add to the services we had already offered," says Cazzell, who started out in lawn care back in 1977 as a part-timer while working with Norfolk & Western Railroad.

"Margins are narrower than they've ever been," observes Cazzell, pointing to increased fuel costs, increased machinery costs and the recession. Yet the nursery center has shouldered some of the burden of the economic times.

The nursery sold \$30,000 of materials

in its formative months, with virtually no start-up costs. (Of course, Four Seasons already owned the acreage adjacent to I-29 in a high-visibility area north of K.C.)

The Four Seasons Nursery Center sells Heartland storage barns for a 10 percent commission. The barns, set out next to the highway, "turn the eye," Cazzell contends.

"We have distribution rights on paving brick and walls, patio stones and so on," he says. "I think it's the thing of the future." Four Seasons handles 38 different types and colors of paving bricks.

Cazzell is always looking for a way to increase profitability. Next order of business might be a composting facility. He is on the Kansas City Waste Minimization Commission. Since a state law dictates that landfills not take landscape debris, starting this year, Cazzell has opened up part of his garden center land as a debris "re-cycling" center.

"We want to serve as a disposal drop-off point for the homeowner or small (three acres or less) commercial business," he notes.



Nursery manager Linda Mills helps build a profit center for Four Seasons owner John Cazzell.

He plans to disc and till the debris into the soil with a farm tractor and re-sell the matter as topsoil. "One cubic yard of soil becomes two or two-and-a-half cubic yards of rich topsoil," he contends. What's more, he's working on a possible plan to lease more land through the city (for \$1 an acre) and use it as composting fields.

Do all these projects mean he's busy? You bet.

"Anybody can buy a mower and go mow an industrial complex and make \$300," he says. "But what he does with the \$300 is the key."

That philosophy and work ethic has helped Four Seasons grow from a \$15,000-a-year odd job to a \$1.2 million business last year. That, and John Cazzell's ability to see the future.

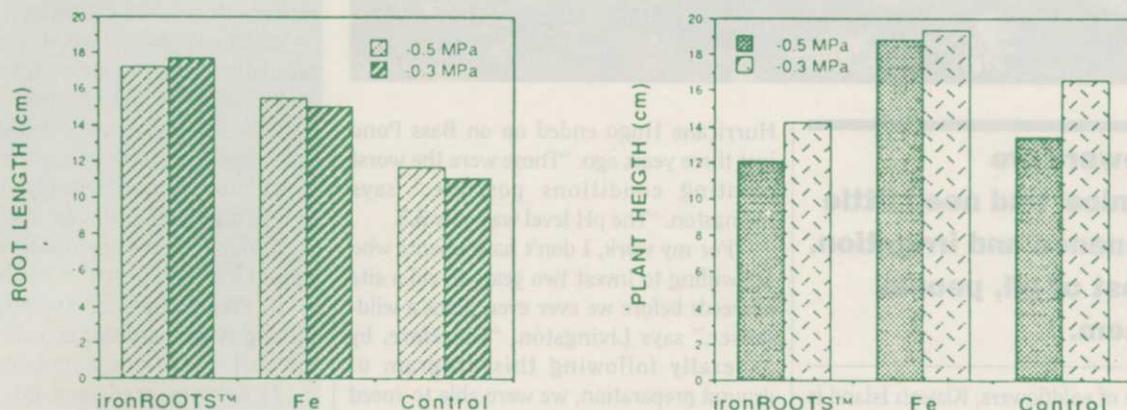
—Jerry Roche

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Why wildflowers? ...Why not?



Wildflowers are economical and need little maintenance and irrigation. But most of all, people love them.

■ Because of wildflowers, Kiawah Island is like a pretty young belle who knows she's pretty.

April's cover of sweet alyssum—it looks like snow—gives way, as May arrives, to bold, sassy blossoms. Winking, waving black-eyed Susans. Orange California poppy. Yellow, lavender and white cosmos.

Summer's arrival coaxes up expanding circles of sun-yellow coreopsis, gaillardia and lemon-mint.

South Carolina's Kiawah Island is a jewel of a resort location, but's a prettier jewel because of the changing tapestry of wildflowers.

Why wildflowers?—The answers are almost obvious, says Sara Edi Livingston, co-founder of the Wildflower Alliance of South Carolina.

1) Their beauty. Color affects people profoundly. "The bottom line is that people will come to see color," says Livingston. "If we have a beautiful little place tucked away that people feel like they've discovered, then it will make them want to buy property there."

2) They are drought-tolerant, help control erosion and are reduced maintenance.

3) They often thrive in conditions that won't support exotics.

Tons of landscape waste churned up by

Hurricane Hugo ended up on Bass Pond just three years ago. "Those were the worst planting conditions possible," says Livingston. "The pH level was only 3.5.

"For my work, I don't have clients who are willing to invest two years to rid a site of weeds before we ever even plant a wildflower," says Livingston. "Therefore, by generally following this program of ground preparation, we were able to speed up the process and plant wildflowers the first season."

4) Wildflowers are usually not as affected by insects as exotics, and they use existing groundwater.

5) They cost far less to introduce and maintain. Installation costs for wildflowers are 8 to 10 cents per square foot, compared to \$4 per square foot to plant perennial or annual bedding plants, and 68 to 75 cents per square foot for sod, says Livingston.

6) A wildflower development shows that somebody cares, whether it's a resort manager, a golf course superintendent, or the developer of an apartment complex or office building.

"I think everybody is beginning to become aware that not only can wildflowers save money and effort, but they also show that someone is being environmentally sensitive," says Livingston.

7) Wildflowers allow developers to take highly maintained areas and return them back to environmentally protected areas and provide excellent wildlife habitat.

"I'm really excited about being part of a movement to bring back plants that are more natural, require less maintenance and are beautiful," she adds.

The changing tapestry of color transformed Bass Pond five times in the first year, from white to solid yellow, red, lavender and purple.

Planting a prairie-type wildflower site:

■ **1)** Take a soil sample of the site to be planted. Instructions should specify that the crop is to be "Wildflowers" and indicate whether or not irrigation is available.

2) Amend the soil based on the recommendation from the soil sample.

3) Schedule the planting to be done after the date of the last possible frost. The annuals will be killed by a late freeze.

4) Mow the area to be planted with the mower blades set as low as possible.

5) Rake the residue thatch and remove it from the site.

6) Prepare the seed for distribution by mixing it in a container with a ratio of one-part seed to four-parts damp sand.

7) Stir the seed/sand mixture thoroughly. This will scratch the outer coat of the seeds which will encourage better germination of some species. The damp sand

continued on page 46

For grass-free wildflower sites

■ **1)** Mow if the grasses and weeds are exceptionally high.

2) Spray with the herbicide Roundup, mixed at the recommended distribution rate.

3) Wait two weeks, then till the site thoroughly to expose dormant weed seeds.

4) Wait two weeks for weeds to germinate, then apply Roundup again.

5) Wait two weeks, till again, then distribute seeds according to directions for prairie-type wildflower site.

—These instructions have been prepared by Livingston Landscape Architects of Mt. Pleasant, S.C. For more information, contact: Wildflowers, P.O. Box 12001, Charleston, SC 29412.

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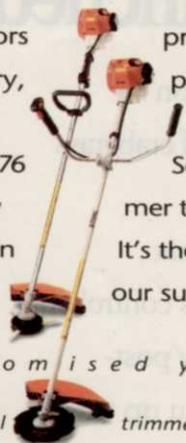
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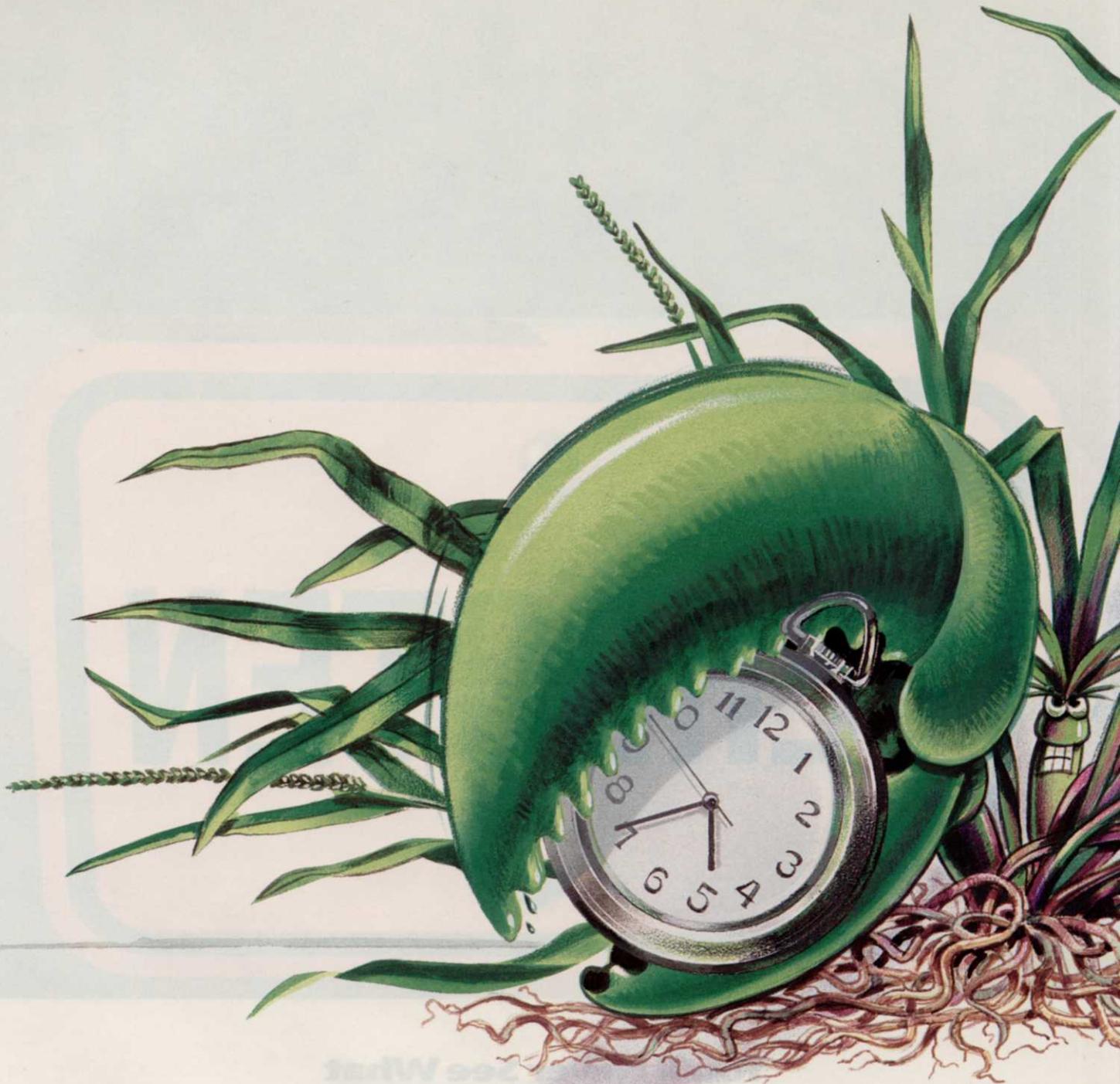
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*Based on a single application. DMP-2-457D 1/92

Safety vs. time vs. money: the rec facility 'Catch 22'

Half of the word 'budget' is 'get.' Here are some suggestions on how to 'get' enough money for your facility.

■ "Kids have as much right to expect safely maintained fields as professionals do," says Roger Moellendorf of the Green River (Mont.) Parks & Recreation Department. "The ability to play shouldn't affect the safety of the fields.

"That's put us in a real dilemma: to work on limited budgets and still maintain a level of public expectations. And television has increased those expectations. That becomes a very challenging demand. Everyone wants their kid's field to look like Wrigley Field or Mile High Stadium."

Moellendorf has four people (including three seasonals) to maintain 11 scattered ballfields.

"Liability and litigation have changed the concept of our profession," he says. "Fields they used to play on no longer



Roger Moellendorf:
"We have to work smarter and harder."

meet the expectations of today."

So what is the answer?

"We have to work smarter and harder," Moellendorf observes. "We have to become salesmen and campaigners to include maintenance dollars in the budget. The best way to do that is to hang our hats on

the safety issue.

"We also have to campaign with the public; they put too much emphasis on appearance and not enough on playability and safety."

Moellendorf believes that there should be a maintenance and safety audit conducted on every new project. "It sounds basic, but I'll guarantee it's not always done. It's not always easy, either."

Mark Doble of Western Sod has some suggestions for dealing with budget considerations.

"Half of the word 'budget' is 'get,'" he says. "It's a show-and-tell: 'If you give me this, I'll give you this.'"

Doble says that you have to sell yourself before you can sell your department and projects. "Please keep off the grass" is, literally, a sign of the times," he notes.

Doble says you must have a plan of attack:
continued on page 48

18 tips for saving money on athletic fields

■ Roger Moellendorf of the Green River (Mont.) Department of Parks and Recreation and Greg Petry of the Waukegan (Ill.) Park District make these suggestions for saving time and money:

1) Develop standards for employees. Bring people in for training rather than sending out employees.

2) Work with other entities, like school districts, to share facilities.

3) Put more emphasis on general-purpose fields. Pitcher's mounds, for instance, are temporary on Green River's fields, so the fields can be used for more than baseball diamonds.

4) Try to use native materials whenever possible.

5) Try pre-germinated seed, a proven time-saver.

6) Use multi-purpose equipment. Moellendorf's district has a sweeper used for winter sidewalks that is also used as a dethatcher during the summer. It "does a fairly good job," he observes.

7) Work with local sports organizations. In Green River, the Little League association purchased home run wall fencing. Petry also asked the Waukegan baseball association to include extra fees and kick back money for field maintenance.

8) Work with staff, management and

commissioners, to develop a priority list, a "total evaluation of costs and benefits."

9) "Look at the big picture," Petry suggests. Look at how each dollar is spent, including employee raises (merit raises only?) and liability insurance increases.

10) Make a public relations effort in the community. "There are certain things we're going to have to give and to take away from the public," Petry notes. "We have to balance everything, and that's the hard part because it affects people."

11) Take advantage of early-pay discounts, and ask vendors for bigger discounts.

12) Take bids on any major service or purchase. "If you really make these guys sharpen their pencils, they will," Petry says.

13) Put clamps on absenteeism, and control overtime.

14) Focus on work simplification, keeping to the same routines.

15) Focus on preventive maintenance.

16) Minimize defects. "If you don't have time to do it right the first time, you don't have time to re-do it," Petry says.

17) Make sure employees are oriented to equipment, safety, etc.

18) Ask vendors if your fields can be used as experimental areas.

—J.R.

Wildflowers from page 42

will stick to the seeds, making it easier to achieve a more even seed distribution.

8) Distribute the seeds by "feeding the chickens". We do not recommend using a rotary-type seed machine that fits across the chest as the tiniest seeds shift to the bottom, and results in poor distribution.

9) Drag the site with a fence weighted by a heavy pole or roll with a water-filled drum if the site is large.

10) Mulch with a fine layer of pine straw or hay to hold the seeds in place and discourage raiding by birds.

11) Water the site if possible.

12) The cotyledons and "true leaves" should begin to show in five to six weeks.

13) If grass or weeds become a problem, apply the herbicide Poast as recommended, disturbing the site as little as possible.

14) Do not mow the site until the annuals have set seed. Set the mower blade high enough to leave the leaf rosette of the perennials which will serve as a green ground cover during the winter.

Response To Touché Has Been

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Investing in your image

Improving your company's image is an intangible investment that can reap very tangible rewards.

by E.T. Wandtke

■ If you spent some time—and money—in 1991 investing in your company's image, 1992 could be a better year.

Making image investments is often one of the most often overlooked aspects of marketing. To be recognized in the market, you must spend money on image advertising or promotions. And most companies either do not develop a complete marketing plan, they only develop an advertising plan for the year.

Investing in your image is a commitment to become better recognized and to be looked upon as a responsible business in your geographical market. This type of investment is not intended to directly attract customers, nor is its purpose to retain customers. But it *will* help your

company to be better viewed as a reputable business.

Image investing can be either low key or aggressive, depending on the impression you want to make.

Two approaches—Some companies seek a “soft” community awareness, rather than high visibility. To achieve this, you can undertake projects like participating in a United Way fund drive, educating community youth through Junior Achievement, or collecting food and money for a homeless shelter.

On the other hand, aggressive image investing would include spending money to promote your market presence by sponsoring public service announcements (PSAs) on the radio or TV. Using either of these mediums will instantly create an awareness of your presence in the market.

While PSAs do cost less than advertising, they still require significant funds. If you are going to start an image investing program for your company, this is *not* the place to begin. It would be more beneficial to incorporate it into the total plan three or four years later.

Environmental benefits—Lawn care

and landscaping benefit the environment. Adding plants to a property, grass cutting, horticultural services for trees and shrubs—all help to renew the ecological process. Oxygen is purified by the grass and other foliar plants maintained or added to the properties you service.

To that end, have you ever sent a notice to the commercial or residential customer explaining these benefits? Your local extension service provides booklets on these types of benefits that you can summarize or reprint to pass along to customers.

Some companies have practiced image investing by targeting school children. Safety pamphlets, first-aid literature or nutrition booklets is an effective method of direct-image investing.

Image investing requires time and planning. Don't rush into an indirect image investing opportunity until you have examined all the potential ramifications. If the opinions suggested in this article do not immediately appeal to you as an area for indirect or direct image investing, get involved in activities to benefit all the people in your market.

—*The author is a principle in Wandtke & Associates, a management and marketing consulting firm based in Columbus, Ohio.*

Catch 22 from page 46

* **Gather all the facts** relating to the turf area: who, what, booster groups, personnel, equipment, amount of time to perform certain duties. Define what you want.

* **Formulate a plan** of operation: list irrigation problems, analyze soil recommendations, outline annual projects to match budget allocations, and outline a monthly plan.

* **Implement and design a maintenance program**: buy the cheapest fertilizer possible to meet your needs and monitor mowing (frequency, height, equipment, methods, etc.).

* **Have a month-to-month plan** that is flexible. “Evaluate as you go,” Doble says. “Assess it at year-end and address its shortfalls. Implement changes and re-address the budget for next year.”

Doble suggests using photographs to illustrate what you're going to improve and what improvements will be made.

Yes, these are rough times—both with the economy and with the public expecting more than what might be available. But that doesn't mean the job is impossible. It's just more of a challenge.

—*Jerry Roche*

Everday Play: 7 1/2 - 8 1/2 Feet

Serious Tournament Play: 8 1/2 - 9 1/2 Feet

9 Feet: Turf & Superintendent Stressed Out!

■ “Managing green speed for the sake of speed alone should not be attempted, certainly not at the expense of acceptable turf quality,” says George Manuel, agronomist with the United States Golf Association (USGA).

Manuel suggests that superintendents—and demanding golf course members—be more concerned with uniformity and consistency, which can be achieved by altering management practices.

“(Maintaining) green speeds above 9 feet

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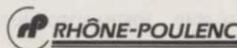


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phthora root rot and Pythium with powerful systemic action that puts long-lasting control inside roots and leaves. And CHIPCO® ALIETTE®, now available in a new, more convenient WDG formulation, provides two-way disease protection: First, by directly attacking disease organisms; and then, by helping plants build up their own defense mechanisms.



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at all times often results in serious problems and should be avoided," warns Manuel. "Extreme stress is placed on the turf, and jeopardizes its survival, especially during periods of difficult weather." Usual tactics for fast greens include mower maintenance and adjustment, plus manipulation of other cultural practices such as fertilization, irrigation, verti-cutting and rolling, which Manuel says has come back into vogue.

Manuel advises that, if super-fast greens are mandated at a course, the crew must make every effort possible to control or minimize other stress factors, any one

of which is a challenge:

- ✓ the effect of trees: shade, root competition and poor air circulation;
- ✓ moisture stress due to poor irrigation system;
- ✓ heavy traffic from both mowers and golfers;
- ✓ insect/weed/disease control;
- ✓ poor drainage or irrigation; and
- ✓ soil compaction.

A recent USGA green speed study revealed:

- Each change in nitrogen levels per 1000 sq. ft. annually created an inverse

speed change of three to five inches.

- Increased speeds of 8 to 10 inches were measured following daily mowings. Multiple daily mowing increased speeds up to 8 inches.

- Increase in speeds from double mowing was more significant on greens cut at 3/16 per quarter vs. 1/8 or 5/32.

- Weekly, light verticutting through the growing season increased speeds by an average of 7 inches.

- You can gain up to 6 inches with a single roll, and up to nine inches with double rolling.

Early application reduces incidences of lyme disease

■ Results of a nearly completed one-year field research study conducted by New York Medical College indicate that a single application of insecticide in early summer can reduce the risk of lyme disease by 70 percent to 90 percent.

Homeowners in Westchester and Fairfield counties have been directed to spray their lawns with insecticide in mid-June if they want to substantially reduce the risk of contracting lyme disease,

according to researchers at the college's Lyme Disease Center.

Three insecticides were tested and proven effective. The most effective, cyfluthrin, is not yet approved for lawn application in New York. Insecticides carbaryl and chlorpyrifos are, however, available. These insecticides were found equally reliable in liquid and granular formulations. The researchers emphasize that users should follow directions for the use

of these insecticides at the rates recommended for lawn insect control.

"We know from our earlier studies that there are infected ticks on 60 percent of the residential properties we examined in Westchester County," says Dr. Durland Fish, director of the college's center.

"Since alternatives to spraying are either ineffective or unavailable, the prudent course of action is to apply lawn insecticides," he adds.

Results of the study showed that the use of insecticide-treated cotton did not measurably reduce the number of ticks or the proportion of infected ticks at any of the residential, recreational and woodland study sites.

Fabrics shown to minimize weeds

■ Landscape fabrics, though generally unable to suppress all weed species, can greatly reduce the need for hand or chemical weeding, according to tests conducted at Auburn University.

In the first trial, the five fabrics tested were Dewitt Weed Barrier, Geoscape Landscape Fabric, Amoco Rit-a-weed, Phillips Fiber Duon 2.5 ounce and Easy Gardner Weedblock.

The Dewitt product was the only woven fabric.

The Geoscape, Amoco and Phillips products were mesh, while the Easy Gardner product was perforated polyethylene.

In the second trial, American Woven Fabrics Weed Barrier Mat, DuPont Tyvar 307 and Tyvar 312 were added. The only woven fabric was the American Woven product.

Results of the two experiments, below, were first published in the *Journal of Environmental Horticulture* by the Horticultural Research Institute.

EXPERIMENT 1: Number of seedlings after 30 days

Weed	Dewitt	Geosc.	Amoco	Phillips	EasyGard.	Control
yellow nutsedge	1.3	0.3	2.5	1.3	3.8	11.8
bermuda-grass	0.0	7.0	11.3	13.8	92.3	126.1
johnson-grass	0.8	1.7	7.5	8.0	5.3	21.0
pigweed	0.0	0.0	5.3	12.5	111.7	139.0
sicklepod	0.0	0.0	0.0	0.0	0.0	33.3
morning glory	0.0	0.0	0.0	0.0	0.0	15.5

EXPERIMENT 2: Number of seedlings after 30 days

Weed	Dewitt	Geosc.	Amoco	Ph'lips	E.Gard.	Amer.	307	312	Cont.
y. nut.	1.0	0.8	2.5	3.3	1.8	0.3	0.0	0.0	8.3
berm.	0.5	0.0	8.3	7.8	20.3	0.0	0.0	0.3	48.8
j'son.	1.5	9.3	17.5	12.0	72.6	0.0	2.5	0.8	112.8

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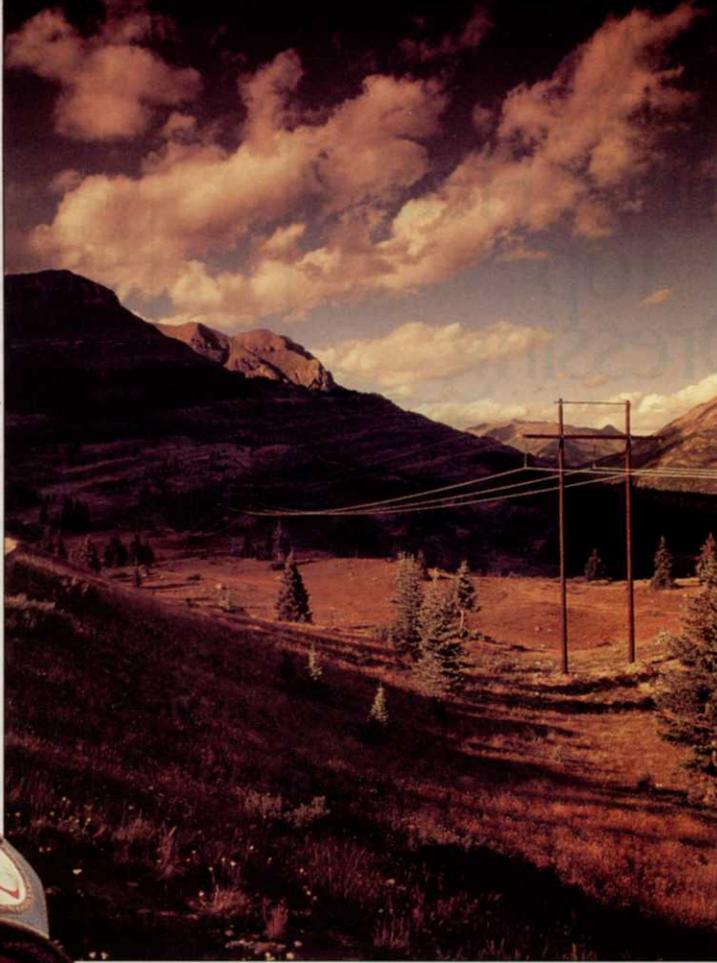
The job called for heavy work at elevations that could bust your lungs, over terrain that could break a truck's back. Then going in again to erase any sign you'd been there. No sweat.

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"We went back up and pulled the deadwood, replanted, and erased the trail. If you see those poles at all, you'll think they grew there."



on horseback or on foot," foreman Mike Williams says. "A Polaris gets you in, hauls your gear, does the job, gets you out. Good machines."

Like every Polaris, Mike's machines have automatic transmission, full floorboards and one-hand braking. Now he's looking into a new Polaris Big Boss: all-terrain vehicles with 850-pound tiltbed, load rack and tow hitch, six-wheel stability, and four-wheel or six-wheel drive. Handy features whether you're clearing brush at 12,000 feet or hauling equipment around a jobsite.

So what advice would Triple-L Construction offer other companies in need of strong, dependable help?

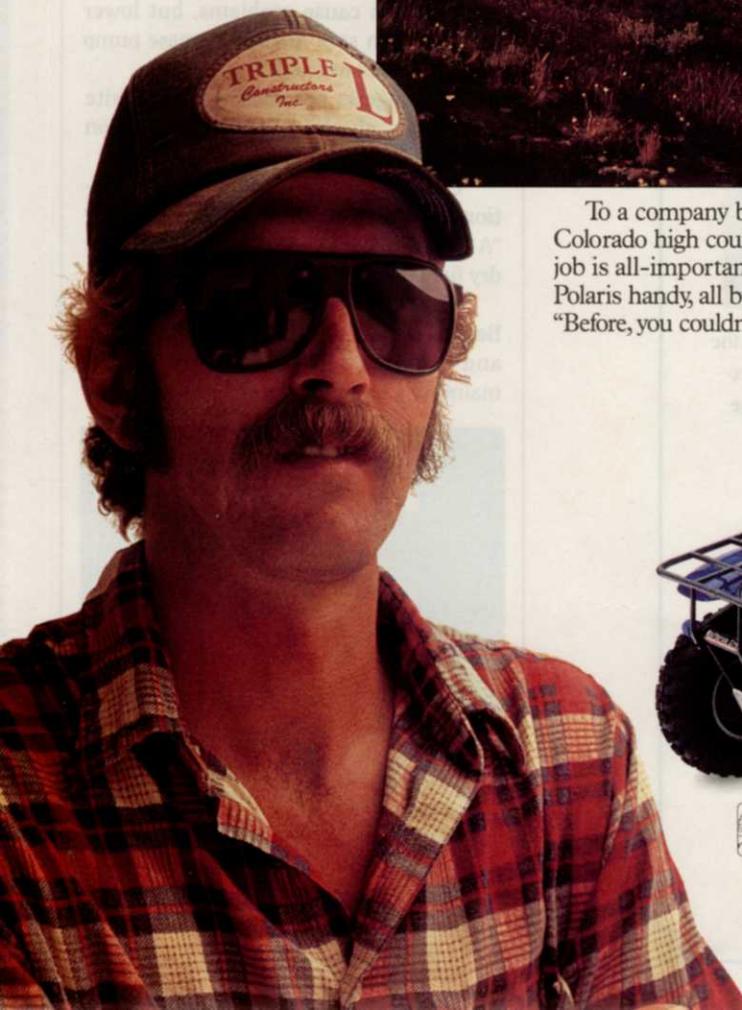
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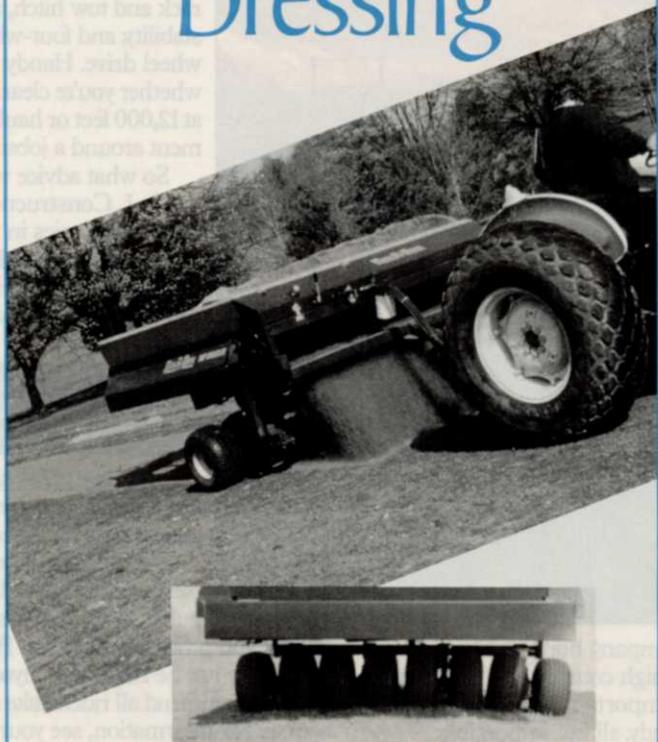
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Irrigation should be uniform

■ Uniformity of coverage is the key to effective irrigation, according to Rain Bird Irrigation's Lynda Wightman.

"No irrigation factor can be more efficiently utilized than uniformity of coverage," she told the Sports Turf Managers Association recently.



Lynda Wightman

Application rates also play a big role in irrigation efficiency, she notes. "If you don't know your application rate in inches per hour, you can't efficiently manage irrigation," Wightman says.

Two considerations that should take high priority are soil type and water pressure. "Pressure is the biggest variable for an existing system," she says. "Higher pressure can cause problems, but lower pressures can save money, increase pump life and reduce misting."

She suggests conducting a visual site inspections, checking out the installation height of heads and leaks.

"Cut back water until further reductions would stress the turf," she stresses. "A wet field tears up much quicker than a dry field."

"There's no magic," insists Neal Beeson of BC Turf. "It's a lot of hard work and common sense—and you'd better maintain a sense of humor."

Irrigation traps

- Sally Prusia of Rain Bird lists seven traps in irrigation system design:
 - 1) Do not stretch the dollars.
 - 2) Know the area and type of coverage needed.
 - 3) Choose the right equipment.
 - 4) Specify available watering time.
 - 5) Don't forget the pump plant.
 - 6) Take into account design considerations.
 - 7) Insist on a quality installation.

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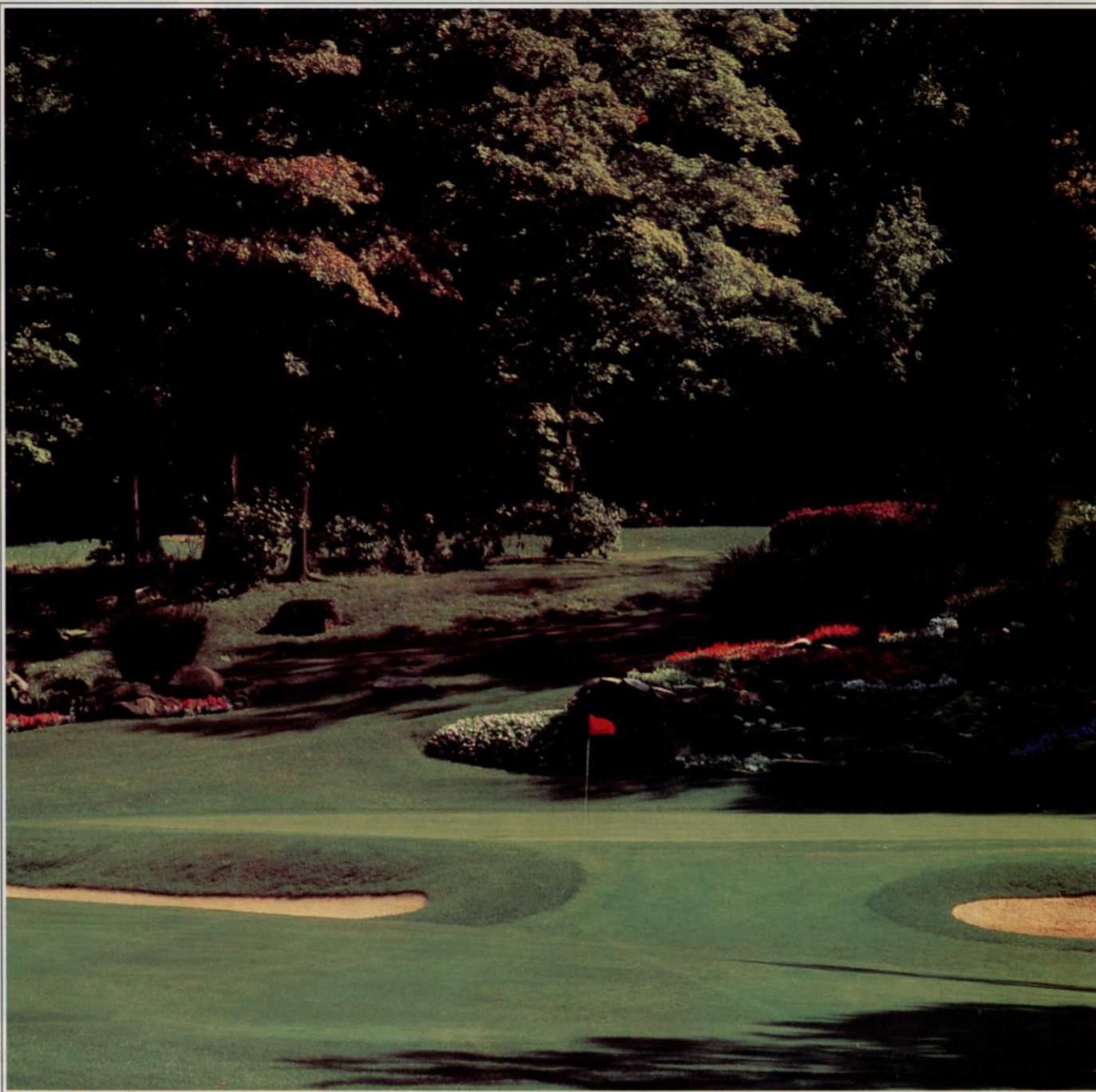
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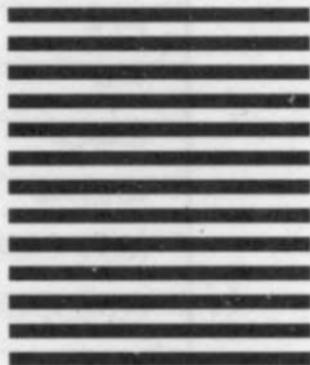
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Circle No. 120 on Reader Inquiry Card



Post-emergence weed control in cool-season grasses

For best results, control product applications must be made during the targeted plant's most susceptible growth stage.

by Prasanta C. Bhowmik, Ph.D.
Univ. of Massachusetts

■ Weed control helps make any golf course or landscape management program successful. Effective weed control is achieved by integrating cultural and chemical weed control methods.

Producing a dense, healthy stand of turfgrass is one way to control annual weeds. Proper mowing height and frequency, fertilization, and irrigation are parts of the management program that should be practiced throughout the growing season.

It is important to understand weed control principles, to make economical and environmentally sound decisions. At the same time, however, these decisions must produce good results. Turf managers should be familiar with the following steps for a successful weed control program:

- 1) knowing the specific problem (i.e. grassy weeds vs. broadleaf weeds);
- 2) knowing the life cycle of the weeds (annual vs. perennial); and
- 3) selecting the most effective herbicide.

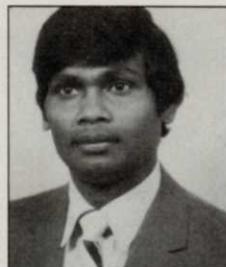
Grassy weed control—Among annual grassy weeds, crabgrass and goosegrass are considered to be the most troublesome in turf, and are usually controlled with a pre-emergence herbicide program along with a

good cultural program.

Post-emergence control of annual grassy weeds is becoming popular because of integrated pest management programs which use scouting information on weed species and their abundance. Several products are available for post-emergence control on cool-season turfgrass (Table 1).

Broadleaf weed control—A successful post-emergence weed control program results from selecting the right herbicide and applying it uniformly over the foliage at an appropriate dosage. The herbicide selection depends on the weeds to be controlled and the turfgrass to be treated. Choose the most effective herbicide with

maximum safety to the turfgrass. The list of currently-available post-emergence broadleaf herbicides has not changed appreciably from last year (Table 2).



Dr. Bhowmik

Most hard-to-control weeds such as wild violet, wood-sorrel and ground ivy are perennials. Perennials have extensive root systems. For effective control, these root systems must be killed. In order for a herbicide to be effective, it must enter the plant and move through it. Some weed species absorb herbicides rapidly, while others absorb slowly.

The primary route of entry of post-

Table 1

POST-EMERGENCE GRASS AND SEDGE CONTROL

Common name	Trade name	Manufacturer	Comments
DSMA	DSMA liquid	Riverdale	Controls crabgrass and nutsedge. Repeat applications are needed for nutsedge control. Discoloration may occur in fescue and bentgrass.
	DSMA liquid	Drexel	
	Methar 30	W.A. Cleary	
	Broadside, DSMA 81%	Vertac	
MSMA	Daconate 6	Fermenta	Controls crabgrass, nutsedge. Repeat applications needed for nutsedge control.
	Drexar 530	Drexel	
	MSMA 6.6	Drexel	
Fenoxaprop	Acclaim	Hoechst-Roussel	Can be tank-mixed with residual pre-emergence herbicides and post-emergence broadleaf herbicides.
Bentazon	Basagran	BASF	Controls only sedges. Repeat applications are necessary.
Dithiopyr	Dimension	Monsanto	Can be tank-mixed with MSMA or Acclaim. Apply to crabgrass with three tillers or less. Can be applied with fluid fertilizer or other registered pesticides.

Source: Dr. Bhowmik

ELSEWHERE

Warm-season post-emergents,
p. 64

Soil tests for solutions,
p. 72

Buffalograss use expands,
p. 74

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until they are recut into a fine mulch. The air flow then forces the clippings back down into the lawn, providing valuable nutrients. And in heavy, lush grass, you can mulch at a reduced cutting speed or easily switch to dispersing.

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emergence herbicides is directly through the leaf surface. Therefore, it is important to have good coverage of the weeds, regardless of their growth stage.

Timing of application: If the application is not timed to coincide with the growth stage which is most susceptible to herbicide treatment, control results may be erratic or poor. In general, spring application of a product containing two or three herbicides is a standard treatment for broadleaf weed control. However, post-emergence herbicides can also be applied in the fall for certain weed species, such as ground ivy, hawkweed, plantain, wild strawberry and thistles. The fall treatment also controls many seedlings of winter annuals, germinating in late August or early September.

Common chickweed, corn speedwell and henbit are among many winter annuals.



Wild violets are difficult to control. A follow-up application is usually required one to four weeks after the first application.

Formulations: Choose a product formulation best suited to your needs. Ester and amine formulations have different activity. Amines are soluble in water, while esters are oil soluble. Esters are generally better weed control products than are corresponding amine products. Esters tend to penetrate into the leaf better than amines. However, esters are slightly volatile. This volatility loss can result in injury to non-target susceptible plants.

For post-emergence broadleaf weed control, mixtures of two to three herbicides are commonly used because the combinations are more effective than any single herbicide in controlling hard-to-control weeds.

Table 3 lists several products for hard-to-control weeds.

—The author is an associate professor of weed science at the University of Massachusetts.

Table 2

COMMONLY USED BROADLEAF HERBICIDE MIXTURES FOR POST-EMERGENCE WEED CONTROL

Herbicide	Trade name	Ratio	Manufacturer
2,4-D + MCPP	2 plus 2	1:1	Fermenta
	Lescopar	1:2	Lesco
	2,4-D-MCPP	2:1	Cleary's
2,4-D + 2,4-DP	Chipco Weedone DPC Ester	1:1	Rhone-Poulenc
	Chipco Weedone DPC Amine	1:1	Rhone-Poulenc
	Turf D + DP Ester	1:1	Riverdale
2,4-D + dicamba	Eight-one selective herbicide	8:1	Lesco
	Riverdale 81 selective weed killer	8:1	Riverdale
	Riverdale 101 weed killer	10:1	Riverdale
2,4-D + 2,4-DP + MCPP	Weedestroy Triamine	1:1:1	Riverdale
	Weedestroy Triester	1:1:2	Riverdale
MCPA + MCPP+2,4-DP	Weedestroy Triamine II	1:1:1	Riverdale
2,4-D+MCPP+ dicamba	Three-way selective herbicide	1:0.5:0.009	Lesco
	Trimec classic	1:0.5:0.1	Gordons
	Bentgrass selective	0.5:1.5:0.2	Lesco
	Triplet	2.44:1.3:0.22	Riverdale
2,4-D + triclopyr	Turflon D Ester	2:1	Dow
	Turflon II Amine	2.6:1	Dow
Triclopyr + clopyralid	Confront Amine	3:1	Dow

Source: Dr. Bhowmik

Table 3

SUGGESTED TREATMENTS FOR HARD-TO-CONTROL BROADLEAF WEEDS

Weed	Control product trade name	Comments
Ground ivy (<i>Glachoma hederacea</i>)	Turflon D Super Trimec Weedone DPC	Very difficult to control in summer. Fall application is desirable.
Prostate knotweed (<i>Polygonum aviculare</i>)	Same as ground ivy	Summer control difficult
Creeping speedwell (<i>Veronica filliformis</i>)	Turflon D Weedone DPC Trimec	Difficult to control. Several other speedwell species are also difficult to control.
	Dacthal 6F	Can be controlled with pre-emergence application.
Spurge (<i>Euphorbia supina</i>)	Turflon D Trimec Weedone DPC	Spring/summer application desirable.
	Dacthal PreM, Team, Dimension	Can be controlled with spring application of pre-emergence herbicides.
Wild violets (<i>Viola spp.</i>)	Turflon	Difficult to control; usually requires follow-up app. in 1-4 weeks.
Yellow woodsorrel (<i>Oxalis stricta</i>)	Turflon D Super Trimec Weedone DPC Pre-M, Team, Dimension	Spring applications of pre-emergence herbicides will control oxalis.

Source: Dr. Bhowmik

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| 0125 <input type="checkbox"/> Landscape architects | _____ |

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- 10 EXECUTIVE/ADMINISTRATOR—President, owner, partner, director, general manager, chairman of the board, purchasing agent, director of physical plant
- 20 MANAGER/SUPERINTENDENT—Landscape/ground manager, superintendent, foreman, supervisor
- 30 GOVERNMENT OFFICIAL—Government commissioner, agent, other government official
- 40 SPECIALIST—Arborist, forester, architect, consultant, agronomist, pilot, instructor, researcher, horticulturalist, certified specialist
- 50 OTHER TITLED AND NON-TITLED PERSONNEL (specify) _____

Post-emergence weed control in warm-season grasses

Post-emergence herbicides control many problem annual and perennial weeds not controlled by the pre-emergents.

by Tim R. Murphy, Ph.D.,
University of Georgia

■ Proper turfgrass maintenance is the first step in developing a successful weed control program. Adhering to recommended fertility programs, water requirements, mowing heights and schedules, and disease and insect control will greatly

increase turfgrass competition with weeds. It will also improve the effectiveness of the chemical weed control program.

Post-emergence herbicides can be applied on a "spot treatment" or "as needed" basis directly to a weed infestation. Spot treatments of post-emergents are less expensive than broadcast applications of pre-emergents. Low rates of most post-emergents may be used on newly sprigged or sodded warm-season turfgrasses. In areas that are scheduled to be overseeded or renovated, the majority of post-emergents can be used up to one month before renovation.

The time interval from application to seeding, sprigging or sodding operations for pre-emergence herbicides varies from six weeks to four months.

Several factors must be considered in selecting the proper control product.

Turfgrass tolerance: Warm-season turfgrasses differ in their tolerance to post-emergence herbicides (Table 1). Consult the product label to determine if the herbicide may be used on a particular turfgrass species.

Weed species: Weed identification assistance is available at county extension service offices and through chemical company representatives. After the weed has been identified, the herbicide label should be reviewed to determine if the herbicide will control the problem weed.

Application frequency: For some weed species and herbicides, a repeat application



Dr. Murphy

Table 1

TURFGRASS TOLERANCE TO POST-EMERGENCE HERBICIDES

Herbicide	Turf Variety					
	Bahia	Bermuda	Centipede	Carpet	St. Augustine	Zoysia
asulam	NR-S	T*	NR-S	NR-S	T	NR
atrasine	NR-I	S(D)	T	NR-I	T	I
bentazon	T	T	T	NR-I	T	T
bromoxynil	T	T	I	NR-I	T	T
2,4-D	T	T	I	I	S-I	T
2,4-D + dicamba	T	T	S-I	S-I	S-I	I
2,4-D + dichlorprop	T	T	I	I	I	T
2,4-D + mecoprop	T	T	S-I	I	S-I	T
2,4-D + mecoprop + dicamba	I-T	I-T	S-I	S-I	S-I	T
2,4-D + mecoprop + dichlorprop	T	T	I	I	I	T
dicamba	T	T	I-T	I	S-I	T
diclofop-methyl	NR	T	NR	NR	NR	NR
DSMA, MSMA	NR-S	T	NR-S	NR-S	NR-S	I
fenoxaprop	NR-S	NR-S	NR-S	NR	NR-S	T
glyphosate*	S(D)	S(D)	S	S	S	S*
imazaquin	NR-S	T	T	NR-I	T	T
MCPA + mecoprop + dichlorprop	T	T	I	I	I	T
meclorprop	T	T	S-I	I	S-I	T
metribuzin	NR-I	T	NR-S	NR-S	NR-S	NR-S
metasulfuron	NR-S	T	NR-T	NR	T	NR-T
pronamide	NR	T	NR	NR	NR	NR
sethoxydim	NR-S	NR-S	T	NR-I	NR-S	NR-I

T=Tolerant at labeled rates I= Intermediate tolerance, use at reduced label rates S= sensitive, do not use this herbicide

D=- Dormant NR= Not registered for use on this turfgrass.

* Labeled only on Tifway (419) bermudagrass and St. Augustinegrass.

** Bahiagrass and bermudagrass are tolerant to glyphosate when completely dormant.

Source: Dr. Murphy

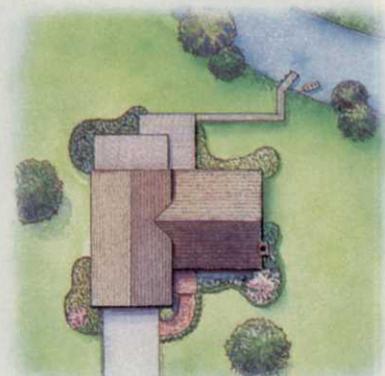
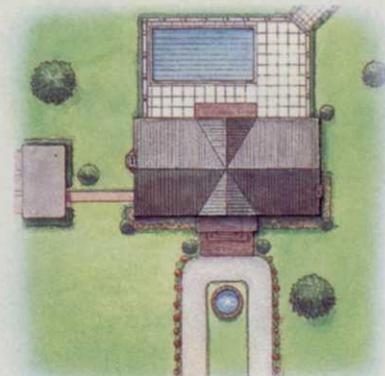
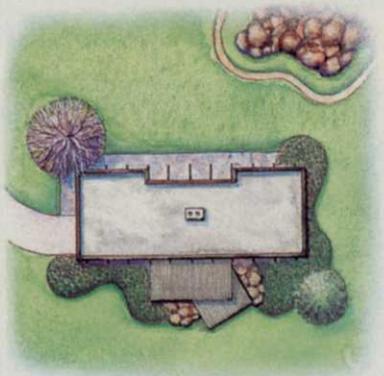
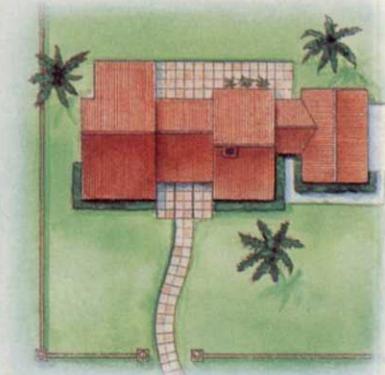
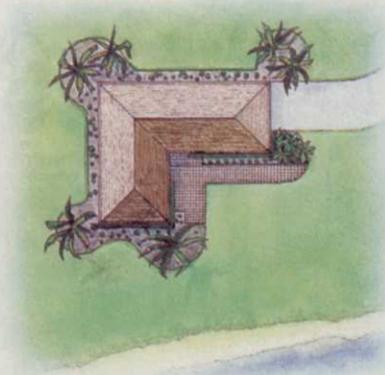
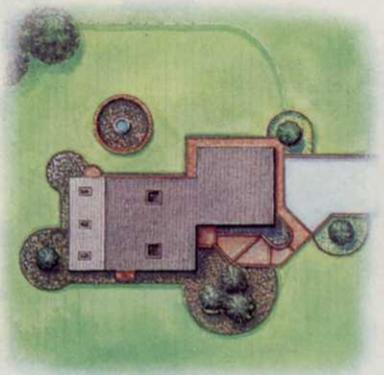
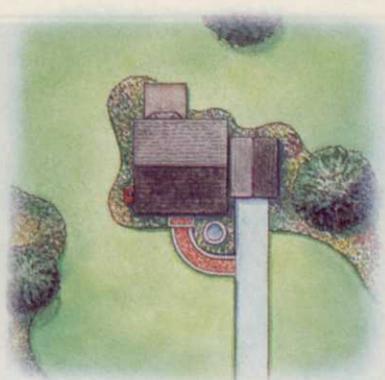
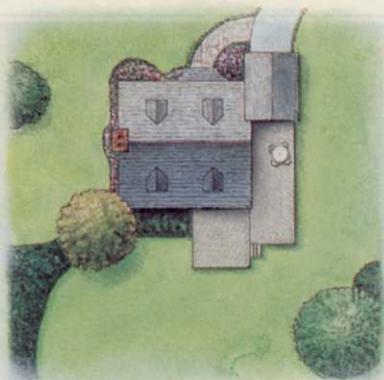
Post-emergence suggestions

• Apply post-emergents to small actively-growing weeds. Perennial and annual weeds that are growing under good soil moisture conditions at moderate air temperatures are easier to control with post-emergents than weeds that are environmentally stressed. Target the application to coincide with good soil moisture conditions and air temperatures of 60° to 90° F.

• Do not apply to heat-stressed or drought-stressed turf or weeds. The tolerance of warm season turf to post-emergents decreases at air temperatures greater than 90° F, when turfgrasses are drought-stressed or growing under high soil moisture and high relative humidity conditions.

Herbicides with 2,4-D, dicamba, mecoprop, dichlorprop, imazaquin, MSMA and DSMA should not be applied at high air temperatures since there is a high risk of increased turfgrass injury. Always follow the most restrictive warning shown on the label.

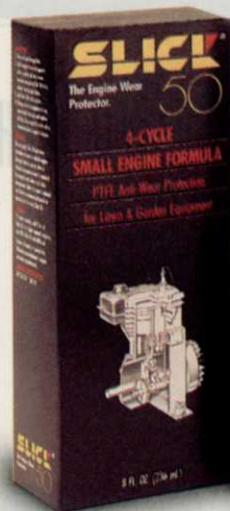
The tolerance of warm-season turf to herbicides is generally lower during



Make sure your equipment goes the whole nine yards.

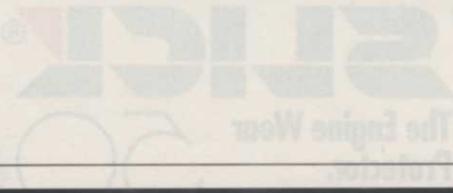
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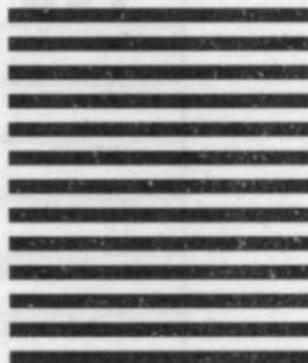
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is necessary. For example, two applications of MSMA + Sencor, at a 7- to 10-minute interval, are needed to control goosegrass. In contrast, one application of Illoxan will usually control goosegrass.

Ornamental tolerance: Ornamentals may be injured by spray or vapor drift or by root absorption of the herbicide. Ester formulations of the phenoxy herbicides (2,4-D, dichlorprop) easily volatilize during warm temperatures and can injure sensitive ornamentals by vapor drift. Therefore, they should not be used during the warm months, on or near sites that contain ornamentals. Spray drift damage can be prevented by spraying when the wind velocity is less than five mph, and by selecting a nozzle tip and spray pressure that produce large spray droplets.

Because of their soil residual characteristics, Aatrex and dicamba (Banvel, Dicamba 4) can injure broadleaf ornamentals via root uptake, particularly on sandy soils if rainfall occurs immediately after application. Avoid using these herbicides

spring green-up than when the turfgrass is dormant or after full green-up. Research has shown that the decrease in turf quality which may result from using post-emergents during green-up is temporary and persists for two to six weeks after application. If dense weed populations necessitate using a post-emergent during green-up, use the lowest recommended rate or one-half the recommended rate to minimize herbicide injury to the turf.

- Single applications at high rates generally cause more injury than repeat applications at low rates. Also, single, high rate applications often do not control perennial weeds. The repeat application is usually made at intervals of seven to 14 days after the first application, or when regrowth of the weed is noted.

- Plan mowing schedules accordingly. Mowing should be delayed three to four days before or after a post-emergence herbicide application.

- Do not apply immediately before rainfall or irrigation.

- Use surfactants and crop oil concentrates according to label directions.

- Calibrate all spray equipment and train the operator.

over the rootzone of shrubs and small trees.

If possible, post-emergence herbicides use should be avoided during spring green-up or during extremely hot weather.

The need to use post-emergence herbicides during these times can be avoided by scouting for weeds during winter, late spring and early summer. Most turfgrass

post-emergence herbicides are more effective when applied to smaller weeds. Scouting will enable timely and effective applications of post-emergence herbicides.

—The author is an extension agronomist specializing in weed science, University of Georgia.

Table 2

POST-EMERGENCE HERBICIDES, WARM-SEASON TURFGRASS

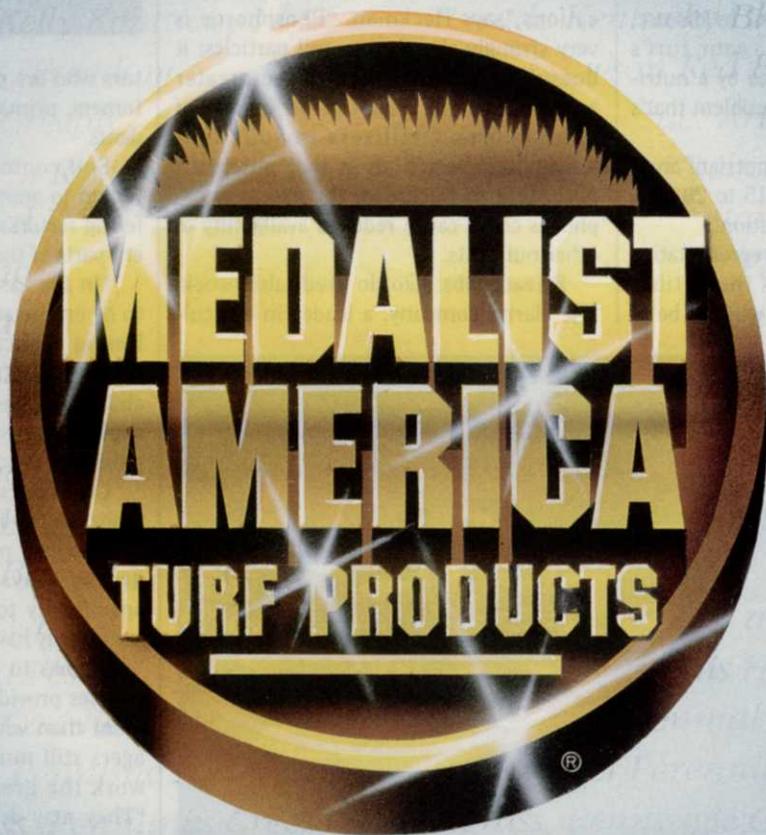
Common name	Trade name	Uses
asulam	Asulox	Grass weed control in St. Augustinegrass
atrazine	Aatrex, others	Pre- and post-broadleaf and grass weed control
bentazon	Basagran T/O	Primarily used for yellow nutsedge control
bromoxynil	Buctril	Broadleaf weed control on seed or sod farms
2, 4-D	numerous formulations	Broadleaf weed control
2,4-D + dicamba	Eight-One, Phenaban 801	
2,4-D + dichlorprop	Weedone DPC Amine,	Broadleaf weed control
	Weedone DPC Ester	
2,4-D mecoprop	Lescopar, Phenomec 2+ 1,	Broadleaf weed control
	2 Plus 2	
2,4-D + mecoprop + dicamba	Trimec Classic, Tex-san,	Broadleaf weed control
	Three-Way	
2,4-D + mecoprop + dichlorprop	Weedestroy Triamine..	Broadleaf weed control
	Weedestroy Tri-Ester	
dicamba	Banvel, Dicamba 4	Broadleaf weed control
diclofop-methyl*	Iloxan	Goosegrass control in bermudagrass
diquat**	Diquat	Winter annual weed control in dormant bermudagrass
DSMA	numerous formulations	Grass weed control in bermudagrass and zoysiagrass
ethofumesate	Prograss	Pre-/early post-annual bluegrass control, overseeded bermuda
fenoxaprop	Acclaim	Annual grass control and suppression of bermudagrass in zoysia
glyphosate	Roundup	Winter annual weed control in bermudagrass
imazaquin	Image	Purple nutsedge and wild garlic control in warm season turfgrass (except bahiagrass). Also controls certain annual broadleaf weeds.
meoprop	Mecomec, Lescopex	Broadleaf weed control
meoprop + 2,4-D + dicamba	Southern Trimec	Broadleaf weed control
MCPA + mecoprop + dichlorprop	Weedestroy Triamine II,	Broadleaf weed control
metribuzin	Weedestroy Tri-Ester II	
	Sencor Turf	Goosegrass control in bermudagrass. Also controls prostrate spurge and numerous winter annual broadleaf weeds
metsulfuron	DMC	Controls bahiagrass, wild garlic prostrate spurge and numerous broadleaf weeds in bermudagrass and St. Augustinegrass
MSMA	Numerous formulations	Grass weed control in bermudagrass and zoysiagrass
MSMA + 2,4-D +	Trimec Plus	Grass and broadleaf weed control, bermudagrass/ zoysiagrass
meoprop + dicamba		
pronamide	Kerb	Annual bluegrass control in bermudagrass
sethoxydim	Vantage	Annual grass control in bermudagrass
sethoxydim	Vantage	Annual grass control and bahiagrass suppression in centipedegrass

* Diclofop-methyl has a state label for use in Alabama, Georgia, Florida, North and South Carolina.

** Diquat has a state label in Arkansas, Louisiana, Mississippi, Oklahoma, Tennessee and Texas for winter annual weed control in dormant bermudagrass.

Source: Dr. Murphy

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Circle No. 127 on Reader Inquiry Card

Soil test could solve 'lazy turf' problem

A proper soil analysis will reveal if a nutrient deficiency is the cause of turf lethargy.

■ Has your turf lost its "zing"? Does it have that lackluster, "not-as-bright-as-it-used-to-be" shade of green?

If you know it's not caused by disease, drought or insect damage, your turf's lethargic look could be caused by a nutrient deficiency in the soil, a problem that's easily remedied.

But first, you need a soil nutrient analysis, which starts by taking 15 to 20 core samples from the area in question.

"If you don't have a truly representative sample, one that represents the fertility level of the turf, the analysis will not be of

sample exchanges.

Heckman says not much has changed in the way soils are tested, but there have been interesting findings over the last few years. One of the most important is the high phosphorus content found in approximately 75 percent of all samples obtained from landscapers and homeowners in New Jersey and other states.

"This is due to repeated fertilizer applications," says Heckman. "Phosphorus is very strongly absorbed to soil particles; it doesn't leach. We'd like to see greater awareness, and a reduction in use of phosphorus fertilizers in soils that already test very high in that nutrient." According to Heckman, the excess phosphorus could cause reduced availability of other nutrients.

Private labs also do creditable work. The Harris company, a leader in agricul-



Jeff Frack:
Golf course soils offer a challenge.

tors who are providing the service to customers, primarily golf course superintendents.

Soil content varies greatly from one region to another, so you'll likely find differing results from sample taken in different parts of the country.

"In the eastern U.S., the soil will tend to be on the acid side," explains Frack, "so liming applications may be required. In the West, you're dealing with alkaline soils and higher sodium or salt content, where applications of gypsum or elemental sulphur may need to be made to lower a pH."

Golf courses represent unique challenges in any locale. "So much of (the golf course) is a man-made, particularly golf greens," says Frack. "They're building specifically to grow grass, so you don't necessarily have a 'natural' soil medium."

Thanks to USGA standards, many golf courses provide a better growing environment than what existed before, but managers still must fertilize accordingly and work the greens, due to sand content. "They may drain very well," says Frack, "but be a little low on the nutrient side."

If you send the same sample to two different labs, and get two different readings, be sure both data are being reported in the same measurements, either parts per million or pounds per acre.

"Some even report in parts per two million," says Frack. "All the numbers could be exactly right, but if people aren't familiar with the methods or reporting units of the labs, you may actually think you've got different results."

A soil analysis is very inexpensive, especially when you consider the headaches it might solve for you.

Frack says Harris will conduct a basic N/P/K analysis for under \$20. A more complete analysis, with micronutrient content and sand/silt/clay percentage breakdown costs between \$30 and \$40.

—Terry McIver



Soil testing at state-of-the-art facilities is offered at reasonable prices. Shown here is one of the Harris labs, in Lincoln, Neb.

much value," says Dr. Joseph Heckman, a Rutgers University soils and crops specialist. "If you have another section of turf you know to be of a different composition, a separate sample is required."

Take your soil samples to a university-based laboratory or a good private lab. University labs have established good reputations over the years, and the accuracy of soil analyses from one to another is nearly exact, as proven by frequent university soil

tural soil testing for more than 60 years, also performs a good amount of testing for the landscape and golf course industries. "We get an idea of what the fertility levels are in the soil, whether it's golf greens, fairways or turf around large corporations," says Jeff Frack, Harris's vice president of agronomic services.

Frack says most of the company's non-ag soil testing is done for local fertilizer suppliers and other turf industry distribu-



Roger Albrecht, president of Nitro-Green Corporation, says that weed control is the most important single item in customer

satisfaction. "Excellence in weed control can be summed up in one word," says Albrecht... "Trimec!"

Weed Control in the Environmental Age

A leading lawn care franchisor who has set a goal of eliminating all broadcast spraying of herbicides freely discusses how TRIMEC® fits his basic strategy to accomplish this end.

Everett Mealman, Chairman and Chief Executive Officer PBI/Gordon Corporation



Roger Albrecht is president of Nitro-Green Corporation, which has 38 franchisees scattered over 15 different states. In addition to liaison with the franchisees, he manages two locations in California, primarily to keep abreast via hands-on experience.

"All business is local," says Albrecht, "so there is no royal road to success that will universally apply to all of our locations. But there are three basic fundamental realities that do apply."

Albrecht sums them up this way:

- People who pay money to have their lawns taken care of realize that perfection may not always be possible, but they appreciate our efforts to strive for it.
- Efficiency is the key to growth, so every dollar for chemicals, labor, and equipment in a landscape maintenance budget must be justified.
- Environmental stewardship is good business.

"These realities have caused us to set a goal on every property of totally eliminating all broadcast spraying of herbicide and replacing it with spot-treatment of the appropriate Trimec Complex as needed," says Albrecht.

"We want to be pro-active on environmental issues," continues Albrecht. "We want to be able to tell our customers that we are not spraying any herbicides to chase phantom weeds."

"Obviously, such a program has to be built over a period of time," says Albrecht. "We like to start out a new customer with an

early broadcast of Trimec... either Super or Classic, depending on the weather. We want the ultimate degree of weed control that's possible so we can start a program to thicken up the grass so weeds can't get back in.

"When the program matures, we want to be able to rely entirely on Trimec spot treatment to eliminate broadleaf and grassy weeds. Crabgrass is usually our biggest problem, but we have absolute confidence in Trimec Plus to handle any crabgrass or nutsedge that shows up. And what a plus, since it knocks out broadleaves, too."

There is nothing like Trimec

Albrecht says that because of his desire to rely on hands-on experience, he has tried every herbicide that has come along. "Perhaps you can imagine," says Albrecht, "how many times I hear salespeople say 'hey, this is just like Trimec, and I can save you a few dollars.'"

"I could write a book about the folly of trying to *save money* on Trimec substitutes," laughs Albrecht, "but I'll simply remind you of our position that every expenditure in an operating budget must be justified, and there is no expense that equals the cost of a call-back."

Why Trimec is superior

Trimec herbicides are Complexes, not formulator tank-mixes of ag-grade chemicals. To make Trimec, three acids are reacted together to form a unified salt. This salt is then formulated with wetting agents and disperants, and is analytically monitored continuously during formulation.

This unique process makes every droplet of every Trimec formulation an exact mirror image of the total, and thus precisely optimizes the intended synergistic activity.

The differences between a tank-mix and a Complex become major when the goal is weed control in the environmental age.

G pbi/gordon CORPORATION

1217 West 12th Street
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BROADLEAF HERBICIDE

755-192

Circle No. 135 on Reader Inquiry Card

Buffalograss roams beyond the plains

Continued development of buffalograss varieties is making the species at home in more regions.

■ Turf scientists continue to improve the appearance and low maintenance characteristics of buffalograss.

Jeff Klingenberg, Ph.D. of the University of Nebraska, says up to 10 new buffalograss varieties may be available over the next decade. Different varieties may be adaptable to the Northeast as far as New Jersey, and westward to California (see map).

Buffalograss—named apparently because it was the main food source for American bison—is a warm-season, fine-leaved, perennial, sod-forming grass. It grows to a height of six inches, and spreads by stolons and runners.

Klingenberg says three commercial seeded types are available: Sharps, Texoka and Bison. The 11 vegetative types include two commercial brands (609 Oasis and Prairie) and nine experimental varieties.

Bamert Seed Co. of Muleshoe, Texas, now markets what it says are the first proprietary turf-type buffalograss seed varieties, Plains and Topgun.

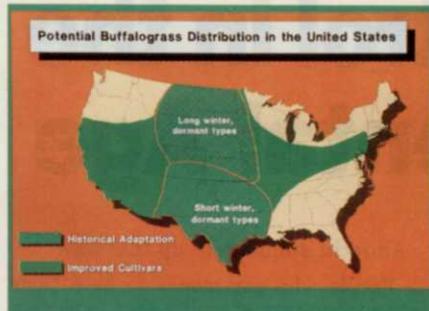
Adaptation—Buffalograss is naturally adapted throughout the Midwest and Southwest in areas of 12 to 35 inches of annual rainfall, sandy clay loam or heavier soils, pH 6.0 to 8.5, and up to 6,000 feet

elevation. Buffalograss is not shade tolerant, and is recommended for use in high-light areas.

Buffalograss gets high marks as a low-maintenance alternative to other turf varieties.

It's drought tolerant, has a deep root system and establishes quickly. It avoids drought and high heat stress by entering dormancy, but shows rapid recovery when water is again available.

According to Bamert Seed, studies have shown that buffalograss requires only 30



Potential for buffalograss expansion across the US.

to 60 percent of the water needed by improved bermudagrasses.

Klingenberg says that university research shows that it's possible to have "short winter" dormant species adapted to the southern regions. "Long winter" dormant types—those that come from the lower adapted areas of the U.S.—have a longer growing season compared to those



Klingenberg: seeding rate most critical success factor.

that adapted to the northern regions.

Seeding alternatives—Non-treated buffalograss seed will take two to three years to reach 80 to 90 percent germination. Treated seed—or seed that has been "fooled" into thinking it has gone through winter—achieves 75 to 80 percent germination in 10 to 14 days.

A third, time-consuming establishment method involves removing the seed from its nylon-like "burr" shell, says Klingenberg.

Non-treated burrs are less expensive, and have a longer shelf-life, but are slow to establish, and may require more irrigation and weed control. Treated burrs, which are most available and cost less than the naked caryopsis, have a 3- to 4-day germination if planting is well timed.

Three important considerations when attempting to seed buffalograss are:

● **Timing:** Late spring, when soil temperatures are no lower than 50° F. The best planting window is between May 15 and June 15. Don't plant any later than June 30. You may get good establishment, but you won't get good stolon performance you need in June to withstand a late October freeze.

● **Seed placement:** Klingenberg prefers drill planting, which results in the best soil/seed contact. Plant 1/2 inch apart, with 1- to 2-inch row spacing.

Broadcast planting requires a mechanical method of covering and good soil/seed contact. Rolling will aid establishment.

● **Rate:** This is where most mistakes occur. Consider the viability of the seed you're buying. "It's a different ball game compared to most of the other warm and cool season varieties," says Klingenberg. He also notes that pure live seed in the burr is going to be only 62 percent, so you should plant at least 1-1/2 lb. per 1000 sq. ft.

Also, avoid seeded buffalograss that's been in the bag more than 6 months.

—Terry McIver

Buffalograss checklist

ADVANTAGES

- ✓ reduced mowing, irrigation, fertilization
- ✓ available in seeded and vegetative types
- ✓ grows in dry, compacted soils
- ✓ tolerates temp extremes
- ✓ establishes quickly
- ✓ drought tolerant
- ✓ winter hardy

DISADVANTAGES

- ✓ does not grow in moderate shade
- ✓ sensitive to some herbicides
- ✓ male plants have seedheads
- ✓ possible disease problems
- ✓ turns brown after freeze
- ✓ not suited to sandy soils
- ✓ no dark green color
- ✓ seed is expensive
- ✓ winter dormancy

Source: Gayle Jacklin, Jacklin Seed Co.; Kevin Morris, USDA.



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RANSOMES

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LAWN CARE INDUSTRY

Aeration still undersold to public

When lawn care professionals educate their customers to the benefits of aeration, a third or more will pay for it.

■ Many home lawns would be healthier, more attractive and more valuable to their owners if they received periodic aerations.

But many home owners and property managers—those people who ultimately sign the checks to pay for professional turf care—still don't know what core aeration is, or what it's supposed to accomplish. This is particularly true of non-golfers. Most golfers have seen either an aerator in action, or the turf just after it's been opened up with tines.

Some lawn care company owners claim aeration hasn't been sold to potential clients, not really *sold* to them. But to sell you have to educate first.

"I think you have to be a little more intimate with your customer for them to appreciate core aeration," says Richard Ficco, Jr., president of Partners Quality Lawn Service, Boston.

When a company finally commits to educating and selling aeration to its customers, as many as 25 percent accept it.

Ficco says about 27 percent of his customers in 1991 accepted aeration as part of their programs. (Generally, almost 30 percent of Partners' new customers include it in their programs.)

"But I don't think you can come in with the hype that this is the best thing



Ficco: Aerate in circular patterns, save time of stopping and turning



Van Noord: Leave-behind information 'stops some of the phone calls.'

ever," says Ficco. Recognize aeration service for what it is, he says, "a fine add-on service that can supplement the income of an existing business."

In the Boston-area market, \$24 to \$25 per 1,000 sq.ft. is what most residential customers expect to pay for aeration. Professionals elsewhere would love to get that. Some charge as low as \$10 per 1,000 sq.ft.

counts, coupons, mailings, etc. Aeration is also prominently mentioned in Partners' Yellow Pages' advertising.

But it really *sells* aeration through person-to-person contact, says Ficco.

"We explain the problem, write it down on the invoice and follow up. If the people don't call us back within 72 hours, we're back on the lawn in person, or sometimes we make a phone call, to follow up on what we've already suggested," he says.

Steve Van Noord, Weed & Feed Lawn Care of Byron Center, Mich., offers aeration as part of W&F's regular program—four applications and an aeration. "If we really believe it benefits lawns, why are we marketing it as an option?" he asks.

Van Noord says W&F aerates about 60 percent of its customers from year to year.

"This (aeration) is the type of service you have to continue selling," says Van Noord. "When we do an aeration, we leave behind lots of information, information that answers questions like, 'will I see long-term or instant results?' and 'do I pick up the cores, or mow right after an aeration?'"

Whereas Ficco's company does most of its aerations in the fall, usually in conjunction with applications of lime, fertilizer

SAMPLE RESIDENTIAL PLAN

	Existing customers	New customers	Total
Customer base	500	125	625
Cancels	50	10	60
Net customers	450	115	565
Buying aeration	15%	20%	
Price (1,000 sq. ft.)	\$18	\$18	
Avg. lawn (sq. ft.)	7000	7000	
Revenues	\$8820	\$3150	\$11,970

Under-charging is risky. Aerator maintenance, with its down-time and related costs, can be high. "Aerators, as part of their repair instructions, use terms like crowbar and sledge hammer," jokes Ficco.

The Easton, Mass., businessman offers aeration as one of several turf-building, extra-charge services in addition to fertilizer and weed control. The company sells it through a combination of seasonal dis-

ELSEWHERE

DC firm offers service 'menu', p. 80

Dr. Beard predicts turf's future, p. 82

High/low volume: the pros and cons, p. 82

The fight against yellow nutsedge begins here.



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Unlike other herbicides which only burn back yellow nutsedge above the surface, Basagran T/O herbicide travels down to control the roots, rhizomes and tuber network underground. It's the only way to be sure those same weeds won't come back.

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application is recommended when re-growth occurs.) And while it's tough on weeds, it's easy on virtually all varieties of established turf.

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Marino: wants to build home owner awareness in southwest Missouri.

and seed, Van Noord's W&F tries to slip in as many aerations as it can during the dog days of summer, on those days when wind

or other conditions don't favor fertilizer or chemical applications.

"We follow basically the same routes as we do for the other rounds," says Van Noord.

George Marino of Greenlawn Fertilizer of Springfield, Springfield, Mo., says this season he'll add an optional two rounds of aeration to his basic five-application program.

Says Marino. "I think the message I want to get across is for them to realize,

yes, this needs to be part of the program and it (aeration) will help the other things that we're doing benefit them more."

In spite of the turfgrass industry's familiarity with aeration and its benefits, Marino doesn't think home owners have gotten the message yet.

"I think a lot of our market is still uneducated when it comes to aeration," he says.

—Ron Hall

Adaptable DC-area firm offers virtual 'menu' of lawn services to customers

Partners Dan Henneberg and Bern Bonifant say it would be nice to be 'all natural,' but you've got to make a living, too.

■ Good lawn care programs, good name, good new location: these are some of the reasons Dan Henneberg and Bern Bonifant feel good about 1992.

Henneberg is president and Bonifant vice president of Natural Lawns, Inc., Fairfax, Va. They've been together since founding Natural Lawns in 1986. Last year, recession or not, was the company's best ever.

What they, through NL Inc., do—and do well—is offer clients a choice of programs. Then they deliver the type of service the customer wants.

They feel that, as a small company, they have to be flexible to compete in the Northern Virginia residential market. Or be squashed. The competition includes most of the industry's national heavyweights, and several top-flight regional companies, too.

Henneberg and Bonifant aren't intimidated though. They're too busy.

When potential clients get a Natural Lawns' brochure, they almost get a lawn care menu. The partners know their suburban D.C. customers, for the most part, are educated professional people. But these same people also probably don't know the subtleties of keeping green, healthy lawns during the area's hot, humid summer. That's one reason all NL programs are listed and explained in easy-to-understand language.



Bern Bonifant, left, and Dan Henneberg are proving that the Northern Virginia lawn care market is still strong.

Prospects can choose from an "All Natural Program," a "Modified-Organic Program," a "Lawnplus-IPM" offering, or, perhaps, a "Zoysia Program."

Says Henneberg, "we'll even make adjustments *within* a program."

Adds Bonifant, "some customers don't like the cookie cutter approach. They may want one aspect of a program customized to address some particular concern they have."

In spite of the company name, no more than 10 percent of the company's clients choose an all natural lawn care program.

"The more research we did, the more we realized that—sure—it would be nice to offer strictly all-natural lawn care," says Henneberg, "but we have to make a living too."

He says most NL customers choose a modified organic program, consisting of a soil pH test, the use of high-quality, slow-release fertilizer, application of a pre-emergence crabgrass control, and spot weed and insect controls, if needed. A winter application of lime (a common feature

of all NL programs) provides the sixth round for this program.

The company also offers a shrub care program, core aeration and seeding (mostly done together in the fall), overseeding, and a small amount of mowing.

Henneberg and Bonifant are digging deeper into the Fairfax-area market. In fact, they started 1992 by moving their headquarters from Falls Church to Fairfax County, about a 25-minute MetroRail southwest from downtown Washington, D.C.

"This puts us absolutely in the center of the Northern Virginia market," says Bern. "We think this is going to help us keep our routes tight. I know it's not always an easy thing to do, but we intend to concentrate on small areas and still expand our customer base."

Adds Henneberg, "many households have both parents working and they just don't have much time for lawn work, but they still want a nice lawn."

—Ron Hall

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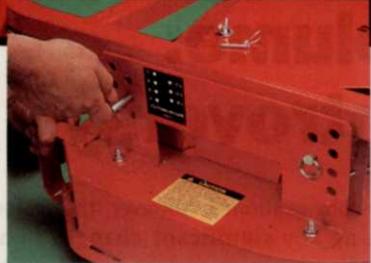
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Dr. Beard views future of turf management

■ Dr. James Beard outlined 10 trends he felt vital during a presentation at the Michigan Turfgrass Conference, just a few miles from Michigan State University where he taught from 1961 to 1975.

"Some of the things I say will probably be wrong, but the challenge is to think of the future," said Beard who was visiting from Texas A&M University.

1. More computer use in turfgrass management. "You're going to come in and turn that computer on and you're going to get a series of readouts that there is a high probability of this disease in the next four days, or the prime time for winter overseeding is coming up, or a period of root stress is approaching," he notes. Computers, networked to libraries, will provide an immediate source of information for turfgrass managers.

2. Reduced pesticide use. More corrective and fewer preventive applications. More pesticide applications will be target-specific.

3. More emphasize on pest management approaches. The key to solid turfgrass management?—"understanding and manipulating the environment in favor of the growth of the turfgrass plant, and minimizing the chances of stress," says Beard.

4. Water conservation. Expect less

water available for turfgrass use, higher water costs, increased use of effluent water, government control or allocation, says Beard, noting that the industry has had a hard time convincing the public that



Beard: Predicts more tolerant turf.

turfgrass is actually vital in preserving and protecting groundwater.

5. More use of controlled-release fertilizer products. The presence of nitrates

in groundwater will continue to be an issue. He asks for improvements in slow-release fertilizer carriers.

6. Less energy waste. Expect steadily rising costs for petroleum-based products and internal combustion machinery, causing turfgrass managers to plan their programs with energy savings in mind.

7. Improved stress tolerance in turfgrass cultivars. Plant breeders will accelerate their efforts to develop grasses that provide quality turf while requiring less energy, water, fertilizer, and pesticides.

8. Innovative rootzones for turfgrass getting lots of traffic. Beard refers to a mesh element system in place in the upper six inches of turfgrass rootzone at the 14-acre Santa Anita (Calif.) Race Track. He said it significantly reduced divoting and improved turf at the track. Systems based on similar principles might be developed for golf tees/greens and sports fields.

9. Growing focus on employee safety. Employee training programs will focus on safety practices, use of equipment, product safety, etc.

10. More education needed to keep abreast of technological advances. Turfgrass managers will *have to* be well versed in turfgrass, and also in cost control, system organization, personnel management, budgeting, etc.

The heart of his message? "Efficiency through better management of water use, pesticide use, energy use, equipment use, labor use, and fertilizer use," says Beard.

—Ron Hall

High vs. low volume: still sparks controversy

■ Maybe you can *still* spark a hot little argument concerning liquid versus dry lawn applications.

Maybe.

Or how about high volume versus low volume?

Consider this instead: a separate company, a low volume or granular company, *in addition* to your present company? Perhaps you can even retrain and staff the new venture with some of the same personnel you already employ?

Bruce Jacobs, an agronomic specialist with DowElanco, posed the questions during a presentation at the Michigan Turfgrass Conference.

Jacobs cautioned, however, that before making any significant changes in an operation business owners should satisfy themselves that they can answer the following three questions:

1. Will the change improve the company's long-term profitability?

2. Will the change improve employee motivation?

3. Will the change improve the company's service to its customers?

Until just recently—into the 1980s, really—the public embraced high volume liquid applications at least in part, claims Jacobs, because the service was new and novel.



Bruce Jacobs: weigh long-term profit picture when considering liquid vs. dry.

"People said, 'Hey, I can't do that. Hose down my lawn next'," says Jacobs of the first professional applicators, some of whom used converted oil tank trucks and put down as much as 10 gallons of material per 1,000 sq.ft.

"Now I think the homeowner is saying, 'Give me the service because I don't have

continued on page 84

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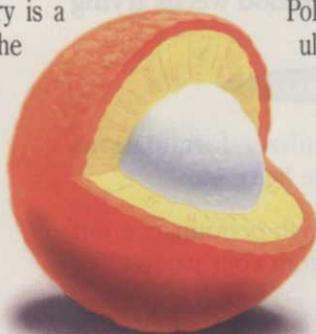
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without the need for the waxes and conditioners often used to mask coating imperfections in traditional sulfur-coated products. So there's no dust problem and no wax residue on spreaders — increasing the convenience and accuracy of application.

Poly-S technology also makes the fertilizer granules more abrasion-resistant than SCU, so that they are applied to the turf with the coatings *intact*, virtually eliminating the chance of premature release of nitrogen leading to surge growth and turf damage.

No other fertilizer offers you so much residual flexibility with the economy of Poly-S technology. And all Poly-S fertilizers come with a Scott Tech Rep, an agronomically trained professional ready to help you develop a total turfgrass program that assures proper application and maintenance scheduling.

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- ✓ One-step application. You can mix products in the tank.
- ✓ Excellent to good coverage of the lawn.
- ✓ Less chance for phytotoxicity, streaking.

Disadvantages of high volume:

- x Large, heavy trucks.
- x Hard to operate in downtown areas, lack of mobility.
- x In event of spill, potentially more material to contain.

Advantages of low volume:

- ✓ Smaller, easier to operate, easier to keep up vehicles.
- ✓ Better mobility.
- ✓ Fewer gallons of material on the road.

Disadvantages of low volume:

- x Generally demands more experienced applicators.
- x Greater likelihood of phytotoxicity and streaking by technicians.
- x Spills are usually of more concentrated material.

High vs. low from page 82

time to do it for myself," says Jacobs.

Jacobs says the lawn application industry is moving toward low volume (1 to 1-1/2 gallons per 1,000 sq.ft.) and granular programs, but some high volume liquid operations are still profitable and healthy.

So instead of stripping off the tanks from your big chemical trucks and selling them as flatbeds, or reinventing the company image, he suggests, start another operation, maybe even with a different company name and different image in the marketplace.

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HOT TOPICS

Weight of evidence' favors 2,4-D

WASHINGTON—If several studies have shown that the herbicide 2,4-D is linked to cancers in both man and dogs, then why is it still on the market?

Simple: *much* more evidence suggests that exposure to the popular herbicide does not cause cancer, says Dr. George Carlo from the Health & Environmental Sciences Group, Washington D.C. The herbicide is the most intensively studied

chemical of its kind.

And it's one of the most widely used herbicides with about 55 million pounds being applied a year in North America, most going to agriculture but almost 7 million pounds on turfgrass.

The 2,4-D/cancer hypothesis first surfaced in 1977 when the Swedish scientist Hardell suggested it *might* be linked to three rare forms of cancer. But the bigger

bomb fell in 1986 with the publication of the Kansas Farm Worker Study.

Yes, that study said, there does appear to be a connection between 2,4-D and a form of cancer known as non-Hodgkins lymphoma. It claimed that farmers who had more than 21 exposures a year to 2,4-D appeared more likely to develop the cancer.

Many researchers now feel, however,

More 2,4-D data is expected this year

MIDLAND, Mich.—As many as 500 concerned dog owners jingled the 2,4-D hotline (1-800-345-5109, U.S., or 1-517-835-2091, Canada) after the media ran the results of a study linking 2,4-D exposure with canine lymphoma last summer.

"There were more calls that I couldn't answer because the line was busy," says Dr. Wendell R. Mullison, who mans the hotline.

Although Mullison, one of the developers of 2,4-D, admires what the researchers tried to do, he—and others—point out serious shortcomings in the study, weaknesses that cast doubts on some of its conclusions (see Nov., 1991 LM, page 44). But of course, the press has already generated what excitement it could from the findings.

And some of the public (landscape pros wonder how many) question the safety of the herbicide.

More data on 2,4-D is on the way.

Several studies that will shed additional light on pesticides, specifically the

herbicide 2,4-D, may be published in the coming months.

The Iowa/Minnesota Study—Dr. Kenneth Cantor of the National Cancer Institute (NCI), Washington D.C., is the principle author. He tells *LANDSCAPE MANAGEMENT* that this case control study of farm workers might be published in the journal *Cancer Research* by late spring or early summer. The study looks at incidences of leukemia and lymphoma in connection with certain farm practices in the two states.

The ChemLawn applicator exposure study—This study is probably more than a year away from being published, says NCI researcher Dr. Sheila Zahn. This is a cohort study investigating the chemical exposures and health histories of about 35,000 ChemLawn applicators. The exposures can be determined through records ChemLawn made available to researchers.

"These two studies will provide more data that will fit into a larger mosaic of data," says Gary Hamlin, representing



Gary Hamlin says each study adds to 40-year data base of herbicide.

DowElanco, a manufacturer of technical grade 2,4-D.

"It's kind of like putting together a jigsaw puzzle. You don't assume the next piece you use is going to show you the whole picture. No single study, and certainly in the area of epidemiology, tells the story," he adds.

Meanwhile, manufacturers, formulators and marketers of 2,4-D continue the multi-million dollar defense of the herbicide, which is in the lengthy process of EPA re-registration.

INSIDE

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2,4-D research,
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in California,
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**Golf course
mower surveys,
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 TITLE _____
 FIRM _____
 ADDRESS _____
 CITY _____
 STATE _____ ZIP _____

TELEPHONE (_____) _____
 HAVE A SALES REP CALL ME (A)

101	118	135	152	169	186	203	220	237	254	271	288	305	322
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103	120	137	154	171	188	205	222	239	256	273	290	307	324
104	121	138	155	172	189	206	223	240	257	274	291	308	325
105	122	139	156	173	190	207	224	241	258	275	292	309	326
106	123	140	157	174	191	208	225	242	259	276	293	310	327
107	124	141	158	175	192	209	226	243	260	277	294	311	328
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109	126	143	160	177	194	211	228	245	262	279	296	313	330
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112	129	146	163	180	197	214	231	248	265	282	299	316	333
113	130	147	164	181	198	215	232	249	266	283	300	317	334
114	131	148	165	182	199	216	233	250	267	284	301	318	335
115	132	149	166	183	200	217	234	251	268	285	302	319	336
116	133	150	167	184	201	218	235	252	269	286	303	320	337
117	134	151	168	185	202	219	236	253	270	287	304	321	338

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103	120	137	154	171	188	205	222	239	256	273	290	307	324
104	121	138	155	172	189	206	223	240	257	274	291	308	325
105	122	139	156	173	190	207	224	241	258	275	292	309	326
106	123	140	157	174	191	208	225	242	259	276	293	310	327
107	124	141	158	175	192	209	226	243	260	277	294	311	328
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109	126	143	160	177	194	211	228	245	262	279	296	313	330
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112	129	146	163	180	197	214	231	248	265	282	299	316	333
113	130	147	164	181	198	215	232	249	266	283	300	317	334
114	131	148	165	182	199	216	233	250	267	284	301	318	335
115	132	149	166	183	200	217	234	251	268	285	302	319	336
116	133	150	167	184	201	218	235	252	269	286	303	320	337
117	134	151	168	185	202	219	236	253	270	287	304	321	338

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- 0005 Golf courses
 0010 Sports Complexes
 0015 Parks
 0025 Schools, colleges, & universities
 Other type of facility (please specify) _____

B. Contactors/service companies/consultants:

- 0105 Landscape contractors (installation & maintenance)
 0110 Lawn care service companies
 0112 Custom chemical applicators
 0135 Extension agents/consultants for horticulture
 Other contractor or service (please specify) _____

C. Suppliers:

- 0205 Sod growers
 Other supplier (specify) _____

Which of the following best describes your title: (mark only one)

- 10 EXECUTIVE/ADMINISTRATOR
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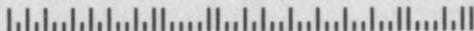
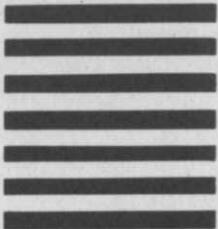
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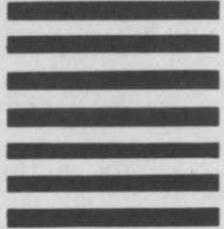
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2,4-D exposure study encouraging

GUELPH, Ontario, Canada—Green industry professionals should be encouraged by the findings of a Canadian 2,4-D exposure study.

Researchers at the University of Guelph and the Canadian Centre for Toxicology biologically monitored volunteers either exposed to 2,4-D, or in the vicinity of applications of the herbicide.

They failed to find exposures in any subjects above the acceptable daily intake established by the World Health Organization.

A summary of the soon-to-be pub-

lished study appeared in the January issue of *ProSource*, a publication of the Professional Lawn Care Association of America (PLCAA).

In that summary, researchers Shelley A. Harris, Keith R. Solomon and Gerry R. Stephenson said they measured exposures received by home gardeners, professional applicators and bystanders. Also, levels of 2,4-D were monitored in air samples both inside the home and downwind of the application site.

They said the results of their study "indicate exposure to sprayed turf should

present little risk in humans."

Even so, they said people can further reduce exposure, even to the non-detectable level, by staying off treated turf for at least 24 hours, or until after rainfall or irrigation.

The study also reaffirmed the role of protective clothing in reducing application exposure.

The herbicide 2,4-D typically enters the body through the skin—very little through inhalation—and is rapidly excreted in the urine. It is not metabolized in the body and leaves as it entered,

that the methodology used in that particular study, and in the recent work linking canine cancer to 2,4-D, does not tell the whole story.

"The weight of evidence does not support the hypothesis that 2,4-D causes cancer," says Carlo, adding that seven different studies conducted in four countries "did not support the hypothesis."

This evidence, most of it gathered since 1980, has been reviewed by several independent government and academic bodies.

A long history—Indeed, an incredible amount is known about 2,4-D, which was developed in the early 1940s, made commercially available in 1947 and is still widely used today because of its effectiveness and low cost.

The major route of 2,4-D exposure to humans is through their skin, says Carlo. But 2,4-D is not metabolized by humans, nor does it build up in the body. Carlo says it's excreted from the body, usually without a trace, within three days.

Beyond that, exposures experienced by applicators in the work-a-day world—assuming they follow product safety instructions—"are real, real low," says Carlo.

Igniting the press—Even so, a connection, any connection, between 2,4-D and cancer seemingly always ignites an immediate reaction in the press—a reaction invariably directed against professional lawn applicators.

Carlo says the 1986 Kansas Farm Worker Study resulted in "a lynch mob coming after 2,4-D."

The most recent incident, the 1991 study speculating that dogs exposed to 2,4-D (apparently as the result of lawn applications) were more apt to develop cancer,



Dr. George Carlo, left, explained the latest 2, 4-D controversy to applicators gathered at a symposium in Columbus,

received immediate and widespread publicity, even though the study's authors cautioned against drawing too many conclusions from their results.

"Why was the dog study published: because it was the first of its kind," says Carlo. "And the media ran with it."

However, when a 1990 Nebraska farm worker study purported to establish a tenuous link between repeated exposure to 2,4-D and cancer, it didn't create the same controversy as other reports.

"Millions of dollars were spent between 1986 and 1989 to put the issue in perspective and by the time the Nebraska study came out, there was just a thud," Carlo claims.

Carlo, who describes himself as both an epidemiologist and an attorney, says 2,4-D is the most exhaustively tested product of its kind. "We have both an animal and a human data base," he says.

—Ron Hall

Congress extends tax credit rules

WASHINGTON—Small business owners across the country received good news in December: the United States Congress extended five important tax credits before taking its winter recess.

According to a news release from the American Nurserymen's Association, small businesses can benefit from the new credits through June, 1992.

These tax credits apply to:

Health insurance for the self-employed—Tax-payers can deduct 25 percent of health insurance costs for themselves, their spouses and their dependents.

Targeted jobs—If you hire personnel from certain target groups, you are eligible for another type of tax credit.

Energy investment—If you have solar or geothermal heating equipment at your place of business, you can receive a 10 percent credit.

Employer-provided education benefits—You can credit up to \$5,200 of gross income for tuition and related expenses paid by the employer. This does not include graduate-level courses, though.

Research and development—For details, check with your accountant.

The A.A.N. urges small business owners to check with their accountants before filing 1991 taxes (remember the deadline: April 15th!) for further information.



Why not lighten up?

Reduce Your Clippings

and the costs of mowing, edging, trimming & clean-up

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Everett Mealman, Chairman and Chief Executive Officer PBI/Gordon Corporation

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A tank mix of Embark Lite and Limit® PGR can slow down the growth of cool season turf grasses for up to six weeks during the major growth period, and reduce the number of mowings by over 50%. The chemical cost of approximately \$45 per acre is appreciably less than the cost of a mowing when everything is considered.

A tank-mix of Embark 2.S and Ferramec® Liquid Iron can reduce the mowing of warm season grasses like centipede and St. Augustine by more than 50% for six to seven weeks for only \$45 per acre. (Of course, bermuda costs more, but mowing it also costs more.)

There is nothing on the scene today that more efficiently slows down the growth of turf, thus reducing mowing time, than Embark (mefluidide). How timely, given the current landfill situation. Turf quality needn't be compromised, thanks to a new fine-turf formulation, tank-mixtures, and specific directions for ornamental turf use.

Embark is foliarly absorbed and directs the life energy of the plant away from the development of seedheads and stem elongation, which means that the plant's root mass is not used up in support of excessive topgrowth. Interestingly, when untreated grasses may begin to show the effects of excessive heat and drought, Embark-treated grass actually enjoys a rebound of life for a couple of weeks from the energy that was stored up in the roots.

Embark Lite is the mefluidide formulation especially designed for fine turf. Limit is amidochlor, a root-absorbed PGR which is also a PBI/Gordon product. When tank-mixed with Embark Lite, the Limit helps deliver the maximum duration of growth suppression.

There is almost no end to the creative things you can do with the various formulations of Embark and tank mixes that are available.

Many of these uses are detailed in our PGR Applicator Guide, which we want to send you. It is a road map to efficiency in the management of ornamental turf that can help you meet today's challenge when 85% of the commercial property owners and managers report that they will be seeking competitive bids on their landscape management contracts this season.

It also contains many management suggestions for using Embark, such as:

- How to guard against discoloration in PGR-treated turf
- How to be compensated for *not* mowing the grass
- Recommended mowing practices for beauty enhancement of PGR-treated turf
- How to use Embark to hasten overseeding establishment or to coax the dominance of one grass species over another
- How to use Embark to dramatically reduce the need for trimming and/or edging
- How to use Embark to suppress seedhead development of *Poa annua*

FREE Applicator Guide

This 24-page PGR Applicator Guide is your road map to efficiency in the mowing and management of ornamental turf. Write to us for your complimentary copy.



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N.J. pesticide bill withheld from vote

WAYNE, N.J.—After eight years of debate, argument and compromise, New Jersey Senate Bill #3079 never made it to the floor for a vote in the N.J. Assembly, Jan. 13.

The bill is authored by the New Jersey Environmental Federation and sponsored by Senator Raymond Lesniak.

"The bill was an evolution of eight years of negotiations, public hearings and controversy," said Iona Gray, executive director of the Alliance for Environmental Concerns, based in Wayne, N.J.

"It contained some aspects that would make pesticide application difficult and in some circumstances would have banned them completely," said Gray.

One of the proposed bill's provisions called for a \$100 increase—to \$300—in the registration fee for each of the 10,307 pesticides currently used in New Jersey.

According to Gray, if the bill is reintroduced, it will have a tough time getting passed. Republicans—historically in favor of existing pesticide laws—won both assembly and senate majorities in last

November's elections

Ray Ferrarin, assistant director of The Pesticide Program didn't have a clue why the bill never made it to a vote. "We had most if not all groups, regulatory agencies lined up to support (the bill)," said Ferrarin, who thinks the bill will return.

The Pesticide Control Program is a watchdog group charged with making sure regulations state-wide are consistent and obeyed.

—Terry McIver

Water quality site-specific, study finds

WASHINGTON, D.C.—Results of the Environmental Protection Agency (EPA) Phase II report for its National Water Well Survey adds to evidence that water quality problems are based on numerous site-specific factors, according to the Fertilizer Institute.

The Institute believes local experts should be charged with finding solutions,

rather than instituting a federal cure-all.

"The report concluded that no single set of factors can be used to determine the incidence of water quality problems across the country. Rather, each particular problem site was the result of a combination of different factors," reports the Institute.

Gary D. Myers, president of the Fertilizer Institute, insists that the study

has disproven two widely-held fallacies.

"It is clear there is no national water quality problem, and a simple reduction in fertilizer use will have little if any effect on reducing water pollution," says Myers.

The data should serve as a guide to the EPA as it decides on coastal zone management plans, according to Myers.

California groups pen water charter

SACRAMENTO, Calif.—The California Landscape Contractors Association (CLCA) has joined other interest groups and water suppliers to enact a "historic" statewide urban water conservation plan designed to save an estimated one million acre/feet of water per year.

The Urban Water Conservation Charter, developed by the state water conservation coalition and the California Department of Water Resources, contains a variety of "Best Management Practices," meant to conserve water use at residential, commercial and industrial sites. Landscape water conservation requirements for new and existing commercial, industrial, institutional, governmental and multi-family developments, and new and existing single family homes, will be implemented at the end of 1995. Large landscape water audits will be required at the end of 1994.

Landscape water conservation ordinances are one of many plans called for.

Pat Marion, chairman of CLCA's Water Management Committee, calls the charter

a "pioneering effort" toward better water conservation.

"We have an unusual opportunity to help sustain California's natural resources



Marion: Charter a 'pioneering effort.'

and ensure the wise use of water by supporting the implementation of these conservation practices," says Marion.

Xeriscaping is not referred to in the charter, and Marion says the bill should not be construed as either pro- or anti-xeriscaping.

Representatives from the Metropolitan Water district of Southern California, the San Francisco Water Department, the League of Women Voters of California and the Sierra Club were among 120 organizations which supported the charter.

A.B. 325, a statewide water ordinance, is expected to be made into law in April or May.

Coming next month:

- The cost of insurance
- Hiring seasonal help
- Practical insect control
 - cold-season grasses
 - warm-season grasses
 - ornamentals

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Circle No. 147 on Reader Inquiry Card

\$3.4 billion spent on maintaining golf courses

LAWRENCE, Kan.—Caring for the nation's almost 13,000 golf courses is big, big business—about \$3.4 billion in 1991, says the Center for Golf Course Management (CGCM).

CGCM is the research subsidiary of the Golf Course Superintendents Association of America (GCSAA). The CGCM arrived at the \$3.4 billion figure by studying the maintenance

expenditures—including labor but excluding capital expenses—at 1,164 courses.

Stephen G. Cadenelli, president of the GCSAA, says, "the golf course maintenance industry is a major industry in the United States and has a major impact on the nation's economy."

For more information about the study, contact CGCM at (913) 841-2240.



Cadenelli: Golf impacts economy.

Average company owns six walk-behinds

DES PLAINES, Ill.—A recent survey of the outdoor power equipment market has found that the average grass-cutting service uses 6.6 walk-behind mowers, 1.2 front-mounted deck design riding mowers, 0.3 rear-engine riders and 1.2 tractors.

The survey by Irwin Broh & Associates, Inc., consisted of telephone interviews conducted in September of 1991 with representatives of 900 green industry companies. Questions dealt with

company buying habits relative to gasoline string trimmers, portable yard blowers, walk-behind mowers, riding mower tractors and gasoline hedge trimmers.

Each equipment category study is available from Irwin Broh & Associates, 1011 E. Touhy Ave., Des Plaines, IL 60018; (708) 297-7515.

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Circle No. 107 on Reader Inquiry Card

HOT STUFF

Duich retires to be consultant

STATE COLLEGE, Pa.—Dr. Joseph M. Duich has retired from Penn State University to become a technical advisor and consultant for the Tee-2-Green Corp., Hubbard, Ore.

Duich was professor of turfgrass science at Penn State for more than 36 years. While there, he assisted Professor H.B. Musser in developing Penncross creeping bentgrass.

Dr. Duich will address golf course superintendents' questions and management practice inquiries concerning the company's bentgrasses. He will continue to reside here.

Green industry market revealed

WASHINGTON—According to one report, the gardening and landscape industries in the U.S. will "virtually re-invent" themselves in the 1990s.

The study, done by Forecasting International, Inc., gives an extensive overview of dominant trends in American lifestyles that will impact the two professions.

"Although the study predicts that the aging baby-boomers will generate a substantial market for landscaping, it also concludes that landscape contractors will find it difficult to prosper as a result of this trend," a press release notes. "In support of this conclusion, it cites several factors: a continuing poor labor pool, under-capitalization and price cutting."

According to the study, future bright spots will be in high-end residential design/build, maintenance (including lawn care) and irrigation.

For more information on the 258-page book "The Gardening of America," contact Dickson Felix Inc., 1441 Que St. NW, Washington, DC 20009; (202) 328-1540.

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CUSTOMER SERVICE TIPS

Training tips

by E.T. Wandtke

■ Training your employees is difficult. If you are the owner of the lawn service or landscape company, you often are perceived as not really understanding what your employees go through each day.

When you look at your employees as you start the training, do you see just blank stares? Do you have trouble getting your employees into the training session? Here are some tips which will help you have more exciting customer service training sessions.

1) Start each training session by asking your employees questions which you will provide the answers to during the session. Getting your employees to focus on what you are saying can be accomplished by using an electronic speaker system. Some trainers have found that by speaking softly, employees will quiet down quickly.

2) Present a paragraph summary of what you will be covering in the training. Everyone is eager to know what will be covered. Don't keep them in the dark.

3) When presenting ideas or suggestions, concentrate on the present and the future. These are the times when your audience will be applying your sugges-

tions. Avoid references to the past, whether they be good or bad. Training is a forward directed development of your employees.

4) Visual aids keep employees attention and can serve to emphasize a specific point. Using a story to emphasize a specific point is an additional method of improving employee retention of the idea which you are making.

5) Keep the training session under one hour. The mind begins to wander if you stay too long on one topic. It's better to have two training sessions of one hour each twice a week rather than one two-hour session once a week.

INFO CENTER

Useful literature and videos offered to LM readers

ON THE ECONOMY... "Preparing for, and Responding to a Down Economy," a 148-page textbook/workbook, is available from Smith Huston Inc. for \$49.00. Written by James R. Huston, the text includes chapters on strategic planning, field production, computers and budgeting. Its last chapter is titled "A Quick-Reference Checklist and Survival Kit." To order the soft-cover edition, send check to Smith Huston Inc., P.O. Box 4433, Oceanside, CA 92052. For more information, call (619) 726-2112.

BEING WATER WISE... A new consumer brochure that can be handed to customers is available from the California Association of Nurserymen. Specifically designed to offer California residents helpful advice and sound strategies for saving landscape water, the brochure features fun illustrations and 15 Water Wise tips. For a free copy, visit a participating C.A.N.-member nursery or send a self-addressed stamped envelope to C.A.N., 4620 Northgate Blvd., Suite 155, Sacramento, CA 95834.

SPRAY GUIDE... Hypro Corp. offers "Hypro Pumps Spraying Guide and Master Catalog" that includes information

on environmental considerations: pump types and drives, calculating pump flow and pressure requirements, hand-held spray gun performance, sprayer calibration, etc. For a copy of this catalog (Form 2500AG), write Hypro at 375 Fifth Ave. NW, New Brighton, MN 55112 or phone (612) 633-9300.

TREE VALUES... The Council of Tree & Landscape Appraisers has available three brochures that cost 30 cents each. They are titled "Tree Values," "The Tree Casualty Puzzle" and "When a Tree is Damaged or Destroyed." The first is a homeowner's guide; the second discusses steps taken in appraisal, including tax/insurance ramifications; the third is a guide for real estate, insurance, tax and legal professions. To order, send check to CTLA, 1250 I Street, NW, Suite 500, Washington, DC 20005; or phone (202) 789-2421 for more info.

COURTING SMALL CLAIMS... Did you know that you can have your day in a Small Claims Court and get monetary judgments against a defendant without paying a lawyer to defend you? A compact new guide points out the differing procedures, forms, claim limits and service fees

for local courts across the country. It covers the rights of plaintiffs, how to present evidence and how to collect judgments. It also includes a sample copy of a typical claim form. Send \$3.50 to Reymont Associates, P.O. Box 114, Cooper Station, New York, NY 10276.

CHEMICALS REFERENCE... The 1992 Farm Chemical Handbook is now available for \$69.00 from Meister Publishing Company. Sections include pesticide dictionary, fertilizer dictionary, sine index, regulatory file, safety/application and bio-controls dictionary. To order, send your check to Farm Chemicals Handbook '92, 37733 Euclid Ave., Willoughby, OH 44094.

LANDSCAPE STANDARDS... "California Landscape Standards: Guidelines for the California Landscape Industry" is now available from the California Landscape Contractors Association, 2021 N Street, Suite 300, Sacramento, CA 95814. Sections deal with general requirements, site preparation, hardscapes, irrigation, lighting, planting, maintenance and interiorscaping. The 180-page book can be purchased for \$49.95 per copy.

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Turf Products, Ltd.
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**C&D
Enterprises, Inc.**
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Terre Company
201-473-3393

**Fisher & Son
Company**
215-644-3300

Agra Turf, Inc.
501-268-7036

**Big Bear
Equipment**
800-228-9761

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GREEN INDUSTRY EVENTS

MARCH

11: Metropolitan Detroit Landscape Association trade show and convention, Novi Expo Center, Detroit, Mich. Contact: (800) 354-6352 (Michigan only); (313) 646-4992.

12-13: New Hampshire Landscape Expo, Holiday Inn, Manchester, NH. Contact: New Hampshire Landscape Association, (603) 439-5189.

14-22: The New England Spring Flower Show, Bayside Exposition Center, Boston, Mass. Contact: The Massachusetts

Horticultural Society, Horticultural Hall, 300 Massachusetts Ave. Boston, MA 02115; (617) 536-9280.

14-22: The New York Flower Show, Pier 92, 55th St. and the Hudson River, New York City. Contact: The New York Flower Show, 128 West 58th St., New York, NY 10019; (212) 757-0915.

15-17: National Golf Foundation, symposium: "Obstacles Overcome by Successful Golf Course Operators," Marriott at Sawgrass Resort, Ponte Vedra Beach, Fla. Contact: Roger Yaffe, NGF, 1150 South U.S. Highway One, Jupiter, FL 33477; (407) 744-6006.

16-17: Golf Course Superintendents Association of America Regional Seminar, Minneapolis, Minn. Contact: GCSAA, 1421 Research Park Dr., Lawrence, KS 66049-3859; (913) 832-4444.

17-20: The National Forum on Public Golf Management, Hyatt Regency-DFW Hotel, Dallas. Contact: The Public Golf Management Association, 8030 Cedar Ave., Suite 228, Minneapolis, MN 55425; (612) 854-7272.

19-20: CalScape Expo'92, San Francisco Airport Hilton. Contact: California Interior Plantscape Association Council, 3857 Birch St., Suite 270, Newport Beach, CA 92660; (619) 770-9696.

19-20: National Institute on Park and Grounds Management, athletic turf management seminar, Roanoke, Va.. Contact: NIP&GM, P.O. Box 1936, Appleton, WI 54913-2936; (414) 733-2301.

20-21: Associated Landscape Contractors of Colorado, Western Chapter, Xeriscape West Conference and Trade Show, Hilton Hotel, Grand Junction, Colo. Contact: Rich Edwards, (303) 241-0297.

20-21: Xeriscape West '92, Grand Junction, Colo. Contact: Associated Landscapers of Colorado Western Chapter, 3072 East 1/2 Rd., Grand Junction, CO 81504; (303) 434-1163.

22-24: ALCA Student Field Days, University of Kentucky, Lexington. Contact: Dr. Robert McNeil, Dept. of Horticulture and Landscape Architecture, N-318 Ag Sci North, University of Kentucky, Lexington, KY 40546-0091.

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Circle No. 128 on Reader Inquiry Card

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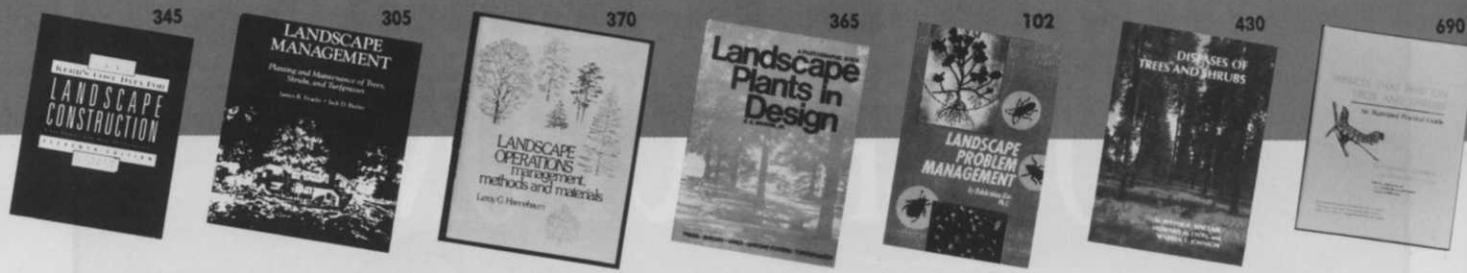
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by George Symonds
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No professional can be without this new comprehensive guide which provides the most recent information available on the identification, biology, control and management of every type of turfgrass pest.

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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.

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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!

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by Daniel and Freeborg
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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

GENERAL

410 - DISEASES & PESTS OF ORNAMENTAL PLANTS

by Pascal Pirone
Learn when and how to use the most effective fungicide, insecticides and other control methods on nearly 500 varieties of ornamental plants grown outdoors, under glass or in the home. This essential reference covers both diagnosis and treatment.

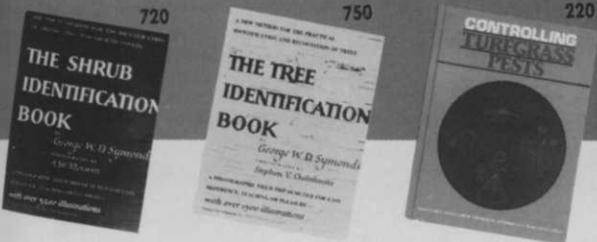
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by Balakrishna Rao, Ph.D.

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JOB TALK

Office park presents a scheduling and logistics challenge

Atlanta's Northpark Town Center requires plenty of turf and ornamental detail work, and not just on the ground floor.

■ Nestled in Atlanta's prestigious Northpark Town Center is an office park that redefines the natural beauty of a well-planned urban development. It's surrounded by heavily used freeways and arterial roads, but the serenity of Northpark is impressive because of the property's landscape development.

The property has been maintained by Scapes, Inc. since the first phase was completed in 1987.

The Northpark Town Center master plan is a self-contained, pedestrian-oriented "town center" office park which, when completed on its 42 acres, will include 3.8 million sq. ft. of office space, 50,000 sq. ft. of retail space and a luxury 375-room hotel and conference center.

Northpark has 15 acres of maintainable turf. Four of those acres consist of two, two-acre rooftop gardens. All basic maintenance—including mowing, edging, trimming and blowing is completed in one day. The mowing crew is assisted in its duties by a three-man detail crew that is on site two days each week.

The Northpark regimen

✓ A Scapes employee is on the site each day. A four-person mowing crew visits the site once a week. Mowers: two, 72-inch Excel Hustlers, one 54-inch Walker, a 48-inch Ransomes walk-behind for special pattern cutting, and a 21-inch Lawn Boy push mower for trim cutting.

✓ To mow the turf on the top levels of the Gardens, the Walker mower is driven onto the freight elevator and lifted to the roof.

✓ Tanka edgers, Stihl backpack blowers and Echo weedeaters handle the clean-up.

Detail crews handle:

✓ Shrub pruning. "Tip pruning" produces a consistent, natural look.

✓ Fast-growing materials are treated with a mixture of Embark and Ferromec. It is essential in keeping the amount of



Atlanta's Northpark Town Center.

top growth in proportion with the limited space for root development.

✓ Spring and fall applications of granular fertilizer and pre-emergents; selected plants are fed with the Peters 20-20-20 throughout the growing season. Because of limited rootzone available to much material, foliar feeding is chosen as a superior method of treatment.

✓ Solo backpack sprayers are used for limited-access spraying. Ground-level spraying is accomplished with 30-, 50- and 300-gallon Agro-Tec drop tanks.

✓ Insect/disease control: A walk-through of the property is conducted each week by the operations manager and the owner's property manager. A detailed list of priorities for the week are established for the crew members, as well as specific sightings of insect or disease problems. Control products used include: Orthene, Subdue, Mavrik, Sevin, Banrot and Daconil.

✓ Crews treat weeds as they appear. Turf program includes two application of Surflan pre-emergent each season; subsequent appearances are treated with Trimec, Trimec Plus, Acclaim or Basagran as needed.

✓ Large maples on the roof-top gardens receive an interior pruning each winter.

✓ Pedestrian areas are blown clean daily and street curbs are cleaned twice each week.

✓ Irrigation management: Two irrigation technicians continuously monitor the system. The system supplies water to the fifteen acres of turf, 11 levels of the roof-gardens and 58 balcony planters spread over 18 stories of office tower.

Irrigation components: Three Rain Bird ISC-32 controllers; three Rain Bird RC-23XL controllers; two Rain Bird RC-7 controllers; 399 zones; seven backflow preventers; two 120 gpm pump stations (to force water to the upper reaches) and four rain sensors.

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GREEN INDUSTRY SHOWCASE

Tests show value of sand amendment

"Sand-Aid" is a new organic amendment for sand-based root zone mixes, from Emerald Isle, Ltd. of Ann Arbor, Mich.

Recent test results by an independent testing concern show dramatic increases in organic matter content.

Turf Diagnostics & Design, Inc. of Olathe, Kan., was hired to conduct tests on the product. Tests showed Sand-Aid also improved cation exchange capacity, moisture/nutrient holding capacity without disturbing desirable physical properties such as soil porosity and infiltration rates.

Sand-Aid is composed entirely of granulated sea plants. In USGA spec greens mixes, it is used as a companion to peat moss. In "straight sand" greens mixes, it is used to amend the root zone.

Other results of recently conducted tests include:

- Adding Sand-Aid increased the organic matter content of the sand/peat mixes and pure sand in all cases;

- Using the product at recommended rates increased organic matter content of the 80:20 sand/Canadian sphagnum peat mix by 60 percent;

- Sand-Aid at the recommended rate increased the organic matter content of the 90:10 sand/Dakota peat mix by 53.8 percent;

Pure sand treatments with Sand-Aid increased organic matter

- Tests showed no negative impact on the physics of the greens. According to Turf Diagnostics, Sand-Aid's ability to significantly increase organic matter content without "layering" is a "positive attribute."

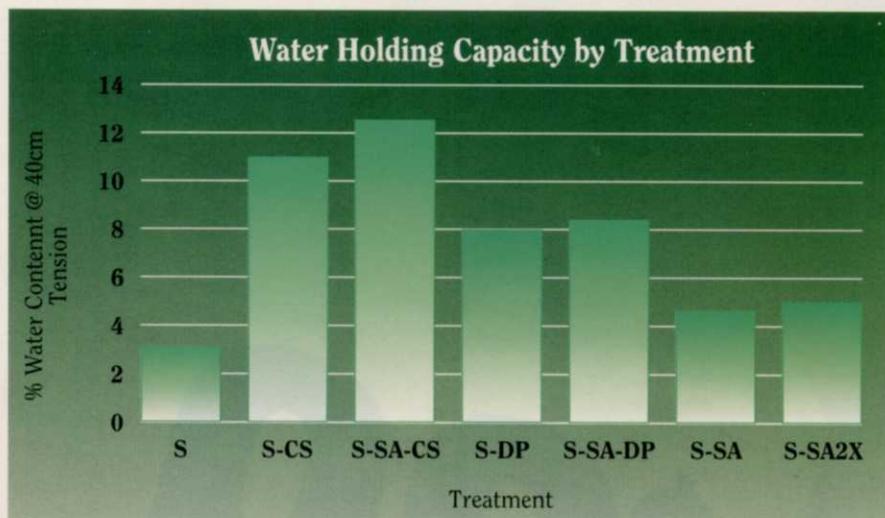
- As a companion amendment for peat, the increase in organic matter produced by Sand-Aid without any adverse effects on the physical properties of the mixes is

highly beneficial, says Turf Diagnostics.

Sand-Aid appears to have no negative impact on infiltration rates and water holding capacity. However, adding the amount of peat it would take to equal the increase in organic matter produced by

70 to 80 lbs. of Sand-Aid/1000 ft.2 is to be incorporated in the upper six inches.

The sphagnum and Dakota Peat mixes were mixed and a 0.18 percent (weight basis) rate of Sand-Aid was added to the mix to simulate the 45 lb. rate. The pure sand treatments were made by using a 0.33 percent (weight basis) rate and by doubling the rate to 0.66 percent (by weight). After all the treatments were made the physical evaluation process was initiated.



Sand-Aid would have a significant negative impact on the mix's physical properties.

Turf Diagnostics and Design specializes in agronomic system assessments of construction materials and processes required for high performance turf systems.

The treatments or mixes used to determine the USGA physical evaluation are as follows:

S=Sand

S-SA= Sand + Sand-Aid

S-SA-CS=Sand+Sand-Aid+Canadian Sphagnum Peat

S-CS=Sand +Canadian Sphagnum Peat

S-SA-DP=Sand+Sand-Aid+Dakota Peat

S-DP=Sand +Dakota Peat

Emerald Isle recommends a rate of 40 to 50 lbs. of Sand-Aid/1000 ft.2 be incorporated in the upper six inches of a sand-peat rootzone. For pure sand greens, a rate of

Sub-samples of the mixes were dried and processed to determine the organic matter content. The rates simulate an incorporation of material to a six-inch depth of rootzone mix.

The treatments with the additions of Sand-Aid increased the organic matter content of the mixes and pure sand in all cases. The addition of Sand-Aid increased the organic matter of the peat treatments by 0.6 percent to 0.7 percent. The pure sand treatments with Sand-Aid increased the organic matter content to 0.3 percent (recommended rate) and to 0.6 percent (2x the recommended rate). The water holding and infiltration rates were only slightly affected by the organic matter increases due to the Sand-Aid.

Results of the water holding tests are shown in the accompanying graph.

Circle No. 191 on Reader Inquiry Card

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PRODUCT REVIEW

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determine your clients' account statuses.

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Circle No. 152 on Reader Inquiry Card

All-wheel drive/steering a plus with this mower

Excel Industries brings what it calls the safest, most productive mowing machine ever to the green industry: the



UTR (for Ultimate Turning Radius).

The 65 hp 9400 UTR is the first full-time four-wheel drive, four-wheel steering machine to incorporate true zero turning radius, notes the manufacturer. The synchronized steering system means that the 82-inch deck never skips, no matter how sharp the turn.

This feature also gives the UTR exceptional ground-hugging reliability that makes it the best machine available for hillside mowing, Excel says. It also means that you can trim around any size object in one smooth motion without stopping or backing.

Special features and standard certified four post protection and seatbelt are included for extra safety. The seat features a unique tilt suspension system that keeps the driver upright when mowing on hill-sides.

Circle No. 193 on Reader Inquiry Card

Easy mower transport with cargo trailer help

Mobile Structures, a national distributor of cargo trailers and modular offices for landscaping and grounds maintenance uses, offers its 1991 line of landscape trailers.

Hitch ball units in widths of 5, 6, 7,

PICKSEED® rolls out the green carpet



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Fine fescue: Agram Chewings,

Azay Sheeps, Jasper Creeping Red, Spartan Hard and Victory Chewings.

Elite Kentucky bluegrass: Alpine, America, Banff, Bronco, Crest, Indigo, Nugget and Touchdown. **Poa trivialis:** Colt. **Creeping bentgrass:** National.

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PRODUCT REVIEW



and 8-1/2 feet are available in lengths of up to 37 feet. Fifth wheel and gooseneck models are available up to 48 feet long in widths of 7 and 8 feet.

A rear fold-down ramp door is ideal for loading and unloading equipment. Rear double door design is also available.

Circle No. 194 on Reader Inquiry Card

Three-wheel mower adds to productivity

The T-3100 series of three-wheel riding mowers from Ransomes increases produc-



tivity without the investment of a tractor, says the manufacturer.

New to the line is model T-3102, powered by a Kohler Magnum 20 hp engine. The single-foot pedal control of the hydrostatic drive provides variable speeds in both forward and reverse, without shifting and clutching.

The 61-inch rotary cutting deck produces 28 acres of turf during an eight-hour day. And the 5-1/2-foot deck offset feature allows for easier trimming. The 48-inch deck has been added to the line for trimming in tight or heavily landscaped areas. Turf care professionals will appreciate the semi-floating, out-front deck, which delivers smooth cutting over uneven terrain, Ransomes contends.

Circle No. 195 on Reader Inquiry Card

Blade sharpener adjusts to fit any size blade

The Mini Miller from J.L.G. and Co., Gahanna, Ohio, adjusts to any position to sharpen any blade, including mulching, left hand, and bush hog blades.

J.L.G. says the Mini Miller will follow the contour of any blade, cuts sharpening time in half, and eliminates the need to have hands near the grinder. It attaches to any bench grinder or motor and stone combination.

Mini Miller products come with an unconditional 30-day and 2-year material and workmanship guarantee.

Circle No. 196 on Reader Inquiry Card

New mid-size mower has a two-step deck

The Honda HRC701ZXA is available in 36- or 48-inch cutting decks, designed to



provide better air flow. In addition to side discharge, the mower also offers the option to mulch or bag clippings.

The HRC is powered by a 13-hp Honda four-stroke overhead valve engine. A twin hydraulic drive pump and motor system gives the model a zero-turn radius for high maneuverability and infinitely variable speeds plus reverse within range of the control lever.

Circle No. 197 on Reader Inquiry Card

Leak-proof tree injector is patented, returnable

Tree Technology Systems, Inc. of Buffalo, N.Y., has developed a patented, leak-proof tree injector called ArborX.

To prevent leakage, the feeder tip of the injector and the feeder section are welded to the barrel. A special O-ring seals the plunger in both the shipping and pressurized position, and the plunger locks into position when pressurized.



The product will be sold to certified pesticide applicators who successfully complete special company training courses. Instruction is by means of a self-study program using a manual supplied by the company.

Company founder Richard Stedman has also provided for the return and secure disposal of used injectors.

Orthene insecticide, Bayleton fungicide and Nutriject proprietary fertilizers are available in the injector form.

Bayleton with fertilizer is also packaged in ArborX injectors to combat pine decline, especially in Florida. More products will be added to the line on a regular basis.

Circle No. 198 on Reader Inquiry Card

Disease detection kit spots "the big three"

The Reveal Turf Disease Detection Kit warns of the presence of brown patch,



pythium and dollar spot.

Accurate results are provided in as little as 10 minutes.

According to Agri-Diagnostics, case studies have shown that Reveal test kits can dramatically reduce pesticide use and eliminate the need for tank mix procedures.

Circle No. 199 on Reader Inquiry Card



Introducing new low-dust CHIPCO® RONSTAR® brand G oxadiazon herbicide.

Thanks to a cellulose-based granule derived from recycled paper, your favorite herbicide is now available in an easier-handling, remarkably low-dust formulation.

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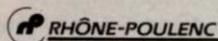
Of course, you still get the same dependable control of 25 broadleaf and grassy weeds—including goosegrass, crabgrass and Poa Annua—that you've come to expect from CHIPCO® RONSTAR® G. And you get this proven control all season long from just one pre-emergence application; without the leaching and root pruning associated with some herbicides. You can even use it on a wide variety of ornamentals to keep more of your course weed-free with each application. • For more

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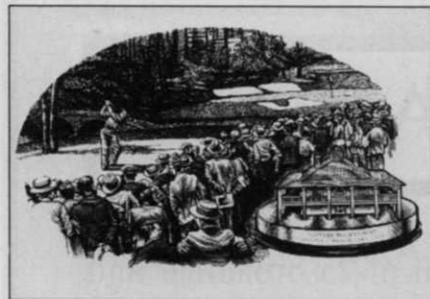


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PRODUCT REVIEW

'Innovations in Golf' charts game's history

A poster tracing the history of golf is now available at no charge from Hunter



Industries, the irrigation equipment manufacturer.

"Innovations in Golf" highlights the pivotal developments and personalities associated with the game over the last 200 years, including players, course designers and equipment.

The poster was illustrated by Texas artist Mark Weakley.

"Innovations in Golf", a 25 x 38-inch poster, is free to golf industry and irrigation professionals and educational institutions.

Circle No. 200 on Reader Inquiry Card

Water-dispersible granular eliminates disposal woes

Lesco's Three-Way 53% DG Selective Broadleaf Herbicide eliminates all contain-



er disposal problems of triple-rinsing, puncturing and landfill disposal of drums.

Three-Way 53% DG is non-volatile and readily disperses in water for spray application to control more than 35 broadleaf weed species, Lesco says.

The active ingredients are 2,4-D, mecoprop (MCP) and dicamba.

According to Lesco, rapid dispersal allows applicators to use Three-Way in all commonly used spray equipment, includ-

ing backpack and small pump-up sprayers.

Storable in low temperatures, it is packaged in 8 lb. bags, which cover 2.0 to 2.5 acres of turf.

Circle No. 201 on Reader Inquiry Card

Power-driven dethatcher rehabilitates older turf

Gandy Company now offers a multi-purpose power-driven dethatcher to help



rehabilitate older established turf areas or seed in the bare ground.

The Model 2848DP is a 48-inch unit designed for Category 1, 3-point hitch systems. It's powered by 540-rpm PTO from tractors of 18-hp or more.

The serrated knife blades on the Gandy dethatcher are set on 2-inch centers. Each is made of heavy-gauge spring steel to resist breaking and shattering. Infinite depth adjustment is accomplished with an easily accessible, smooth-operating turn-buckle.

Circle No. 202 on Reader Inquiry Card

Irrigation controller has a variety of schedules

L.R. Nelson Corp. has introduced its PRO 8430 Series 4, 6, and 8 zone controller.



The controller features an attractive, compact weather-resistant enclosure and

internal transformer. The controller's electronics are identical to Nelson's 8420 Series controllers. Battery isolated electronics virtually eliminate lightning problems, according to Nelson.

The controller includes three start times; 1-999 minute running times; various watering schedules.

Circle No. 203 on Reader Inquiry Card

Companies sign agreement for equipment manufacture

The Toro Company has entered the sprayer market.



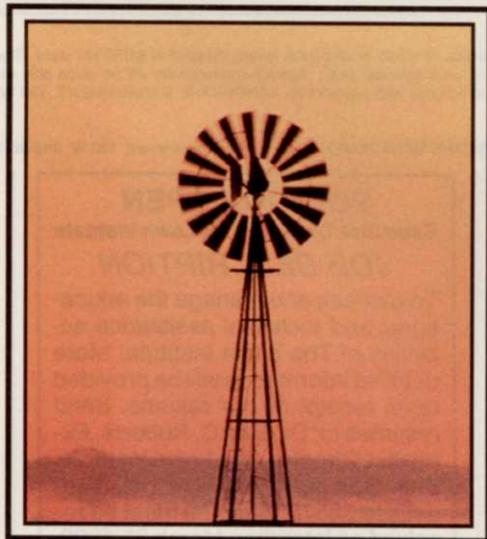
Toro and Hahn, Inc. recently announced an agreement whereby Hahn will exclusively manufacture its multi-use commercial turf maintenance vehicles for Toro under the Toro brand name.

Under the terms of the agreement, Toro will acquire a minority interest in Hahn through the purchase of the company's outstanding preferred stock. Toro will also have the option to acquire Hahn's business assets after two years.

"This manufacturing acquisition is the perfect entry for The Toro Company into the sprayer industry," said Ben Street, Toro marketing manager. Kent Hahn, executive vice president of Hahn, Inc. called it a "win-win" situation. "Because the majority of Hahn sales have been very much dedicated to Toro distribution in the past," said Hahn, "the systems are in place to make the formal transition of sales and distribution to Toro exceptionally smooth."

The first vehicles manufactured by Hahn and released with the Toro name are the Multi-Pro 1100—formerly the Multi-Pro 418—and the Multi-Pro 5200, which used to be known as the Maxi-Pro 440.

All attachments remain in the line.
Circle No. 204 on Reader Inquiry Card



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Growing company seeking to expand its product lines in agricultural, horticultural and turf maintenance industries. Seeking to acquire chemical or non-chemical companies. Please contact Rich Furlin at 1-800-256-4456. 3/92

EXCITING OPPORTUNITY! Organic lawn care company with dynamic track record seeking to expand nationally. Looking for investors - partners - lenders. High rate of return and/or shared equity option. For further information call (716)442-2151, in Rochester, NY. 3/92

ENVIRONMENTAL COMPANY - Established quality organic lawn care company with a national image. Three years old - a "SLEEPING GIANT." Interested in sale, investment or merger. Suite 135, 620 Park Ave., Rochester, NY 14607. 3/92

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GRAYSON COLLEGE, Denison, Texas: Two-year technical program in Golf Course and Turfgrass Management. 18-hole golf course on campus. Dormitories, placement assistance, financial aid and scholarships available. Contact: GCC, 6101 Grayson Drive, Denison, TX 75020. 903-463-8653. 4/92

HELP WANTED

BRANCH MANAGER: For large southeast regional landscape maintenance contractor. Must have 3 years experience running a \$1,000,000 + branch. Must possess good operational and customer service abilities. Excellent salary and benefits. Send resume to LM Box 488. 3/92

LANDSCAPE MAINTENANCE SUPERVISOR: For multi-million dollar Florida landscape company. To handle field supervision for up to 5 crews. Knowledge of southern horticulture preferred. Salary + benefits. Send resume to: Mr. S. Khalsa, 1174 Florida Central Parkway, Longwood, FL 32750. 3/92

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**Executive Director, The Lawn Institute
JOB DESCRIPTION**

To oversee and manage the educational and technical assistance activities of The Lawn Institute. More detailed information will be provided upon receipt of our resume. Send resumes to: Dr. Eliot C. Roberts, Executive Director, The Lawn Institute, P.O. Box 108, Pleasant Hill, Tennessee 38578. Resume must be received no later than March 31, 1992.

LANDSCAPE MAINTENANCE BRANCH MANAGER: State wide commercial lawn maintenance company seeks self-motivated person with exceptional communication and management skills for the East Coast of Florida. Duties involve outside sales and interaction with clientele, lawn maintenance background and college degree a plus. Salary + benefits. Send resume to LM Box 492. 3/92

Agricultural Mechanic - wanted to work in Central Park, N.Y.C., NY. Candidate must be familiar with 2 cycle engines of all types; tractors and lawn mowers of all sizes. Formal education or experience preferred. Must have valid driver's license. Good benefits offered. Interested candidates should send resume and covering letter to: Kathleen Dooley, Director of Human Resources, Central Park Conservancy, 830 5th Avenue, New York, NY 10021. E.O.E. 4/92

LANDSCAPE MAINTENANCE & GENERAL SUPERINTENDENT: Largest landscape maintenance company in the nation seeking individuals with 3-4 years experience. Must be able to make decisions, be creative, self-motivated, organized with strong supervisory skills. San Francisco Bay Area location. EOE. Please send resume to: Environmental Care, Inc., 825 Mabury Road, San Jose, CA 95133. 4/92

OPERATIONS MANAGER/SUPERVISOR: Small growing maintenance company in Central Florida looking for an experienced hands-on manager, with future move into management. Excellent growth opportunity for right person. Salary, benefits plus bonuses. Come grow with us. Send resume to P.O. Box 878, Oviedo, FL 32765. 3/92

LANDSCAPE MANAGER. Large established firm with reputation for exceptional quality, seeking personable and enthusiastic individual to manage multiple crews in full service maintenance of high profile commercial properties; must have organizational and people skills as well as working knowledge of all phases of maintenance; 4 to 5 years experience & college degree preferred. Environmental Landscape Services, 5190 Crestview Drive, Memphis, TN 38134; (901)382-9000. 3/92

LANDSCAPE MAINTENANCE & DESIGN/BUILD FOREMAN:

Top Ohio firm looking for quality conscientious landscape and maintenance foreman. If you have horticulture, mechanical skills and are not afraid of hard healthy teamwork then you could qualify for this position in Ohio's largest landscape & maintenance firm. Reply to: Attn: Ed Gallagher, Yardmaster, Inc., Painesville, Bedford & Columbus Ohio Offices, 1447 North Ridge Road, Painesville, Ohio 44077. 3/92

SALES/MARKETING: Scapes, Inc. is looking for a professional individual to fill the Sales and Marketing position in our Washington, DC office. Must be hard working, dedicated, and have extensive background in commercial landscape sales. Excellent compensation for a highly motivated person. Resumes will be accepted by Fax or Mail only. (Confidential) **SCAPES, INC.**, Fax: (404)956-0140, Address: 1355 Terrell Mill Rd., Bldg. 1482, Suite 150, Marietta, GA 30067. 3/92

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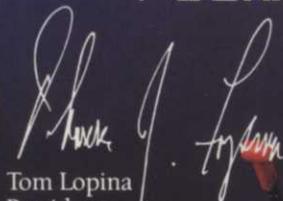
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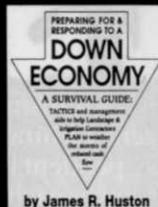
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FeRRROMEAC® Liquid Iron's rapid greening effect is illustrated in this 50,000 sq. ft. zoysiagrass lawn at Liberty Park, a development of Torchmark Development Corporation, located along I-459 in Birmingham, AL. It was photographed 48 hours after the right side was sprayed with FeRRROMEAC

Liquid Iron. To conduct the demonstration, Landscape Services Inc. divided the lawn with a plumbline on June 5, 1991, and walked the treatment on the turf, using a ChemLawn gun. LSI supervisors are shown admiring the difference before spraying the rest of the turf.

They Got the Green Without the Growth

Read how one of the largest landscape maintenance and installation contractors in the South achieves brilliant, long-lasting green without excessive growth or expense by relying more on FeRRROMEAC® Liquid Iron and less on nitrogen.



Everett Mealman,
Chairman and
Chief Executive Officer
PBI/Gordon Corporation

"It's our belief that there are two basic factors that have a bearing on our success as landscape maintenance and installation contractors," says Carl Love, maintenance supervisor, chemical division of Landscape Services Inc. (LSI), headquartered in Birmingham, Alabama. "They are: the health and appearance of the turf and ornamentals we manage; and customer satisfaction."

Obviously, LSI is doing well on both

counts, as witness the fact that they are one of the largest companies of this kind in the South.

Their program for zoysia and Bermuda consists of a special fertilizer formulation that is designed to rely more on Ferromec than on nitrogen to supply the color. Five fertilizer applications per year are made . . . one every 40 days during the growing season, with a custom-tailored fall application that varies from year to year. Ferromec is the major component in this program to assure maximum green-up.

"This schedule gives us what we like to call *show turf*," says Love, "and yet the cost is more than competitive. Best of all, it doesn't result in excessive topgrowth that occurs when you rely completely on nitrogen for color."

So much for healthy, beautiful turf and reasonable costs.



Carl Love

But how about the way they treat their customers?

"Customers want to know that you appreciate their business. They need to know that they can depend on you for special requests as well as day to day maintenance. Ferromec, with its fast, brilliant green-ups, is a real jewel in our customer relations program. Our customers see immediate results from a visit and know that, no matter what the occasion, their landscape will pass the test."

How's that for *treating* your customer right!

Love goes on to say that LSI has tested many liquid irons, but says that none of them measure up to Ferromec.

"Ferromec is ideal," Love contends. "It always works! It works *fast!* The color lasts *longer!* It's economical . . . and perhaps most important of all in this environmental age . . . it gives us the *green without the growth.*"

Why FeRRROMEAC is superior to other liquid irons

Ferromec is formulated by a patented process which creates a chelated solution of urea and iron sulfate. The nitrogen in Ferromec, being in urea form, carries the iron into the plant quickly and efficiently. Although stable in solution, the urea and iron quickly break down after being absorbed by the plant.

Thus Ferromec produces a radiant green *fast!* . . . usually within 24 hours, depending on conditions.

Yet the amount of nitrogen in Ferromec is so miniscule that you get this dramatic green without the unwanted topgrowth associated with heavy nitrogen fertilization. The color generally lasts through five to six mowings.

Furthermore, the urea in Ferromec holds the iron in a Ferrous state. Thus that portion of a Ferromec spray treatment which misses the leaves and falls to the ground can still be slowly absorbed through the roots.

If you, like Carl Love, want the "green without the growth" try Ferromec — the liquid iron you can rely on.



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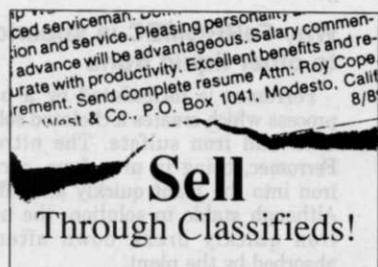
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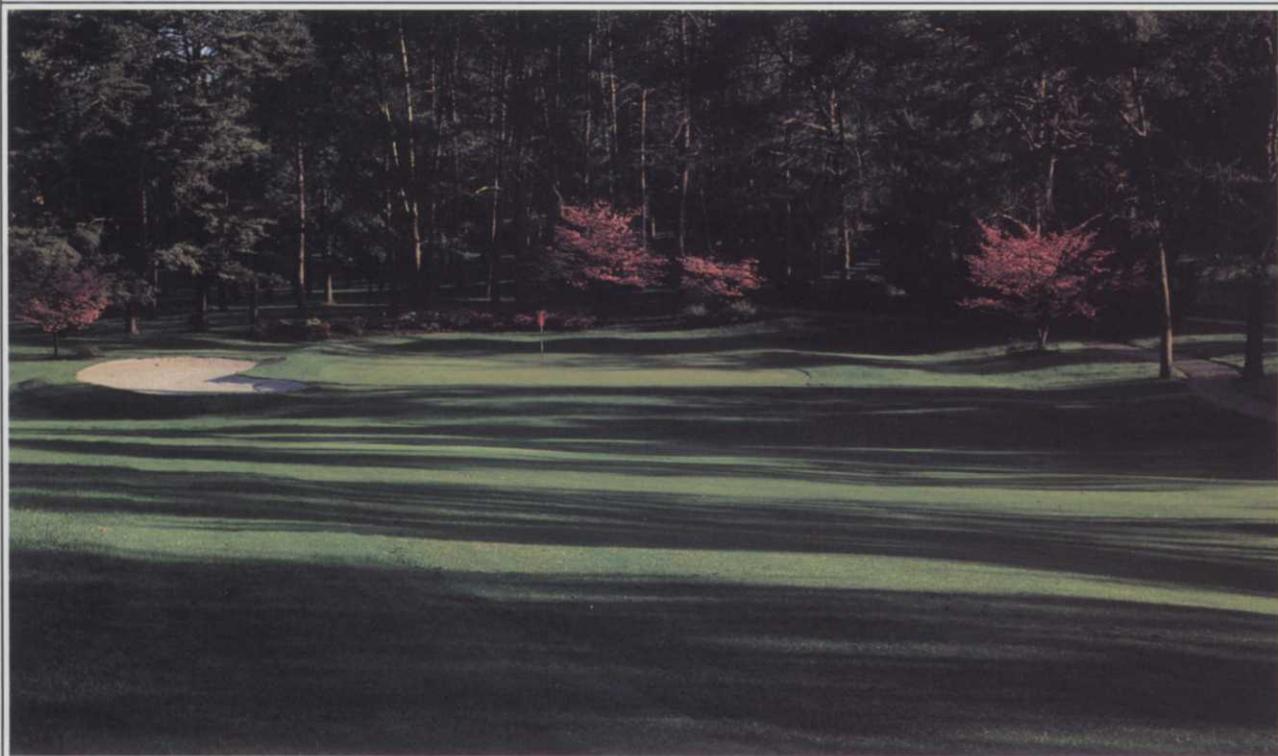
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