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INCORPORATING **LAWN CARE INDUSTRY**



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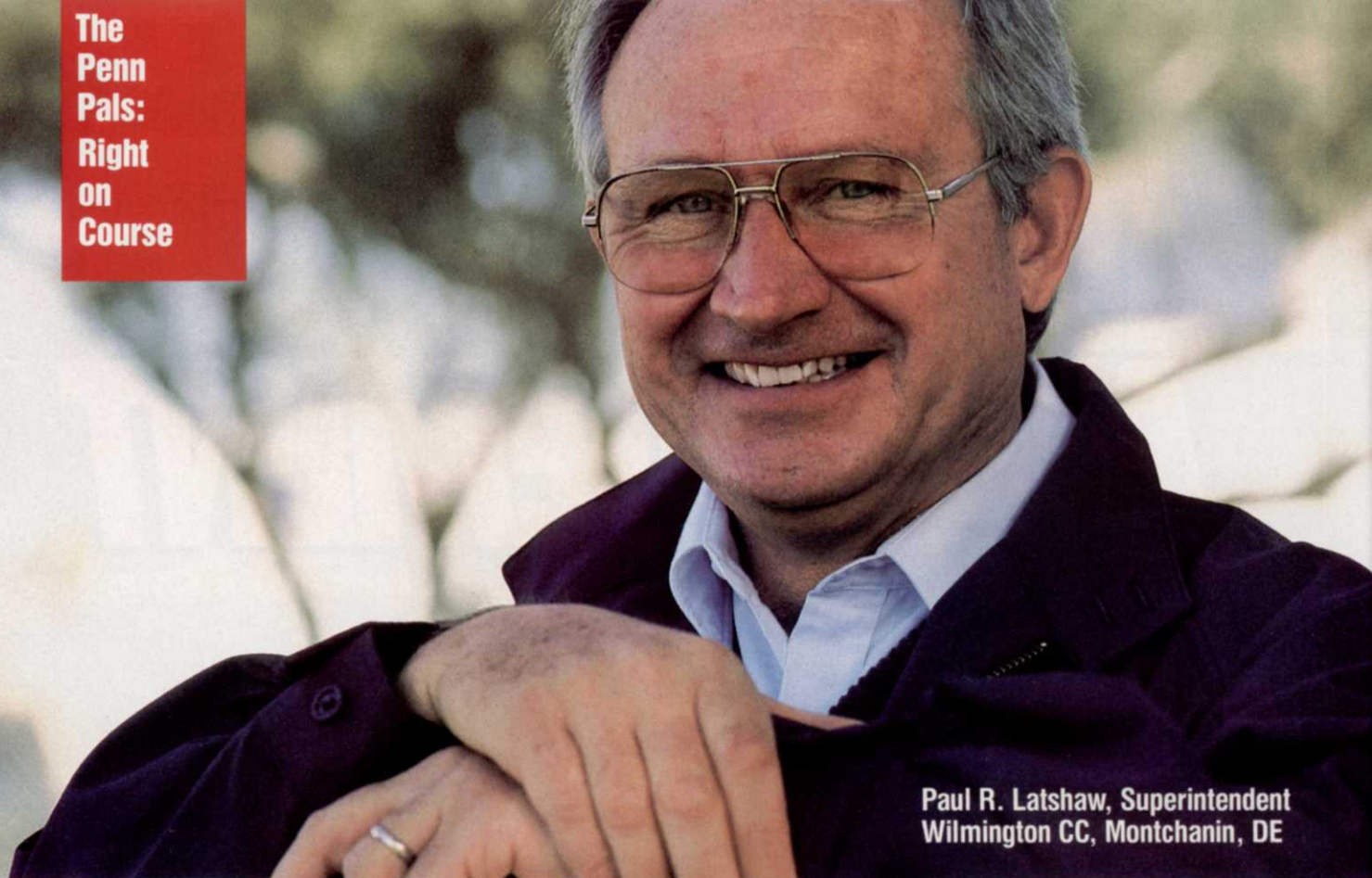
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AS WE SEE IT

TERRY McIVER, MANAGING EDITOR



Why didn't this book get more media attention?

Many of our readers are skeptical when it comes to stories about how industry is destroying the environment. Some of the skepticism comes from the fact that they make their livings by caring for the earth. But they also feel a righteous indignation, because they know that the facts are being twisted or not reported.

There is, however, a book that explains exactly what is and is not happening to the environment, and it would make a great gift for special clients: *Trashing the Planet* by Dixy Lee Ray and Lou Guzzo (1990, Regnery Gateway Publishers, Washington, D.C.) Ray once headed the Atomic Energy Commission, was governor of Washington, and has been associated with the U.S. Bureau of Oceans. She's also taught zoology at the University of Washington. Guzzo is a tv/radio/newspaperman and author.

Trashing the Planet is loaded with factual information refuting every eco-crisis you've come to love over the years:

The greenhouse effect—If the severe winters of 1978, 1982 or 1989 didn't convince you that the earth is *not* overheating, consider that, according to Ray, the computer models used to predict global warming are too simplistic and contain much guesswork. There also are variables that affect temperature that we can't control: ocean temperature; currents; volcanic eruptions; solar activity.

And while reduction of CO₂ is advisable, the great fluctuations of earth's temperature cast doubt on the belief that man's increased carbon dioxide output is causing global warming.

The ozone layer—As Ray explains, the thickness of the ozone layer changes periodically. Natural layer fluctuations are about 15 percent, and brief.

"The term 'ozone hole,'" writes Ray, "is misleading, since it persists for only a few weeks. The Antarctic ozone 'hole' grew during the early 1980s, becoming large in 1985, smaller in 1986, and reaching its

greatest size in 1987. In 1988, the 'hole' did not appear as expected. It was finally discovered—only 15 percent as large as predicted and displaced over the ocean."

Ray also reports that penetration of ultraviolet light reaching the earth's surface has been decreasing up to 1.1 percent each year.

Pesticides—The amount of natural pesticides we eat every day is at least 10,000 times the level of pesticide residue from agricultural use of synthetics.

Acid rain—There are many sources: decaying organic matter in swamps and wetlands; volcanoes; lightning. Man-made sources have been reduced by more than 40 percent since the Clean Air Act of 1970. Other man-made pollutants include volatile organic compounds, ammonia and hydrocarbons. But insects and disease have combined to kill more trees than any man-made source.

Man's stewardship is far from perfect, as Ray admits. But the point of much of *Trashing the Planet* is that change—and taxpayer-funded clean-up programs—must be based on *fact*, not assumptions, and science must be allowed to play its part in further developments and solutions.

If you've not read *Trashing the Planet*, pick up a copy. The science is easy to follow, and it contains common sense we can all understand.

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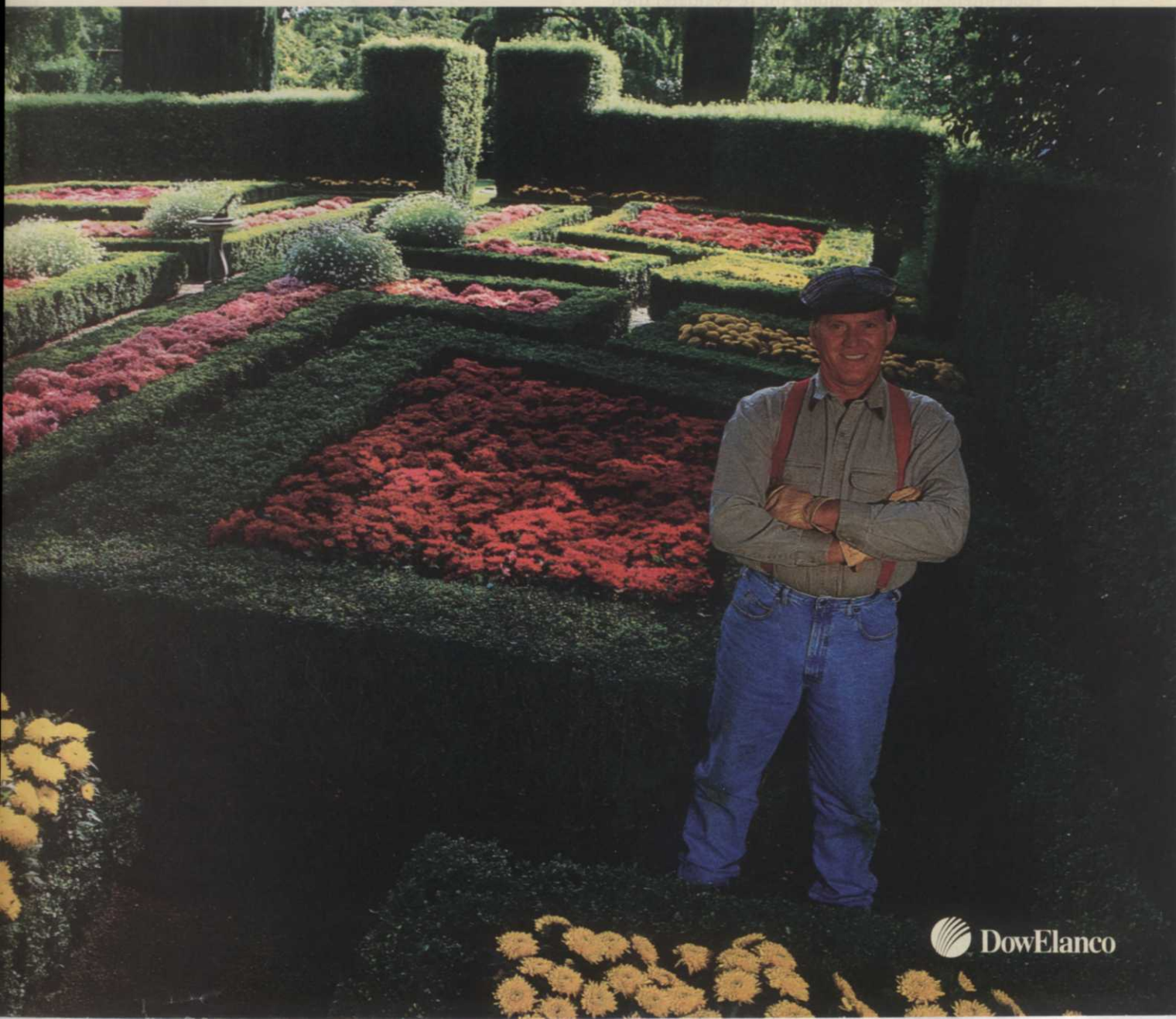
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st beautiful thing about ned in the top 1" of soil.



LANDSCAPE MANAGEMENT

INCORPORATING LAWN CARE INDUSTRY

JUNE 1992 VOL. 31, NO. 6

COVER FEATURE

11 Cover story: Environmentally sensitive golf courses

The 'Decade of the Environment' is prompting many landscape managers—particularly golf course superintendents—to evaluate (or re-evaluate) their impact on the environment.

Jerry Roche

15 LM Reports: Chippers/shredders

Chippers and shredders—from compact homeowner to commercially rugged pull-behind models—allow landscapers and golf course superintendents to recycle landscape debris, often on-site. They also offer landscapers another add-on service sales opportunity.

Jerry Roche

22 Shoot grass, climb the ladder

Pictures are a good way to document your progress on a new project, or to help you climb the career ladder.

A. Douglas Brede, Ph.D.

24 Healthy football turf

Follow the head groundskeeper of the Chicago Bears as he outlines his year-round program for making sure football fields are healthy and playable by autumn.

Ken Mrock



TECH CENTER

34 Summer fertilization

Match nutrient applications to the plant's growth: more fertilizer in the fall and spring. But it's important to maintain some growth during the summer.

David Wehner, Ph.D.

LAWN CARE INDUSTRY

38 Whither ChemLawn?

Tru-Green offers to buy beleaguered ChemLawn from Ecolab, making it the largest lawn care company in the world. The announcement generates more questions than it answers.

Ron Hall

44 Customer, employee education

Newsletters, videos and radio can help sell your company to the public, but well-trained, responsible employees are your company's best calling card.

Brad Johnson

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BPA ABP



HOT TOPICS

48 Landscaper unearths bones

Van Zelst Landscaping turned preservation of a wetland area into a national news event when dinosaur bones were found in an excavation this spring.

50 The D-I-Y debate

The debate continues over whether do-it-yourselfers should have to post lawn chemical applications, just like professionals must, by law.

51 More complete labels?

The current definition of macro-nutrients for turfgrass fertilization should be modified to include sulfur, claims a letter-writer.

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Cover photo of The Standard Club, located in Duluth, Georgia was supplied courtesy of the United States Golf Association (USGA) Green Section.



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.

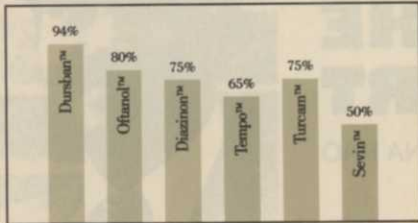
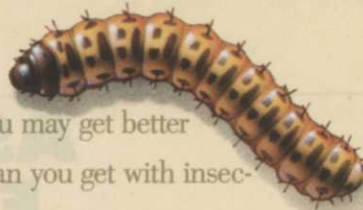
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ornamentals by about fifty percent. Insecticidal soap controls most soft-bodied insects and mites. By adding insecticide, you'll also take care of tougher insects, like scales and worms. University studies



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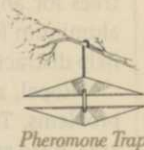
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ASK THE EXPERT

DR. BALAKRISHNA RAO



High pH challenges spray program

Problem: In our tree care spray program we are having pesticide mixing problems because of high pH. How do we solve this problem? (NY)

Solution: Certain pesticides can break down rapidly through a process called chemical hydrolysis when exposed to high pH of mixing water. Chemical hydrolysis takes place faster as the pH and temperature of mixture increases. Some insecticides can be hydrolysed, even within an hour after mixing if the water pH is high. Check with the manufacturers.

It is important to determine the pH of the mixing water. To lower the pH of water, buffering products such as phosphoric acid, hydrochloric acid, mono-ammonium phosphate (MAP) or diammonium phosphate (DAP) can be used. The first two products are seldom used because of handling and safety reasons. MAP and DAP are preferred because of ease of storage, mixing, handling and safety. These products can also serve as the source of nitrogen and phosphorus.

Reports indicate that one-to-two cups of MAP per 100 gallons of mixture is sufficient to help solve most hydrolysis problems. However, for individual product and different pH ranges it may be necessary to do some mixing and testing on a small scale.

It is also important to follow proper mixing guidelines. Always put $\frac{1}{2}$ to $\frac{3}{4}$ of desired volume of water into the tank first, then add the buffering agent with proper agitation. Then add the wettable powders, flowables and emulsifiable concentrates, *in that order*. Fill with water to the desired volume. Read and follow label specifications for best results.

Managing *Phytophthora* root disease

Problem: We lost a number of azaleas and rhododendrons in some of our clients' properties. We think the problem is related to *Phytophthora sp.* root rot disease. For the remaining plants we plan to use Subdue fungicide treatment. Is there some way we can eliminate or minimize the *Phytophthora* fungus in the soil prior to replanting? (MI)

Solution: *Phytophthora sp.*, the causal agent of root rot disease on azaleas and rhododendrons, can be a destructive pathogen in poorly drained, heavy clay soil. In this situation, plants should be planted slightly higher to overcome the drainage problem. You may have to use a *Phytophthora*-specific fungicide, such as Subdue or Aliette to manage the problem. Areas which are dead due to *Phytophthora* activity can be fumigated prior to planting new plants. Make sure there are no roots of healthy desirable plants within 3 to 4 feet from the diseased plants. If the landscape area is large enough, then you can use soil fumigants like Vapam. Vapam is a water-soluble liquid which will be converted to gaseous fumigant when applied to soil. The material can be moved downward with post-watering.

To be sure the planting site is safe to replant, run a bioassay. Plant indicator plants like tomatoes in the treated area and cover with a five-gallon bucket. Keep the plants covered overnight; remove the bucket and examine them. If they are healthy, the soil is safe to plant. If the plants are wilted, it indicates that the soil still contains Vapam, and planting should be delayed. Repeat until the soil is found to be safe to plant.

Read and follow label specifications for better results.

Reader resents chemical advice

Problem: Even as a forester, I am disheartened to read your response to the problem of Sapsucker damage to birch trees in the April 1991 issue. You obviously work for the interest of chemical corporations rather than that of 'Mother Nature' by encouraging the use of chemical pesticides to kill insects that are a necessary food source for this bird. If everyone followed your advice, then we may have a beautiful supply of birch trees, but no sapsuckers. I must just be different from most of your readers, in that I enjoy nature as it was meant to be, not what some would like it to be. It sounds like the real 'suckers' are your subscribers. (A reader)

Solution: Thank you for your comments. I understand your concerns; however, I disagree with your conclusion about my answers concerning the question, "What can we do to prevent injury from sapsuckers on birch trees?" The following is an excerpt from my suggestions:

"...if the problem is really objectionable, your best approach is to distract birds from feeding on trunks. Consider treating your trees for any insects such as borers. Mechanical devices such as aluminum foil wrapping or tying a pie pan to the trunk may also help distract birds from attraction to susceptible trees.

"Ropel, a chemical repellent, has label registration for bird problems. Try this on a very small area before trying on a large area. Read and follow label specifications for best results."

I provided several options to deal with the problem. As you indicated, your interest is different from others, particularly the person who has asked the question.

As a plant health care practitioner, my objective is to help keep the ecology, and preservation of environmental beauty.

Dr. 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 Blvd., Cleveland, OH 44130. Please allow two to three months for an answer to appear in the magazine.

An 'environmentally sensitive' approach to golf courses

...And landscapers, too, are looking at some of these courses to see what aspects they might sell to clients.

■ The 1990s have been labeled the "Decade of the Environment." This prompts many landscape managers—and golf course superintendents in particular—to evaluate (or re-evaluate) their impact on the environment.

There is a movement afoot (spurred by the golfing industry, its clientele and "environmentalists") for new golf courses to be environmentally sensitive, and for existing golf courses to embrace some of the same concepts.

John's Island West Golf Course in Vero Beach, Fla. was designed by Tom Fazio to be such a course. Dr. John Fitzpatrick, executive director of the Archbold Biological Station near Lake Placid, Fla., is an ardent fan of John's Island West.

"The property is one of the rarest habitats in North America," he told *The Florida Green* magazine. "Every square meter is precious to wildlife. There is a fairly large number of endangered species, and it is now a permanent habitat preserve that also provides recreation and beauty."

Loads of wildlife—Wolf Run Golf Club in Zionsville, Ind. is also a haven for various forms of wildlife, particularly birds.

Wolf Run features bluebird houses and duck-feeding programs. Its owner, Dr. Jack Leer, will not allow maintenance crews to remove selected dead trees because they provide nesting areas for certain indigenous species of owls.

Another of Wolf Run's environmentally sensitive plans is to incorporate as much tall unmowed grass as possible. These grasses serve as nesting places for wildlife.

"We've got a lot of unmowed fine-leaf fescue blend that provides 30 to 40 acres of prairie-type long grasses," says superintendent Joe Kosoglov. "The place is just loaded with birds, squirrels and snakes—even though I'm not thrilled with the snakes."

The course was grassed in the fall of 1988. "We actually do have sections of the property that were untouched during development," Kosoglov notes.

And Wolf Run's unique "look" is gaining some attention from local landscapers who want to pick up tips on how to integrate such programs into residential and

The Pali Golf Course in Hawaii is decorated with native ground covers.

A place for the birds



Nancy Sadlon: Don't immediately take down dead trees.

■ "Golf courses are ideally suited for giving sanctuary to birds," says Nancy Sadlon, environmental specialist for the United States Golf Association. "They are often lacking in only one or two small details which keep them from being the most attractive areas (for bird habitation) in the community."

She suggests that golf courses provide birds with the basic elements: food, water, cover and space for nesting. To achieve this, she recommends 14 golf management projects:

1) Start with an inventory of the course to find out what's living in it and where.

2) Optimize the "edge habitat,"

where one type of habitat meets another. The greater amount of edge you have, the greater the diversity in species.

3) Maximize the vegetation levels that exist. From groundcovers, to vines, to understory trees, to forest. Don't take out understory areas unless it's absolutely necessary.

4) Compromise some of the turf areas for other groundcover, native grass or wildflowers. "This is very important to ground-nesting birds and also provides a food source," Sadlon says.

5) Resist temptation to widen the fairways.

6) Provide slope changes and dust paths for ground-feeding birds.

7) Recognize, preserve or create food patches. These natural meadow areas are very high with plant materials that are important food sources.

8) Provide bird-attracting flowers into your garden areas to attract hummingbirds and butterflies.

9) Construct and/or restore native dunes or native grass areas.

10) Provide brush piles. Don't mulch them and make them disappear right away. "They're real important in cooler areas," Sadlon adds.

11) Provide windbreaks. Much larger windbreaks are needed in the West.

12) Plant bird-attracting fruit-bearing trees and shrubs to provide important berries.

13) Provide water areas, and leave some edge vegetation; for food, cover and pollution filtration. Preserve wetlands and streams.

14) Preserve natural cavity nesting areas—tree snags—or provide artificial nest boxes. "Don't run out and immediately take down the dead tree," she concludes.

Photos courtesy of USGA



An occasional birdhouse provides birds with a man-made shelter.

commercial landscapes.

"I've had a pretty steady stream of landscapers check out the long unmowed fescues," Kosoglov admits. "I've got a feeling they'll be using them on slopes and unmowed areas. I've worked with some of the landscapers, and we've developed pretty good relationships."

The Audubon program—"The New York State Audubon Society has a program to register properties," says Kosoglov. "One of the types of properties they want to get registered is golf courses."

"They provide information on how to improve the properties for birds. We've enacted a few (of the society's programs), but not as many as we'd like."

The Audubon Cooperative Sanctuary System works like this, according to the society's staff ecologist Jean Mackay: for a \$100 fee, a participating golf course is asked to fill out a "wildlife inventory." The Audubon Society then sends the course a written report with suggestions about how it can take specific steps to attract and preserve wildlife.

"Some courses are already doing wonderful things," says Mackay. "But they still sign up and we can then tell them how to enhance their existing programs."



Kosoglov: unmowed fine-leaf fescues provide prairie grass look on slopes.

The sanctuary registration system began in 1990. More than 400 golf courses are already participating.

For more information, write or phone the Audubon Society of New York State, Inc. at: Hollyhock Hollow Sanctuary, Route 2, Box 131, Selkirk, NY 12158; (518)

767-9051.

Long grasses—David Stone at The Honors Course in Ooltewah, Tenn. uses broomsedge, weeping lovegrass, lespedezia and tall fescue between greens, tees and landing areas. Native shrubs and tall grasses border the roughs, streams and pond shorelines for bird nesting.

"Our course looks different from one season to the next, and that adds interest," Stone admits.

An avid naturalist, The Honors Course's superintendent developed several programs to help identify, monitor and encourage a variety of wildlife species using the course's environment. Not surprisingly, The Honors Course was recognized in 1991 by the USGA for its conservation and preservation activities, the first course so honored.

Ugly weeds in the tall grass are mechanically removed by chopping. Stone also uses a Bushhog on different parts of the course at different times of the year.

"Brush piles are great places for rabbits to hide," Stone says. "But there is a fire hazard."

continued on page 14

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Golf course from page 12

Birds also play an important role in the course's "environmentally sensitive" approach. Stone and his crew raised 11 birds in three years; eight still survive.

The wetland question—Another environmental question mark that could face superintendents in the future is preserving freshwater wetlands. According to a report by the GCSAA, "protection of wetlands and other valuable aquatic habitat has become an important part of golf course management."



Stone: seasonal changes at the Honors Course add interest, protect native habitat.

The GCSAA's position statement says: "Wetlands act as both a sponge and a filter to provide a built-in water quality maintenance system. Golf courses also benefit wetlands...by providing large recharge areas that help supply wetlands with much-needed water...and provide secondary filtration to help purify water entering wetland areas."

Says GCSAA government relations manager Don Bretthauer: "In some cases, golf courses are creating wetlands. It's a give-and-take type thing: take away wetlands, give some back. It's then the superintendent's responsibility to preserve the wetland."

Embracing the virtues—Golf course superintendents and landscape/lawn care companies alike argue that they, like their detractors, are also "environmentalists."

Golf course architect Pete Dye may have pointed the way for his colleagues when he used 15 miles of underground pipe in the design of the Ocean Course at Kiawah Island, S.C. The drain system picks up 300,000 gallons of freshwater every day, Dye says—"50 percent of the water that we need to irrigate the golf course."

As the courses and landscapes of the '90s are designed, more and more are embracing the virtues of being "environmentally sensitive."

—Jerry Roche

Chippers and shredders:

keys to environmental maintenance

■ The rush by local and state governments to eliminate landscape debris from our landfills makes chippers/shredders an increasingly valuable landscape tool.

Chippers and shredders—from compact homeowner to commercially rugged pull-behind models—allow landscapers and golf course superintendents to re-cycle landscape debris, often on-site. They also offer another add-on service sales opportunity.

Chippers and shredders can provide various grades of re-usable mulch. They're perfect for disposing of tree prunings, broken branches and other landscape debris. While chippers are best for brush, leaves, twigs and stalks.

"Chippers/shredders are like garbage disposals for the yard," says Ray Klubnik of The Tractor Place, North Royalton, Ohio. "In choosing what type of equipment you want, it's all application. You have to ask yourself these questions:

- "How are you going to use it?"
- "How big are the yards?"
- "Are you pruning?"

Three considerations you should take into account before purchasing are capacity, chipping knives and engine size.

Fixed hammers are used in some machines, flail knives in others. Limb capacity can range from 3 bushels for smaller consumer-type models to 28 bushels for larger machines. Engines for smaller units generally begin at 3 hp and progress to 8 hp—then there are industrial size machines with more than 100 hp.

continued on page 20



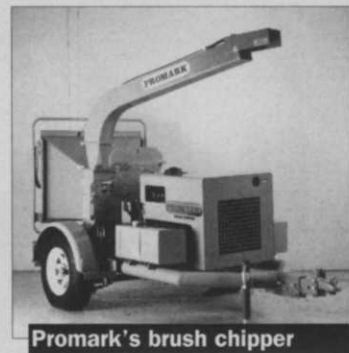
The Sterling



From BCS, the Bio 100



Salsco's Colt and Stallion



Promark's brush chipper



Vermeer's 620 BC



Troy-Bilt Chipper Vac



PeCo's 20/30 model



The Chip 'N' Mulch, from Ameriquip



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CHIPPERS/SHREDDERS FOR THE GREEN INDUSTRY

Manufacturer	Model	Features	Manufacturer	Model	Features	
Ameriquip Circle No. 300	250 Chip N Mulch	*2 flywheel knives, adjustable bedknife, 48 flail knives *3" dia. capacity *16 hp Briggs Vanguard engine	Morbark	(cont.)	*4 chipper knives *Patented E-Z principle *several gas, diesel options	
	Model 240	*1-1/2" shaft *16 hp OHV engine		Olathe Circle No. 308	Model 801	*24" hammermill for leaves, brush chipper with 5" dia. capacity *PTO powered *60"-wide hopper *20 reversible steel hammers *30" diameter disc
Bandit Circle No. 301	Go Bandit	*360-degree swivel discharge *22" dia. chipper cutting wheel *chipper capacity=6" material *Wisconsin 30 hp gas or Perkins 23.5 hp diesel engine	PeCo Circle No. 309	12/24	*360-degree rotating base *24" flywheel *12 hp Kohler engine *two reversible 8" knives *5" intermittent cutting capacity	
	Mighty Bandit (2 models)	*disc-style hydraulic feed chippers *6" dia. capacity *22"/26" chipper cutting wheels 10 engine options (20-30 hp) PTO drive available		20/30	*30" flywheel *20 hp Kohler engine *easily maneuvered	
	Brush Bandit (3 models)	*9" and 12" dia. capacities *chipper openings to 19"x12" *engines start at 37 hp *PTO drive available		Promark Circle No. 310	Model 210	*6" dia. intermittent capacity *24"x24" feed hopper *18 hp Kohler engines *2-10" reversible knives
	Drum Bandit (2 models)	*12" and 16" dia. capacities *engines 61-119 hp *12"x12" discharge chute		Model 310	*360-degree rotating chipper *limb capacity: 5" dia. *28"x24" feed hopper *10" reversible knives *23 hp Kohler engine	
BCS America Circle No. 302	BIO 80, 100	*5, 8 hp Briggs & Stratton engines *3" limb, 1" brush capacity *27 or 28 reversible hammers	Model 395	*2-10" chipper steel knives *40 hp Yanmar diesel engine *9-1/2" dia. capacity feed opening *360-degree discharge chute		
Crary Circle No. 303	Bear Cat (4 models)	*2 Chip N Vacs with 5 hp Briggs or 8 hp Tecumseh engine *2 Compacts with 1" dia. capacity, 2 hp Briggs engine or electric motor *Mid & Full sizes with 3" dia. capacity, 16 flail knives, 3-8 hp Briggs or Honda engines *Commercial with 30"x30" loading hopper, 72 reversible shredding knives, up to 5" dia. capacity, 14 hp Kohler engine or PTO drive	Model CT-2	*inc. hydraulic dump trailer *23 hp Kohler engine *28"x24" feed hopper *cutting capacity: 6" intermittent *feed hopper, discharge chute both rotate 360 degrees		
			Salsco Circle No. 311	Commercial	*24" dia. impeller, 6 chipper blades, 64 flail blades *14"x17" infeed opening *odd shapes to 5" dia. capacity	
				Colt, Chipper Stallion	*3-1/2" dia. capacity *20- or 40-lb. flywheel *12 std. shredder chisels *4 engine options, 5-9 hp	
			Snapper Circle No. 312	3 "SG" models	*consumer-styled *12 or 24 reversible flail hammers *hoppers to 18"x15-1/2" *chipping capacity to 3" dia.	
Hodges Circle No. 304	4 models	*3.5, 5, 8 or 16 hp *3 larger models up to 3-1/2" dia. capacity	Sterling Circle No. 313	3 models	*5, 7.5, 8 hp *up to 3" dia. irregular limbs	
Ingersoll Circle No. 305	HS24 (2 models)	*HS24W is tow-behind *HS24H has 3-pt. hitch *Hydraulic PTO power *24 steel flail knives *hopper opening 18"x17" *capacity: logs to 3" dia., stalks to 1" dia.	Troy-Bilt Circle No. 314	Tomahawk (4 models)	*consumer-styled *3-8 hp 4-16 steel flail blades *up to 3" dia. limbs, 1" brush capacity *hopper size to 19"x25"	
Little Wonder Circle No. 306	ReVac	*3-1/2" dia. capacity *2 chipping knives, 9 hammer knives, 3 feeder knives *16 hp OHV engine *vacuuming function	Chipper/Vac	*walk-behind consumer-styled (2 models) clean-up machine *4 replaceable blades *4 or 5 hp		
MacKissic Circle No. 307	SC182 Brute	*4-1/2" dia. capacity for logs, 1-1/2" dia. for prunings, branches *12 or 16 hp Kohler engine *48 flail hammers				
Morbark Circle No. 317	E-Z Chipper Model 20/36	12' dia. chipping capacity *infeed opening 23"x43"				

turn to page 20 for more chippers/shredders



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Morbark's E-Z chipper 20/36



The Little Wonder ReVac



WW Grinder's Renegade



MacKissic's SC182 Brute

Chippers from page 15

Small shredder/shippers will chip branches up to 1-1/2 inches in diameter. A 4 to 8 hp machine will chip up to 3-inch diameter materials. Larger machines handle up to 6-inch logs.

According to Klubnik, you can pay as little as \$548 for the smaller chipper/shredders—or into the thousands of dollars for the heavy duty models. But however much you pay, “you should be able to pay for the machine in the first couple months of use,” Klubnik observes.

No matter what size and style you choose to purchase, make sure your employees are trained in safe use. Most manufacturers offer safety training videos and literature.

—Jerry Roche



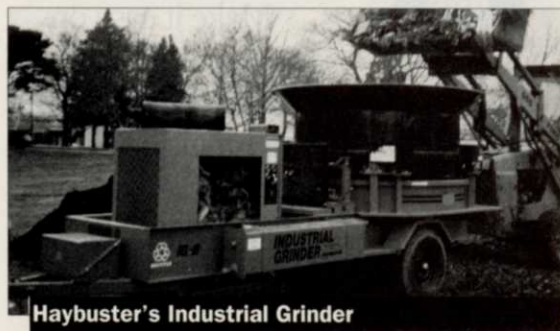
Hodges, with four hp options



The Mighty Bandit II



The 818TG from Olathe



Haybuster's Industrial Grinder

CHIPPER/SHREDDERS FOR THE GREEN INDUSTRY

Manufacturer	Model	Features
Vermeer Circle No. 315	Models 620, 9354	*6" or 9" dia. capacity *24" or 30" cutting wheel *2 steel knives *infeed opening to 10" x10" *19.25 or 35 hp engine
	Models 1220, 1250	*270-degree swing discharge chute *76 or 99 hp Ford engines *4 steel knives *12"x12" infeed opening *37" or 42" cutting wheel
	Model 1600A	*6" dia. capacity *drum-style chipper *80 or 99 hp engine *12" dia. x 16" wide rotor
	Chippewa	*consumer-styled *3.5 or 5 hp engine *limbs to 3" dia. capacity
WW Grinder Circle No. 316	Renegade	*30"x33" hopper *hardwood limbs to 3" dia. *5 or 8 hp engine
	Super Apache	*PTO-driven *24 steel hammers *3" dia. capacity *two-bladed chipper

Source: March, 1992 LM mail/phone survey

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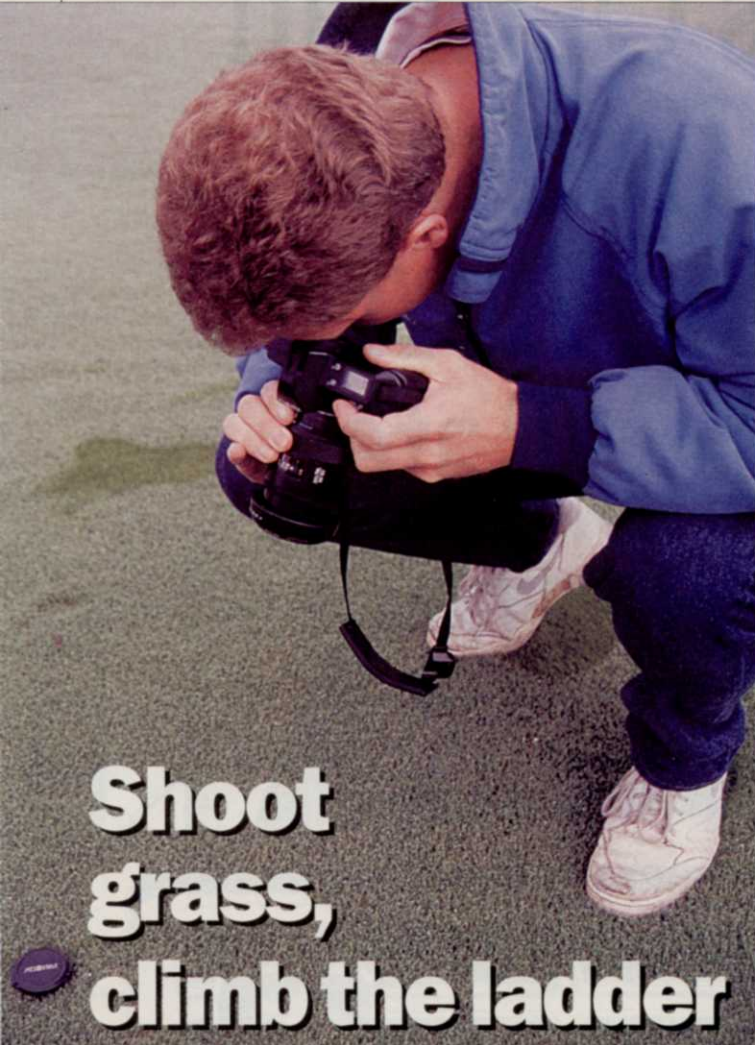
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THE STRENGTH OF EXPERIENCE

Circle No. 110 on Reader Inquiry Card



Shoot grass, climb the ladder

Pictures are a good way to document your progress on a new project, or to help you climb the career ladder.

by A. Douglas Brede, Ph.D.
Jacklin Seed Co.

■ In the turf business, anyone who makes it up the career ladder realizes that to get ahead you have to sell yourself and your accomplishments. One of the most persuasive ways to document your accomplishments is through photography.

Pictures don't lie. A good set of photographs of the sod you've laid, the tees you've designed, the flower beds you've constructed, or the clean shop you manage will go a long way in promoting you and your career.

Equip yourself—Obtaining necessary photography gear is easy. An outlay of a few hundred dollars will get you a suitable camera and accessories. Here are the basics of what you'll need:

- A 35mm SLR (single-lens reflex) camera, with both an auto and manual mode. (You won't need one of those elaborate cameras with all the bells and whistles.)
- A carrying case (if your camera doesn't come with one).
- Film and an extra battery.

◀ **Close-up photography is necessary to properly chart turf disease.**

After you've been photographing a while, you might want to invest in the following extras:

- A small tripod.
- A polarization filter.
- A 28-70mm zoom lens.
- A gray card.
- A flash attachment.
- A set of screw-on, close-up lens rings.

Learning how—I think the best way to learn to take photos is to actually take photos. Plan on using (wasting) about five rolls of film on mistakes before you shoot your first "must take" photo. After each roll, get the pictures developed before you begin the next. This will be a powerful aid to correcting errors.

continued on page 24

Doug's rules of thumb

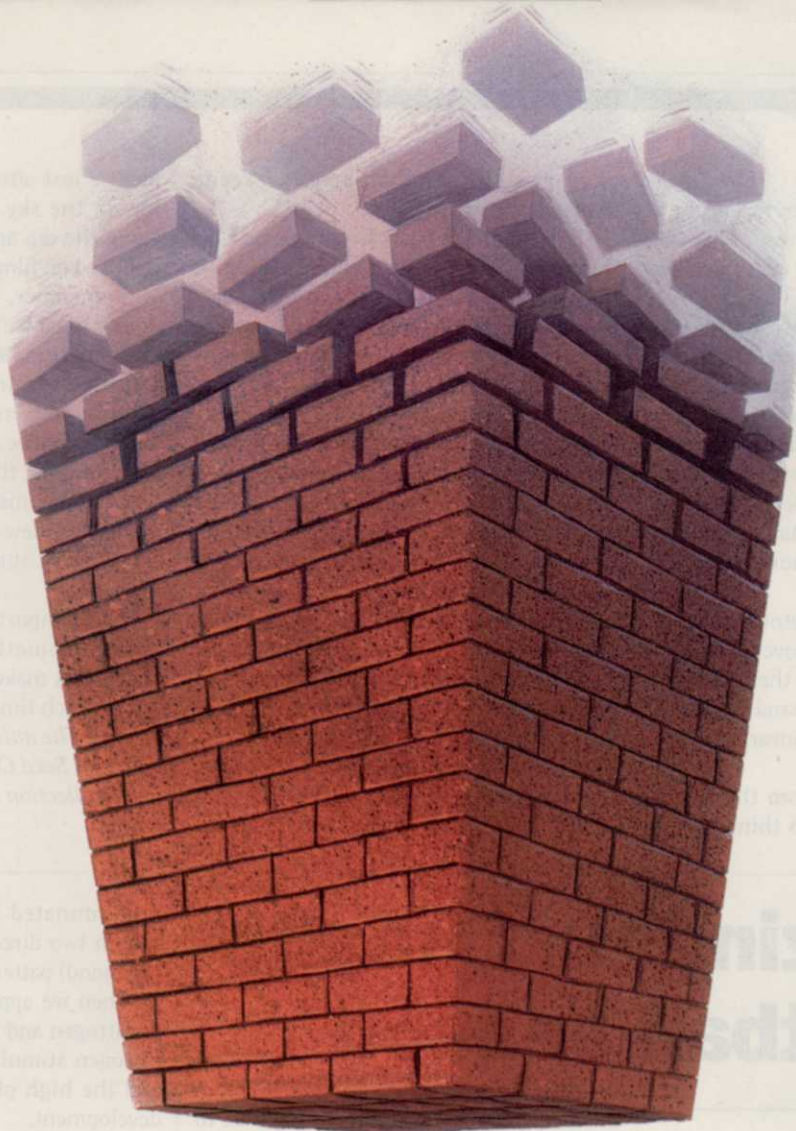
What to photograph:

1. All new projects, before, during and after completion.
2. New plantings as they're being made.
3. New plantings as the grass is coming up.
4. Nice overall turf shots (remember to take "pretty" shots, not just pictures of diseases and repairs).
5. Variety and product trials at field days.
6. Disease and insect problems.

Taking good photos:

1. When loading film, take two and only two shots with the back open; verify that the film is winding before closing the camera back.
2. Always get closer to your subject than you think you should; it should fill the viewfinder.
3. Squint your eyes before you take a photo; if you can't discern what you're about to photograph, it won't show up on the film.
4. Over-expose green turf shots by 1/2 f-stop.
5. Over-expose photos of a bare area or new planting (where there's a lot of light soil in the photo) by 1 to 1-1/2 f-stops.
6. A polarization filter helps bring out the green color in a turf photo.
7. To photograph a large area and have it all in focus, set the f-stop as high as possible.
8. When photographing individual plants on bare soil, put the nose of the camera within three inches of the plant, take an extra exposure reading and lock the reading into the camera, then back up and shoot. A gray card (cheap and available at photo stores) can also be used for setting exposure.
9. Check that the rewind handle tightens up as you turn it, indicating the film is properly hitched.
10. If the camera seizes up after shooting the last photo on a roll, retake it on a fresh roll.
11. Photos can be taken with the camera held either horizontally or turned vertically. Bear in mind that vertical shots do not fit on the screen in most slide presentations.
12. Keep a cheap second camera around for "must have" shots; take photos with two cameras during important events.

—D.B.



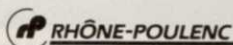
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Shooting from page 22

Keep a log of when, where and how each of your pictures was taken. This will give you a guide as to where your mistakes are occurring.

Most photo store owners can give you pointers on how to improve your photos—it seems they live to give advice.

Unfortunately, an automatic camera doesn't do everything automatically.

The plague of under-exposed (too dark) photos haunts many beginners. Naturally, when it says the camera has automatic exposure, we assume it knows what it's doing. Wrong assumption.

The electronic eye in automatic cameras takes a reading on the overall brightness of a scene to determine the best exposure. If you have a lake or a sand bunker in the picture, your photo will invariably turn out too dark.

Why? The extra light from the bright sand tricks the camera into thinking it's

photographing a much brighter scene than it really is.

This problem can be overcome by thinking about the shot you're taking. If the picture contains something particularly bright, set the camera's manual override to purposely over-expose the picture by one f-stop.

Blurred pictures can be caused by improper focus settings. But more often they stem from moving the camera as you snap the shutter. Never take a hand-held photo at a camera speed slower than 1/125th of a second. With practice, you might be able to take pictures at 1/60th or even 1/30th of a second, but most beginners should stay above 1/125th.

Shadows and colors—The camera captures images in two dimensions. It can't discern a dip, which is a third dimensional feature. So how do you shoot the scene so the dip will show up?

The trick is using shadows. Take the

picture just after sunrise when the sun is low in the sky. That will cast a shadow along the dip and make it look quite pronounced on film.

Remember, too, that film is tremendously sensitive to a wide spectrum of colors. Unfortunately, film is not particularly sensitive to varying shades of green. To capture patterns of green hues in a picture, you have to get a bit creative. Try waiting until there's dew or frost on the grass; sometimes different grasses present distinctive dew patterns. You might also try different sun angles at different times of the day.

Most important, never take only one shot of something important. Film is cheap. But make sure you vary the camera setting each time.

—The author is research director for Jacklin Seed Co. He maintains a working collection of about 10,000 turf slides.

Optimizing turf health for football season

by Ken Mrock

■ You've got to be in great shape to stand up to a bear; in excellent shape to stand up to a team of them—especially when those Bears wear football uniforms and play for Chicago. So establishing and maintaining turf fields healthy enough to take all that punishment is a year-long task.

These are the procedures I follow to establish and maintain safe, playable turf. Working closely with me is John Berta, assistant groundskeeper at Halas Hall, the Bears' practice facility on the Lake Forest campus.

Spring—We start our spring program by pre-germinating a 50/50 mix of bluegrass and perennial ryegrass seed in 55-gallon drums. After drying, to make application easier, the seed is added to a small amount of our topdressing mix (calcified clay, shredded peat, sand and native soil).

As early in the spring as possible, we completely core aerify our fields in two directions with either a Ryan Reno-vaire or a Ryan G-A-30. This aeration relieves compaction and produces a suitable seed bed for our pre-germinated seed mix.

We allow the cores to dry, then break

them up with a woven steel drag mat to provide topdressing across the field. The best topdressing is the existing soil structure. Since we have virtually no thatch on our fields, debris removal is unnecessary.

After the initial dragging, we broadcast the pre-germinated seed/topdressing mix into the sparse areas.

Next we use the slit-seeder and sow an

ungerminated 50/50 bluegrass/ryegrass mix in two directions, forming a diagonal (diamond) pattern across the field.

Then we apply a starter fertilizer high in nitrogen and phosphorus (19-26-5). The nitrogen stimulates the existing turfgrass and the high phosphorus promotes seed development.

Next, we apply a granular pythium control to safeguard against seed pythium disease (damping off) and give the seed a better chance for establishment.

We then spot topdress, lightly covering those areas that have been desiccated over the winter. We cover the fields with Evergreen sports turf covers to speed seed



Ken Mrock, right, and John Berta use an Evergreen sports turf cover for faster seed germination. Photo by Dean Pope

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nents, so maintaining a parts inventory is less expensive.

Of course, other companies will tell you they're as good as Scag, but that's just a line. Contact Scag Power Equipment today and find out how a great line of commercial mowers can improve your profitability.

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Grid maintenance calendar

September

- ✓ Make a soil composition test
- ✓ Test soil pH
- ✓ Purchase fertilizer based on test results

September-November

- ✓ Before game:
 - line the field
 - mow 2-3 times per week, including morning of game
 - water thoroughly in beginning of game week; sprinkle during week
- ✓ After game:
 - sweep divots; fill holes with pre-germinated seed/soil mix

October

- ✓ Fertilize at full rate
- ✓ Begin seeding thin spots with rye grass before and after each game

Post-season

- ✓ Mow the field
- ✓ Aerify
- ✓ Dethatch (if needed)
- ✓ Spread soil amendments
- ✓ Drag field

- ✓ Fertilize
- ✓ Seed
- ✓ Pinspike
- ✓ Irrigate thoroughly

Spring

- ✓ Mow when spring growth starts
- ✓ Establish a mowing program
- ✓ Apply fungicide (if needed)
- ✓ Water
- ✓ Apply herbicide

Late March-Early Fall

- ✓ Apply fertilizer at 1/2 rate

Late May

- ✓ Apply fertilizer high in potash at 1/2 rate

May-July

- ✓ Slice monthly

June-August

- ✓ Watch for insects and diseases

Mid-August

- ✓ Core
- ✓ Fertilize at 1/2 rate
- ✓ Begin mowing pattern

Source: George Toma, NFL

germination and accelerate the established turfgrass out of dormancy. We irrigate when necessary. Once germination begins (in five days to two weeks), we monitor turf growth to determine proper mowing height. We cut off no more than one-third of the plant at a time. There have been instances, when we have mowed the turf, then recovered with the covers.

After about three weeks, the turf is suitable for play, but we like a longer cushion, if possible.

The next spring step is fertilization with IBDU, slow-release nitrogen, to promote a sustained growth. We use the 16-4-20 formula, which is also high in potassium, to give the turfgrass the hardness it

needs to withstand the constant pounding of play, and the drought and heat it will face in the upcoming summer.

We also apply a preventive insecticide treatment in the late spring. We use fungicides only on a curative basis, only if disease pressure is evident due to weather conditions such as high humidity or heat.

Herbicide applications are on an as-needed basis. We spot-spray broadleaf weeds, use mechanical removal or spot treatments of glyphosate for grassy weeds. When necessary, a mid-May application of dicamba is used for knotweed control.

Summer—Irrigation has been needed the last few years because of drought conditions here in the Midwest. Deep irriga-

tion penetrates throughout the soil structure, encouraging grass roots to follow it down, thus building stronger turf.

During dry weather, we irrigate twice a week, using three Rain Trains to cover the field. We mow as needed; sometimes daily, but normally every other day. We change the cutting pattern every time we mow. We aerify once more before the hot June days to relieve any compaction.

We again drag the plugs out. In conjunction with this, we usually spot-seed and fertilize.

During our hot summers, we basically mow and irrigate, applying fungicide occasionally, as needed.

In late July, if we have window of about three cool days (temperatures in the 70s to low 80s), we aerify again, then fertilize with IBDU (16-4-20), applying approximately 1 lb. N to 1 lb. K.

Fall—We continually keep one or two barrels of pre-germinated seed ready. The pre-germinated seed/topdressing mix is applied daily to any divots that are knocked out during play. About late August, we apply preventive insecticide to avoid grub problems.

On six-week intervals, we fertilize our fields with high potassium, IBDU fertilizer. We keep the fields mowed and irrigated. Every two to three weeks, we also aerify to keep compaction to a minimum. As the season winds into winter, a late fall fertilization is a must. The fertilizer stimulates deep root growth throughout the winter, strengthening the plants for the upcoming seasons.

In early spring, this fertilizer is present in the soil for the grass to use as soil temperatures start to climb.

It takes this season-long program to keep our turf in shape for those Bears.

—The author is chief groundskeeper for the Chicago Bears. Mrock is treasurer of the Sports Turf Managers Association.

B&G'S NEW KP-4

Strap on the comfortable, lightweight KP-4 Knapsack Sprayer and enjoy the convenience and mobility it affords. Designed for a multitude of uses, the KP-4 is tough enough for all sprayable solutions.

Easy to use with the lever-operated high pressure continuous action pump. Only minimal effort is required to maintain effective spraying pressures. The generous 4 gal. high density polyethylene tank allows for an extended application period.

For more information about the KP-4 Knapsack Sprayer or to inquire about all your spraying needs, call 1-800-544-8811.

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EQUIPMENT COMPANY
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Chemical resistant and heavy duty construction features include:

- All soft parts, gaskets and seals, superior quality.
- Unit converts for right or left hand operation.
- High pressure piston pump up to 90 psi, 48 in. hose.
- Discharge valve with screen and lock-on clip.
- 18 in. angled extension with pin to cone spray pattern tip.

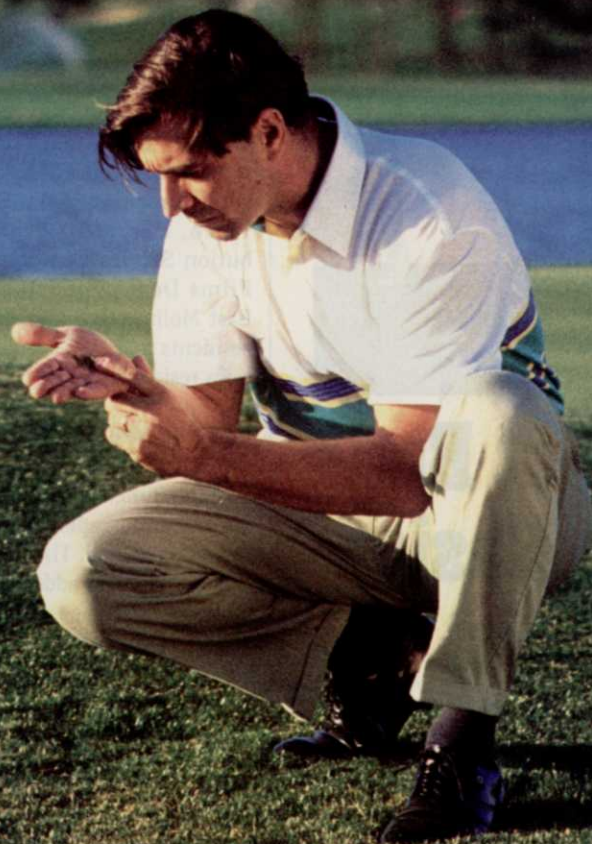


OPTIONS

- Brass extensions.
- Fan spray pattern tips, brass and poly.

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For the turf manager who worries about every spot, patch and mold.



Now there's new Curalan™ DF fungicide.

New broad spectrum Curalan DF controls eight diseases without harm to turf so turf managers can sleep nights.

Two-way protection

Like Curalan flowable, Curalan DF gives you the option of preventive and curative treatments by adjusting the application rate.



Labeled for all turf grasses

You can apply Curalan to any turf grass variety, at any stage of growth without concern for injury.

DF formulation is easy to use

Curalan DF is easy to handle and leaves less residue in the jug.

Simple solutions to complex problems

For more information call 1-800-878-8060

BASF Corporation

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INFO CENTER

UTILITY VEHICLE SAFETY...A nine-minute video on AMT utility vehicle safety is included with each Deere & Co. AMT626 retailed in North America. Additional copies are \$15 for either English (#DKVHC91580EN) or Spanish (#DKVHC91580ES) versions. To order a 1/2-inch VHS cassette, phone: (800) 544-2122 or send check to AMT Safety Video, Deere & Co. Distribution Service Center, Safety Films Dept., 1400 13th St., East Moline, IL 61244. Illinois residents add 6.25% sales tax, Iowa residents add 4%.

LANDSCAPE PLANTS...Dr. Carl E. Whitcomb's book "Establishment and Maintenance of Landscape Plants" has just been revised. The new version contains an added section on large landscape containers and roof-top gardens, along with an even wider array of practical techniques. For a copy of the 621-page book, send \$38 to Laceyark Inc., P.O. Box 2383, Stillwater, OK 74076.

PRO TURFERS..."The Professional Turfgrass Management Guide for Massachusetts, 1992" is available from Bulletin Center, Cottage A, Thatcher Way, University of Massachusetts, Amherst, MA 01003 for \$5.50 (shipped fourth class) or \$6 (shipped first class). The guide was written by UMass Cooperative Extension turfgrass specialists. Reduced rates affect orders of 25 or more copies. Call (413) 545-2717 for bulk ordering information. Make checks payable to the University of Massachusetts.

FREE POSTER...ICI Professional Products is offering a free Crusade turf insect poster that can help golf course superintendents identify major pests in turfgrass. The large,

four-color poster features detailed illustrations of seven major turf insects, along with information and charts on the optimal time to scout and treat for each pest. To receive your poster, call ICI at (800) 759-2500.

LANDSCAPE DESIGN...Using a little imagination and Mike Munro's "Northwest Landscaping," even a beginner can create a unique and spirited expression of his lifestyle in his own backyard. The book includes eight pages of color photos, 50 how-to illustrations and a comprehensive plant glossary. The book is available directly from the publisher for \$16.95 plus \$2.50 postage and handling. To order, write Alaska Northwest Books, P.O. Box 3007, Bothell, WA 98041; or call (800) 343-4567 (206-487-6100 in Seattle).

ALCA MEMBERS...To get the Associated Landscape Contractors of America membership directory, non-members should send \$26.50 to: ALCA Publications, 12200 Sunrise Valley Dr., Suite 150, Reston, VA 22091. ALCA members receive a \$20 discount on the directory.

CONSUMER EDUCATION ...With a "This Precious Earth" videotape and "Our Precious Planet" brochure, you can easily and professionally show how beneficial turfgrass is for the environment, and how sod can provide almost immediate benefits. The six-minute video and four-color brochure are available from the American Sod Producers Association: \$25 for the tape, \$75 for 500 brochures or \$250 for 2000 (specify flat or folded). To order, write or phone ASPA: 1855-A Hicks Rd., Rolling Meadows, IL 60008; (708) 705-9898.

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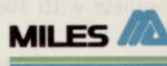


Each tells you about this pre-damage strategy and how to implement it. From scouting for signs of grubs to timing your applications.

Also, they show you how well DYLOX Insecticide fits in a pre-damage program. DYLOX works fast to control all species of white grubs. Plus, DYLOX goes away quickly, reducing the long-term risk to the environment.

For your free tape and brochure, call 1-800-842-8020. Or write Miles Inc., Specialty Products, Box 4913, Kansas City, MO 64120.

The call is free. The tape and brochure are free. All we ask is that you lend us an ear.



Circle No. 121 on Reader Inquiry Card



Summer turf fertilization relies on balanced nutrients

Match nutrient applications to the plant's growth: more fertilizer in the fall and spring. But it's important to maintain some growth during the summer.

by David Wehner, Ph.D.
University of Illinois

■ Summer fertilization can help provide a strong, healthy turf when demands on the grass are the greatest. The key is understanding how the plant grows when temperature and moisture may not be optimum, and adjusting fertilization accordingly.

Too much fertilizer in the summer can decrease turf stress tolerance and increase occurrences of some diseases. Too little fertilizer will result in turf with poor recuperative potential, and, in some cases, turf unable to compete with summer germinating weeds.

Turf managers must strike a balance between the two extremes.

Understand plant growth—Cool-season turfgrasses generally show best shoot growth in air temperatures of 60 to 75° F. and best root growth at soil temperatures of 50 to 65° F.

As temperatures increase from these ranges, growth slows and eventually, at a high enough temperature, stops.

This is probably because, at the higher temperatures, the plant uses more of its food supply (referred to as carbohydrate reserves) than it produces. There isn't enough available for sustained root growth. Also, nitrogen applications cause the shoot system to grow preferentially over the root system.

Nitrogen applications, then, can make a bad situation worse by further reducing

energy available for root growth.

Most turf managers also realize that, as water becomes limited, growth declines and then stops. It's important to limit nitrogen applications during times of drought stress. Conversely, a moderate nitrogen application can help a plant recover from drought-induced dormancy.

Warm-season grasses, which exhibit optimum shoot growth at air temperatures of 80 to 95° F. and best root growth at soil temperatures of 70 to 85° F., are easier to deal with, since they are growing at their

several small applications of a quick-release N source or by applying a slow-release N source.

In situations where the turf manager is located at the site, apply 0.25 to 0.50 lbs. of actual N per 1000 sq.ft. from a quick-release fertilizer during the summer when it is necessary to increase the turf's growth.

The alternative strategy is to apply a slow-release fertilizer (1 to 2 lbs. of actual N per 1000 sq.ft.) early in the summer. This may be more feasible where it is diffi-

INFLUENCE OF NITROGEN FERTILIZATION ON DISEASE RESISTANCE

Severity increases with under-fertilization

Severity increases with over-fertilization

Cool-season turfgrass diseases

anthracnose
dollar spot
red thread
rust

brown patch
leaf spot
melting out
pythium blight

Warm-season turfgrass diseases

anthracnose
Cercospora leaf spot
dollar spot
rust

brown patch
gray leaf spot
leaf spot / pythium blight
melting out
spring dead spot

Source: Dr. Koski

peak over the summer months. They have more efficient photosynthetic mechanisms, and are more drought tolerant than cool-season grasses. However, they still need water. Too much fertilizer should be avoided during very dry periods.

Designing N programs—In designing an N fertilization program, match nutrient applications to the plant's growth. That is why you should apply more fertilizer in the fall and spring when the plants are actively growing than in the summer. It is important, however, to maintain some growth during the summer.

The turfgrass manager can approach summer N fertilization by either making

cult to get back to the site for applications over the summer.

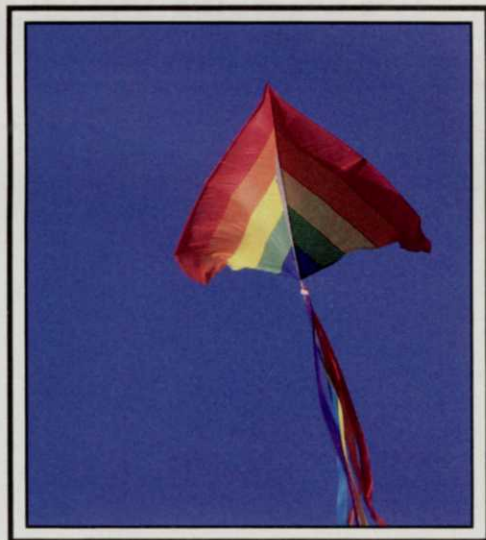
A third strategy would be to moderately apply a slow-release at the beginning of summer and then supplement with small amounts of a quick-release source.

These same strategies, with modifications in the amount of N applied, can be used with warm-season grasses.

A substitute?—Another approach to summer fertilization is to use foliar applications of iron to improve color without stimulating excessive growth.

In our research, we were able to reduce the amount of N and get equivalent color by including iron in a foliar spray with N.

N



Granular control for insects.
Because you never know
which way
the wind will blow.

To control surface and soil insects as you feed, nothing works harder than Lebanon granular fertilizers with DURSBAN* insecticide. They spread evenly, without drifting or leaching through, to eliminate chinch bugs, ants, weevils and fleas, as well as ticks that can carry lyme disease.

Apply the homogeneous, balanced feeding of Greenskeeper 20-4-10 with DURSBAN insecticide for even growth and color. Or the economical, yet highly effective, SCU blended Lebanon Pro 20-3-5. Available with DURSBAN insecticide in 1% and 0.6% formulations.

For more information, contact your Lebanon sales representative or local Lebanon Turf Products distributor. Or simply call 1-800-233-0628.



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CHARACTERISTICS OF NITROGEN FERTILIZERS

Fertilizer name	Analysis (N-P-K)	Source of N	Moisture dependence	Low temp. response	Residual N activity	Salt Index (per N unit)	Leaching potential
QUICKLY-AVAILABLE N FERTILIZERS							
ammonium nitrate	33-0-0	ammonium nitrate	minimum	rapid	4-6 wks.	3.2	high
ammonium sulfate	21-0-0	ammonium sulfate	minimum	rapid	4-6 wks.	3.3	high
ammonium phosphate	18-46-0	diammonium phosphate	minimum	rapid	4-6 wks.	1.6	high
urea	46-0-0	urea	minimum	rapid	4-6 wks.	1.6	moderate
SLOWLY-AVAILABLE N FERTILIZERS							
Slow-release sources							
Sulfur-coated urea	22-38% N	urea	moderate	mod. rapid	10-15 wks.	NA	low
Once	24-35% N	urea, nitrate, ammon. N	moderate	mod. rapid	15-36 wks.	NA	low
Slow-soluble sources							
IBDU	31-0-0	isobutylidene diurea	high	mod. rapid	10-16 wks.	0.2	mod.-low
Ureaform reaction fertilizers							
Nitroform	38-0-0	ureaformaldehyde	high	slow	10-30+ wks.	0.3	very low
FLUF	18-0-0	urea/ureaformaldehyde	moderate	medium	6-10 wks.	NA	low
Nutralene	40-0-0	methylene ureas	moderate	medium	10-16 wks.	NA	low
Methylene urea	39-0-0	methylene ureas	moderate	medium	7-9 wks.	0.7	low
Coron	28-0-0	urea/methylene ureas	minimum	mod. rapid	7-9 wks.	NA	moderate
N-Sure	28-0-0	triazone/urea sol.	minimum	mod. rapid	6-9 wks.	NA	moderate
Natural organic fertilizers							
Ringer	6-1-3	blood, bone, seed meals	high	medium	10-12 wks.	0.7	low
Sustane	5-2-4	composted turkey waste	high	medium	10-12 wks.	0.7	low
Milorganite	6-2-0	activated sludge	high	slow	10-12 wks.	0.7	low

Source: Dr. Koski

Applications of 1 to 2 lbs. of actual iron per acre to Kentucky bluegrass resulted in a darker-green color that lasted for several weeks depending on the grass's growth rate (the faster the growth, the shorter the response period). Because of this, it may not be feasible to use iron where the turf manager is not able to frequently monitor results. Also, iron is more expensive to use than nitrogen.

Several considerations relative to using iron are listed in Table 3. Note that iron is not a replacement for a sound N fertilization program but rather a supplement.

Experiment with application rates to determine what provides the best results for the species of grass and conditions that you are working with.

Healthy plants—Insect or disease problems can further reduce the plant's ability to withstand stress periods. This is

Researchers have observed stress problems where soil phosphorus has declined to low levels, such as on creeping bentgrass putting greens where phosphorus was withheld to combat annual bluegrass encroachment.

particularly important when diseases affect the roots, as is the case with summer patch and necrotic ring spot on Kentucky bluegrass, or where nematodes may be present. Compact or water-logged soil will reduce rooting, thus weakening the plant.

Also, the plant must have enough phosphorus and potassium. Researchers have observed stress problems where soil phosphorus has declined to very low levels, such as on creeping bentgrass putting greens where phosphorus was withheld to help combat annual bluegrass encroachment.

Soil tests should be taken every two to three years to monitor pH and nutrient levels.

Strategy for success—By starting with a healthy plant and carefully matching fertilizer applications to existing growing conditions, the turf manager can ensure that the turf stand will survive the summer stress period with minimal problems.

—Dr. Wehner is an associate professor of horticulture at the University of Illinois at Urbana-Champaign.

Addendums to fertilization, insect control

■ The insecticide Crusade was inadvertently omitted from the cool-season insect control article in the April issue of *LANDSCAPE MANAGEMENT*.

Crusade is registered for control of insects in professional turf areas such as

golf courses and commercial sod growing areas. Applied in the spring, summer or fall, at 4 lb. ai/acre, it is effective against white grub larvae such as Japanese beetle, black turfgrass ateniens, chafers, *Phyllophaga* spp., green June beetle and Asiatic garden beetle. At 3 to 4 lb. ai/acre, Crusade is also labelled for controlling chinchbugs, cutworms and sod webworms.

All applicable directions, restrictions, and precautions on the EPA-registered label are to be followed.

—Harry D. Niemczyk, Ph.D.
Professor Emeritus
OARDC/Ohio State Univ.

■ In the February issue of *LANDSCAPE MANAGEMENT* on page 24, you show residual N activity of Nutralene at only 7 to 9 weeks. This statement is in gross error: actual residual is 10 to 16 weeks.

—James H. Taurasi
Jayson Associates (agent for Nor-Am)
Winchester, Mass.

ROUNDUP® HERBICIDE PRICE DROPS AGAIN! 2½'S NOW...

You read it right! Roundup® herbicide has dropped its price right through the floor for the second straight year. Now the suggested retail price of a 2½ gallon container of Roundup is a full 39 dollars less than it cost just two years ago!

That big price cut spells big opportunities for you to stretch limited budget dollars with lower-priced Roundup. Replace costly, time-intensive string trimming with quick, inexpensive spray trips. Maintain more weed-free beds, pine islands, tree rings and grounds for less than ever before with Roundup.

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LAWN CARE INDUSTRY

TruGreen/ChemLawn deal widens gap between the biggest and the rest



ChemLawn, Columbus, Ohio, becomes part of SVMQ.

ServiceMaster buys huge chunk of pro lawn care market; thinks baby boomers will have more \$\$\$ than time.

■ ServiceMaster Quality Service Network (SVMQ), Memphis, Tenn., is now the nation's professional lawn care leader. It happened May 20th with its purchase

of the operating assets of ChemLawn. The cash purchase price was \$50 million plus the book value of net tangible assets of \$54 million. TruGreen signed a letter of intent in late April, about two months after Ecolab put ChemLawn up for sale.

The SVMQ consumer service network, which includes TruGreen, has grown to:

- more than 3,000 cleaning franchises,
- the Terminix termite and pest control services,
- almost 500 maid operations, and
- American Home Shield with its 40

percent share of the U.S. market in home appliance warranty and repair.

C. William Pollard, chairman of ServiceMaster, noted that after an initial transition period, the two companies will be combined into one operation. Pollard added people from both companies would be merged into the single larger company.

"We've moved from being No. 3 to No. 2," wryly observes Patrick Norton. Norton's Barefoot Grass Lawn Service recorded sales of just more than \$50 million in 1991. It trailed just ChemLawn and TruGreen in sales.

Big is bigger now—There will be an even bigger gap between the new lawn care market leader and the rest of the industry. ChemLawn had net sales of \$355 million in 1991, and TruGreen about \$92 million.

"They (ServiceMaster) were about the only ones in the industry able to bite off that much," comments Bob Andrews, president of the Professional Lawn Care Association of America.

A TruGreen/ChemLawn combination will have 20 to 25 percent of the residential lawn care market which a 1991 *Lawn Care Industry* magazine survey estimated at \$2.1 billion. (ChemLawn historically has said it has a bigger share of the residential market.)

Together, TruGreen and ChemLawn claimed about 1.5 million customers in 1991.

continued on page 40

ELSEWHERE

**More on
Chemlawn,
p. 40**

**Customer
education,
p. 44**

A revolutionary leap in the evolution of mowing.

To see where rotary mowing is headed, take a good look at the sleek new Jacobsen HR-5111.™ It delivers an 11'-plus, high-production cut and exceptional trimability in a rugged four-wheel-drive package.

Built for long life in rough country.

Hydrostatic 4WD, a heavy-duty axle with differential lock, and a reliable, fuel-efficient, 51-hp diesel let the HR-5111 confidently tackle tough hills that stall the competition.

Our new box-channel steel, straight-line frame takes the pounding of tough conditions like no other mower in its class. Plus, the full-fiberglass body keeps its good looks for years, even in the harshest environments. And it's all backed by a 2-year, 1,500-hour warranty.*



No belts. No pulleys. No kidding.

Our revolutionary, fully hydraulic cutting system eliminates the maintenance and adjustments of belt-driven units. It incorporates individual, lifetime lubricated spindle motors which deliver more power to knock down tall, heavy grass, for a clean 1" to 5½" cut. The decks

*See your Jacobsen distributor for full warranty details.

have a unique, counter-rotating spindle configuration producing the smoothest rear discharge going.

Smooth operator.

From the easy-to-read, full instrumentation, to the ergonomic controls, the HR-5111 redefines operator convenience. What's more, power steering, tilt wheel, cruise control and the adjustable high-back suspension seat keep the operator comfortable, for a more productive day.

For high productivity, 4WD mobility, heavy-duty durability and operator comfort, there's nothing like the HR-5111 on turf. So be sure to ask your Jacobsen distributor for a demonstration today.



THE PROFESSIONAL'S CHOICE ON TURF.

**JACOBSEN
TEXTRON**

Jacobsen Division of Textron, Inc.

Circle No. 115 on Reader Inquiry Card



THERE'S NOTHING LIKE IT ON TURF.

Both companies are in most lawn care markets already. ChemLawn operates in 45 states and TruGreen in 23.

"I don't see it (the purchase) as having a tremendous impact, not yet anyway," says Andrews.

Adds Barefoot's Norton: "If someone had come into the industry from the outside then, I think, we'd see a bigger impact."

SVMQ's growing presence in diverse consumer service markets are well documented. To date, it's been enviably successful too.

ServiceMaster keeps growing—In 1990, SVMQ increased its ante in consumer services by buying TruGreen and a network of pest control operations from Chicago-based Waste Management (WM retains 22 percent ownership). That deal was pegged at about \$180 million, by industry insiders.

Later that year, in a press conference, SVMQ President Carlos Cantu said ServiceMaster operates on the premise that "people are time-poor and money-rich, and they need the services we (SM) will be offering the marketplace."

He said that 40 percent of the U.S. population was born between 1946 and 1964. This represents 53 million households, with a median income of about \$50,000



TruGreen regional office, Columbus, Ohio: growing stronger.

and a median house value of about \$105,000. SVMQ's research indicates 60 percent of this target market is made up of two-income families.

Also, SVMQ, reportedly, was heartened by TruGreen's operation in 1991, the one full season it owned it.

"It may take two or three years for ServiceMaster to convert the lawn care over into a single operation," muses indus-

try consultant Ed Wandtke of Wandtke & Associates, Inc., Columbus, Ohio.

"The real question may be, can the tail (TruGreen) wag the dog (ChemLawn)?" he wonders.

Adds John Buechner, of Lawn Doctor in Matawan, N.J., "I think the acquisition is an interesting project, but only time will tell how it affects the industry."

—Ron Hall

No more ChemLawn to kick around (or imitate)?

■ ChemLawn, a name synonymous with professional lawn care, is a name in eclipse.

What seemed inconceivable a few years ago may happen. ChemLawn may cease to be—at least as ChemLawn.

Late this past winter, Ecolab, owner of ChemLawn since 1987, put the "For Sale" sign on the company that laid the foundation for a \$2 billion-plus industry. ChemLawn: the most closely watched, copied, competed against and, increasingly, condemned company in the industry.

TruGreen's pending purchase of ChemLawn raises questions that neither TruGreen nor ChemLawn officials would discuss, pending completion of the sale. Among them:

- How will TruGreen absorb the three-times larger ChemLawn? Is the ChemLawn name itself an asset or a liability? Or both?
- Will ServiceMaster Quality Service Network, of which TruGreen is a part, continue to buy lawn care companies to expand its share of the professional lawn application market?
- What happens to ChemLawn's new and heavily promoted EcoScape full-service landscape care?
- How will TruGreen deal with competing sister operations, specifically franchises? For the last eight years, ServiceMaster Lawn Care has been growing a network of franchises (more than \$4 million in sales in 1988). Many of them compete against TruGreen branches and/or ChemLawn branches or franchises. In 1991 TruGreen began buying and folding in SM franchises.

"If they're in competition and want to sell their business, they don't have to go shopping," a source close to SM tells

LANDSCAPE MANAGEMENT.

- Whose management and service pricing philosophies—ChemLawn's or TruGreen's—will emerge? TruGreen, fairly or not, has typically been perceived by competitors at pricing at the lower end of the spectrum.
- Will TruGreen/ChemLawn operations use the herbicide 2,4-D? ChemLawn hasn't for several years. (Several other large companies have quietly quit using 2,4-D also.) TruGreen reportedly does.
- Will TruGreen/ChemLawn work with the rest of the industry—which, broken into individual parts, are overwhelmingly gnaw-sized compared to the ServiceMaster operations?

—R.H.



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Dependable, economical post-emerge control

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Plus the truly hard-to-control broadleaves

Read how Trimec® Plus, with its unparalleled broad spectrum control, fast action, and gentleness to desirable grass, is helping turf professionals improve their

environmental stewardship and reduce their chemical costs.



Everett Mealman
Chairman and
Chief Executive Officer
PBI/Gordon Corporation

The environmental age weed control program being used by Roger Albrecht is typical of progressive turf professionals.

Albrecht is president of Nitro-Green Corporation, which has 38 lawn care franchisees scattered over 15 different states, and he manages two locations in California for his own hands-on experience.

"Our goal is to eliminate all broadcast spraying of herbicides on the ornamental turf we manage, and replace it with spot treatment as necessary," says Albrecht. "We want to be pro active on environmental issues and be able to assure our customers that we are using the absolute minimum requirement of chemicals."

Albrecht goes on to explain that such a

program takes time to implement because the turf needs to be so healthy and thick that weeds cannot easily germinate.

"The elimination of the pre-emerge broadcast is the critical step," says Albrecht, "because, no matter what, some crabgrass is going to appear, and since crabgrass is a major cause of complaints, we must be able to eliminate it fast with no discoloration."

Trimec Plus provides the safety net that enables Albrecht to eventually eliminate pre-emerge. "We have absolute confidence in Trimec Plus to handle any crabgrass or nutsedge that shows up," says Albrecht.

And, of course, the same spot sprayer filled with Trimec Plus that Albrecht uses to control crabgrass and nutsedge also controls the other grassy and broadleaf weeds that can germinate throughout the year. "Having one herbicide for all of our spot treatment is a major factor in our program," says Albrecht.

But if Trimec Plus is ideal for spot treatment, it is also unsurpassed for broadcasting when the need exists. Listen to George Toma, the executive turf consultant for the Royals, Chiefs, and NFL:

"My son, Chip, the groundskeeper for the Truman Sports Complex, used a broadcast of Trimec Plus on the out-of-sight, unirrigated perimeters of the complex, which was loaded with every conceivable weed, and

Trimec Plus absolutely took out everything except the bluegrass."

According to Toma, it would have taken four different selective herbicides to do the job that Trimec Plus was able to do . . . but even more important, Toma says that Trimec Plus did a better job on all of the individual species than a narrow spectrum selective could have done.

What is Trimec® Plus?

Trimec Plus is a unique formulation of Trimec Broadleaf Herbicide and MSMA in a stable, uniform suspension that is as easy to work with as any other Trimec Complex.

By all means give Trimec Plus a trial this season . . . especially on crabgrass, nutsedge, and clover. We assure you that your experience with Trimec Plus will give you the confidence you need to start working toward the elimination of broadcasting.



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For overseeding low cut areas and establishing greens and tees, no other fertilizer provides the kind of coverage and nutrient distribution that Country Club 10-18-18 does.

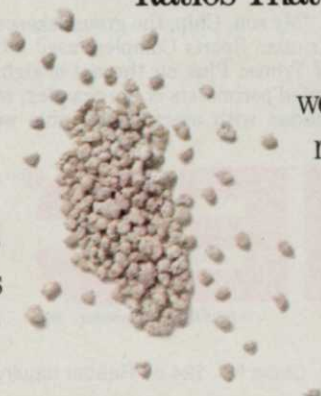
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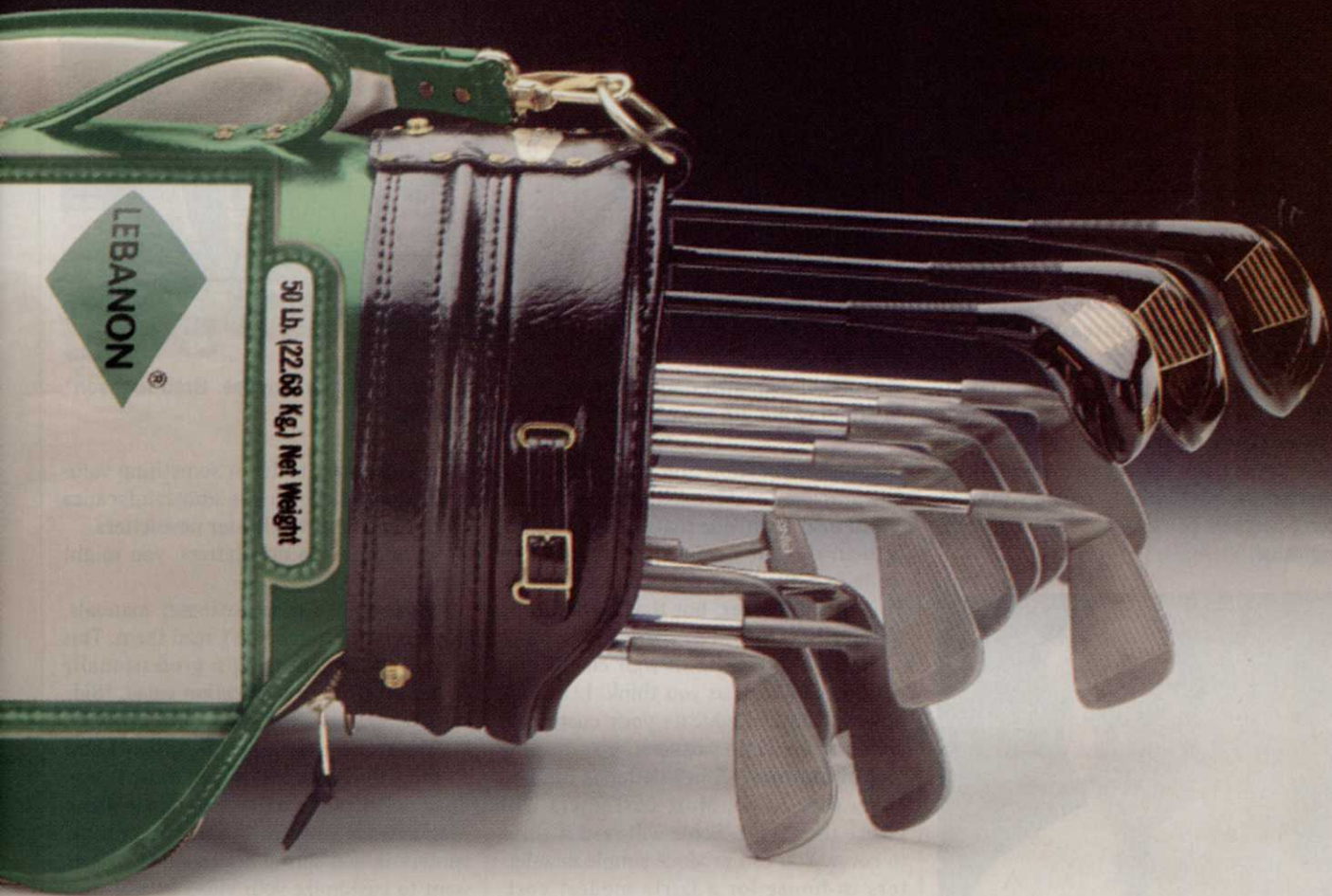
the strictest quality control measures. Insuring uniform color and growth from start to finish.

Ratios That Result From Higher Learning.

In developing the ratios for 10-18-18, we went back to school. Extensive university research on soil and tissue analysis goes into every bag of 10-18-18. Along with lower nitrogen content for slower growth. More phosphorus for better seedling germination and density. And



Bag For Greens And Tees.



more potash for hardier turf.

The end result — an agronomically sound product that delivers unprecedented performance.

Better Greens For Less Green.

While Country Club 10-18-18 is certainly not one of the more inexpensive fertilizers, it is exceptionally economical to use. Because of its homogeneous formulation, 10-18-18 covers a whole lot more ground than several bags of a cheaper blend. Which makes it ideal for maintaining as well as establishing turf. And with

10-18-18's WIN content, there's also less leaching and volatilization.

For more complete information about 10-18-18, contact your local Country Club distributor or call Lebanon Turf Products at 1-800-233-0628.

Then carry our bags around your course, and find just how much they'll improve your game.

Country Club
10-18-18 

Circle No. 117 on Reader Inquiry Card

Focus of lawn care in 1990s: customer, employee education

Well-trained, responsible employees are a company's best resource but consider newsletters, videos, and radio too.

by Brad Johnson

■ Leaving customer expectations to chance is risky business.

That's because the uneducated customer often builds unreasonably high expectations. No wonder. Some lawn care companies advertise that all customers have to do for a beautiful lawn is to mail them a check every two months. When the lawn doesn't live up to these expectations, customers, particularly new customers, don't perceive professional service as having value.



Brad Johnson: education must go hand in hand with service.

Lawn care business people now realize they *must* educate customers as well as treat their lawns.

They must educate them concerning the value they're receiving.

It benefits both parties. Customers must often work *with* the lawn professional to secure an attractive, healthy lawn. For instance, lawn professionals need continuing customer cooperation with mowing and watering. That's when a customer begins to receive real value from the lawn professional's service.

The professional provider builds on



A professional lawn care company is only as good as its employees. Brad Johnson is proud of his green up! team in Tulsa, Oklahoma.

customer education and communication *in addition* to attempting to deliver a "weed free" lawn, one that is always greener than the one across the street—often while using less pesticides and fertilizers. This is a tall order, but that's what we're working toward.

Building bridges with your clients may not be as difficult as you think. Let's look at ways you can educate your customers and turn them into partners.

Newsletters—A newsletter is fun and fairly easy to do. Most customers will glance through it. Some will read it cover to cover. You can produce simple newsletters in-house for a fairly modest cost. However, to really attract customer attention, use a professional marketing firm.

Leave newsletters with customers with every application. You can also mail them to customers, but this is more costly.

Use newsletters to increase sales of add-on services. Be fair. Don't produce newsletters that have substantially more advertising than helpful information. You want

your customers to learn something valuable about their lawns and landscapes while looking through your newsletters.

In addition to newsletters, you might consider:

Videos—We tried customer manuals, but customers often don't read them. This season we began using a professionally produced customer education video, "Side by Side."

The 15-minute video shows clients how to properly water and mow lawns. It also deals with two particularly frustrating problems for lawns in the transition zone, winterkill and spring dead spot. (You may want to customize your video to deal with other issues.)

When a new customer signs up with us, we send them a welcome card, do their first application, and leave a copy of the video in their invoice bag.

We also include a short survey for them to fill out after they watch the video. To answer the survey, they have to watch "Side by Side," since answers to the ques-

Little things mean a lot

- Little things your people can do every day add up to better-educated, loyal customers.
 - ✓ Take the time to talk to customers, either in person or on the phone.
 - ✓ Call customers to ask if there are any questions about their lawn or your service.
 - ✓ Write personal notes on invoices each time an application is done.
 - ✓ If the customer is not watering and mowing properly, tell him or her, and leave information on proper watering and mowing.
 - ✓ Leave fact sheets on special problems a lawn may have, such as soil compaction, disease, thin turf, etc. Follow these up with phone calls.

—B.J.

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Circle No. 101 on Reader Inquiry Card

tions are in the text of the video. When they return the video in a postage-paid mailer, we give them a coupon good for \$5 off of an optional service.

Radio—This past year I began co-hosting the KRMG-AM (Tulsa, Okla.) Lawn and Landscape Show, a one-hour, Saturday talk show.

Many of our customers tell us that they regularly listen to our show. Several fellow lawn care owners even remarked that the information is helpful for their customers, too. Of course, the do-it-yourselfers really appreciate the tips.

We usually have guests on the show such as arborists, irrigation experts, university professors, and nurserymen. We feel the show is a great opportunity to teach the public and lawn service customers about lawns and landscapes.



Many LCOs now use professionally produced newsletters to keep their clients informed.

Our employees—All the video, newsletters and radio shows, will have limited effectiveness without quality, well-educated, motivated employees. There is no substitute for just good, old-fashioned face-to-face communication.

That's where we need to spend the most time and money, in encouraging and educating our employees first. Employees can then begin to educate our customers.

Market saturation, increased regulation and pressures from anti-pesticide group is, a more demanding customer base—these are the reasons why we must educate and become partners with both our employees and our customers.

—Brad Johnson is president of *green up! Lawn Care Services*, Tulsa, Okla. For more information about customer education videos, contact him at (918) 250-3898.

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& Zinc
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Agriform™ Planting Tablets now contain all the minor elements your plantings could ever need, as well as Nitrogen, Phosphorus and Potassium.

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Circle No. 112 on Reader Inquiry Card

HOT TOPICS

Landscaper unearths ancient bones

Illinois State Museum identifies dinosaur remains.

WADSWORTH, Ill.—Van Zelst Landscaping turned preservation of a wetland area into a national news event when mastodon bones and tusks were discovered in the excavation to expand a small marsh into a larger lake.

The 10,000-year-old bones were discovered along with the remains of an ancient spruce forest which existed on the site during the Ice Age, according to David Van Zelst.

The bones, tusks, shells and spruce tree trunks were found on Van Zelst's property as it was expanding a tree nursery site and excavating a three-acre lake to provide for a continuous source of water.

The first piece of bone excavators came upon was almost four feet long with a cross section of about 4-by-7 inches. What appeared to be a tree stump was the femur (right thigh bone) of a prehistoric American mastodon.

Van Zelst contacted the Illinois State Museum in Springfield. A team of scientists led by Dr. Russell Graham, curator of geology, arrived the next day. Graham identified the bone as part of the beast which stood 10 feet tall at the shoulders and weighed up to six tons.

A section of tusk ivory about 24 inches long was also found, along with the remains of a grove of spruce trees believed to be about 11,000 years old. Tree trunks and white spruce seed cones are neither decomposed nor petrified. After carbon-14 dating and tree ring studies, these specimens are expected to tell the history, climatic and season conditions at the time of growth. Pollen studies are also being made.



Van Zelst with a hunk of a mastodon's thigh bone originally thought to be a tree trunk. He found it in a 15-foot-deep excavation in Wadsworth, Ill.

Ban pesticides in refuges? It's not an issue, say feds

WASHINGTON—Pesticide use could be banned in all of the U.S. National Wildlife Refuge System.

That's one suggestion of several environmental impact "alternatives" being considered by the U.S. Fish and Wildlife Service (FWS).

Some of these alternatives will likely be incorporated into a new management plan for the refuge system later this year—but only after the FWS weighs input from a series of public hearings.

Most comment from the public so far has been from hunting, trapping and fishing interests seeking continued access to federal lands.

Pesticide use on federal refuges is, to date, not a burning issue, apparently because of the FWS's use and oft-repeated endorsement of integrated pest management (IPM) practices.

Several FWS "alternatives" would continue to allow pesticide use on national properties, but only in IPM programs.

Actually, pesticide use on national refuge property has dropped dramatically since 1974 anyway—about 40 percent in 20 years, claims the FWS.

In 1989 the FWS says it used pesticides in 61 refuges, on 202,000 of a possible 90 million acres in the national refuge system.

INSIDE

Industry debate continues over DIYers,
p. 50

Specify sulfur on analysis labels?,
p. 51

The Irrigation Association's 1992 International Irrigation Exposition & Technical Conference

November 1-4, 1992
New Orleans, LA

It's the showcase for the industry's latest products and services...From the most complete information on water conservation methods to the newest strategies in management...The Irrigation Association's International Exposition and Technical Conference is the only place to be if you're involved in irrigation.



“The IA show is excellent for anyone involved in irrigation. The people who stop at your booth have the power to buy, so you aren't wasting your time.”

Eagle Plastics, Inc., Hastings, NE

“The IA show is for exhibiting to a more International market.”

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For more information contact:

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Ongoing debate continues: posting for D-I-Yers or not?

MARYSVILLE, Ohio—The debate continues over whether do-it-yourselfers (in most cases, homeowners) should have to post lawn pesticide applications in the same manner that their professional counterparts must, in many areas of the U.S.

The most recent opinion was received at LANDSCAPE MANAGEMENT in a letter from Dr. Michael P. Kelty, vice president of research and development for The Scotts Co. Here is what Dr. Kelty wrote:

"As the nation's largest supplier of do-it-yourself lawn and garden products, The Scott Company agrees that homeowners have every right to be fully informed of the products and services they purchase. We are opposed to mandatory D-I-Y posting and pre-notification, however, and present the following as support:

- "Products registered for residential application by LCOs or D-I-Yers are, to my knowledge, all 'General Unrestricted Use' products. This is EPA's most benign risk

category. Our experience in nearly 100 years of supplying the turfgrass market shows that EPA's classification scheme is appropriate.

- "D-I-Y consumers receive an EPA-approved and/or a state-approved label for the fertilizer and pesticide products they purchase. These labels fully disclose the product contents, etc. In the case of The Scotts Company (and other D-I-Y suppliers), a toll-free number is provided on all product packages so that assistance from trained technicians is readily available. To my knowledge, LCOs are not required to provide similar product/service disclosures under FIFRA, but several states do have disclosure standards.

- "With a good history of safe use and with a federally-mandated disclosure system already in place, we feel that posting and pre-notification for D-I-Y products is superfluous. Further, a consumer posting and pre-notification system is impractical

to implement and virtually impossible to enforce.

- "D-I-Y consumers continue to reside in the neighborhood after they've applied their products. It seems to me that a neighbor who wants to be notified of product application will receive that information more effectively by knocking on his/her neighbor's door than by instituting a costly and unnecessary consumer posting and pre-notification system.

"Scotts strongly endorses freedom of choice. If LCOs, notably the Professional Lawn Care Association of America, feel that posting and pre-notification laws are appropriate, they should be free to pursue them. It does not logically follow, however, that LCOs' endorsement of these laws makes them appropriate for consumers.

"Consumers should continue to have the choice of D-I-Y or LCO. Neither method is toxicologically or environmentally better, but a simple matter of choosing what is the best value for each individual. Both application methods and their related products have a role to play in serving customers."



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

Is sulfur listing needed for 'complete' nutrition?

OVERLAND PARK, Kans.—The current definition of macro-nutrients (aside from C-H-O) for turfgrass fertilization consists of nitrogen, potassium and phosphorus, and represents those elements historically accepted as required for a "complete" fertilizer.

In this letter to **LANDSCAPE MANAGEMENT**, Dan Nason, marketing manager for potash products at Great Salt Lake Minerals Corp. here, thinks another should be added:

"As a turfgrass specialist for the past 15 years, I have been interested in the nutritional needs of turfgrass in order to maintain optimal health and minimize the negative impacts of a wide array of stressful situations.

"I suggest that in the specific case of turfgrass nutrition, there are four—not three—primary nutrients which are critical to the healthy completion of the normal life cycle. *Sulfur* should be the fourth

major nutrient required of turf fertilizers before they should be termed 'complete.'

"Sulfur is usually found in tissue analyses of healthy turfgrass in amounts greater than that of phosphorus. Sulfur in the plant-available sulfate form is also generally much more lacking in most soils than are the other two 'secondary nutrients,' calcium and magnesium.

"The nutritional value of sulfur in turfgrasses has been overshadowed for far too long by sulfur's use as a soil amendment to modify soil pH, yet sulfur is responsible for a great number of plant processes of particular importance to turfgrasses versus other crops. Sulfur is a major factor in turf's ability to provide for improved drought tolerance, winter hardiness, color and density; this is in addition to its important role in many metabolic functions which are commonly accepted as beneficial for other plant groups.

"Turfgrass management and so turfgrass fertilizers have evolved as an offshoot from strictly agricultural models. Maybe it's time we turfgrass managers recognize and treat turfgrasses as the unique 'crops' they are.

"The N-P-K-S designation for a 'complete' turf-type fertilizer will be of far more value to serious turf nutritionists. Consumers also should have every right to expect the 'complete' fertilizer they buy for lawn is just that: complete with the four basic nutrients most important and most often found lacking for optimum turfgrass health and nutrition."

IN COMING MONTHS:

JULY

Color in the landscape
Soil testing equipment
Being a better boss
Turf and iron

AUGUST

Recession-fighting tips
Landscape lighting

SEPTEMBER

Buyer's Guide



THE WORST PART ISN'T

THAT SHE'S CALLED BACK

THREE TIMES, OR THAT

SHE PROBABLY WON'T RENEW.

THE WORST PART IS THAT

SHE'S GOT NEIGHBORS.

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

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

Bet you'll use Triumph first, next time.



GREEN INDUSTRY SHOWCASE

Joint-venture subsurface products designed to save landscape water

Amid an industry-wide scramble for solutions to national and global water shortages, a new line of products from Toro Irrigation is designed to preserve landscape beauty and reduce water use.

"Water conservation and attractive landscapes are compatible," says Steve Snow, the company's retail and new business manager. "We think this is a major step in getting answers to irrigation problems from a single source."

Components of the new line are subsurface drip irrigation, drip irrigation, microspray, a high-flow shut-off device, a Rainswitch, new controllers, an adjustable

'There's a demand for irrigation solutions to odd shapes, against buildings and in high wind areas,' says Toro's Steve Snow.

stream rotor nozzle and Flo-Pro valves.

"We have formed strategic partnerships with a number of industry leaders so that we can offer a full selection of irrigation products," Snow relates. "Some of it is Toro technology. But the biggest part comes from strategic partnerships with companies like Netafim, the world leader in drip irrigation."

● Subsurface drip irrigation products put water at the plant rootbase, where it's most needed.

"Drip irrigation is coming up in conversations with contractors more and more," Snow contends. "There's a demand for irrigation solutions to odd shapes, against buildings and in high wind areas, for example. Square and rectangular landscapes are not as common as they've been in the past. And sprinklers are just not designed for some of those areas."

Both of Toro's surface and sub-surface drip systems offer a complete line of components, including fittings, pressure regulators, filters and tubing.

● The microspray is designed for use in

small or narrow planting areas with a radius of 3 to 10 feet, or in color beds with fragile plantings. Features include flush mount micro bases which retrofit to any Toro 570 pop-up body or shrub adapter. Other features are:

1) pressure compensation to provide uniform application over elevation changes and long runs;

2) low flow and precipitation rate to reduce runoff in tight soils; and

3) six nozzle patterns and color-coded bases.

● The high-flow shut-off device reduces water flow to a damaged or vandalized sprinkler without interrupting the remaining irrigation system. It delivers no more than 1/2 gallon per minute within 60 seconds and is easy to install.

● The Rainswitch, which requires no maintenance or cleaning, suspends irrigation during rainfall.

● Toro's new controllers include three commercial/government central control systems featuring radio capability. All controllers feature long run times for low volume irrigation.

● The new Omni adjustable nozzle for Toro's stream rotor sprinkler increases ease and flexibility in design and installation.

● And the company's Flo-Pro valves are

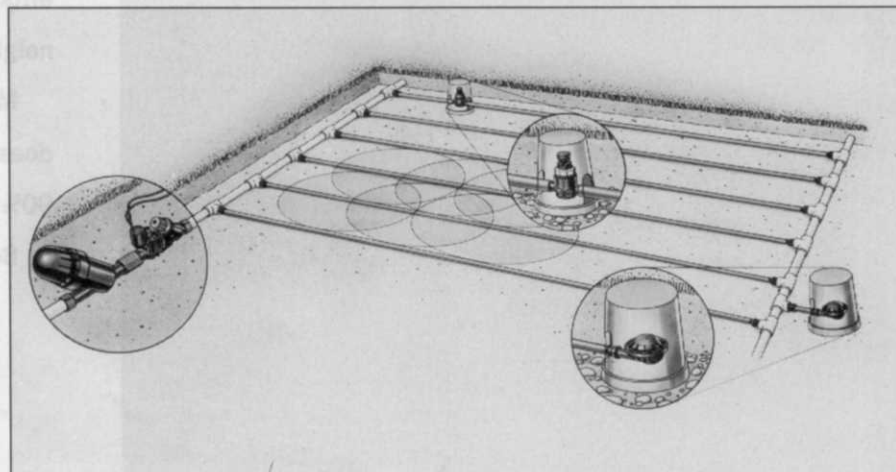
adjustable from 0.25 to 30 gallons per minute. Various body configurations are available.

"These give Toro Irrigation the most comprehensive product lines in the business," Snow concludes.

Circle No. 191 on Reader Inquiry Card



TechLine makes it possible to irrigate curved, angular, narrow median strips without overspray and water run-off.

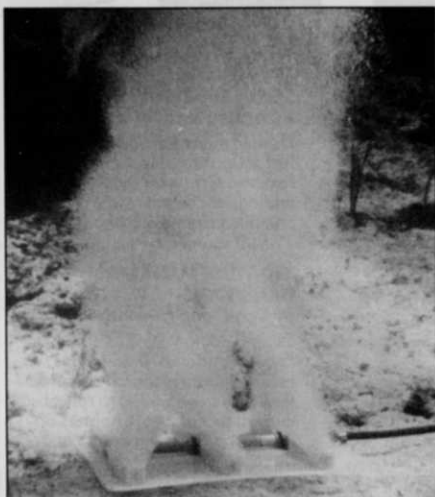


Toro/Netafim's TechLine is typically installed in a grid pattern, 4- to 6-inches below the surface. Tubing spaces 12- to 24-inches apart with emitters every 12- to 24-inches creates an even distribution of water.

SHOWCASE PRODUCT REVIEW

Diffused-air system cleans lakes of five or more acres

Otterbine/Barebo, Inc. now offers a diffused-air aeration system to its line of water management products.



Air-Flo aerates and circulates water in lakes that are a minimum 12- to 18-feet in depth and cover five or more acres, reducing aquatic weeds and algae without disturbing the natural surroundings of the lake environment.

Otterbine/Barebo says the diffused air aeration system is efficient and inexpensive in both capital and operational costs, and requires minimal maintenance. Operates at 115 volts.

The system is silent, with no splashing, electricity or moving parts in the water. The Air-Flo retains the integrity of the lake's natural surroundings, and provides effective bottom to top mixing, and, and breaks down thermal stratification.

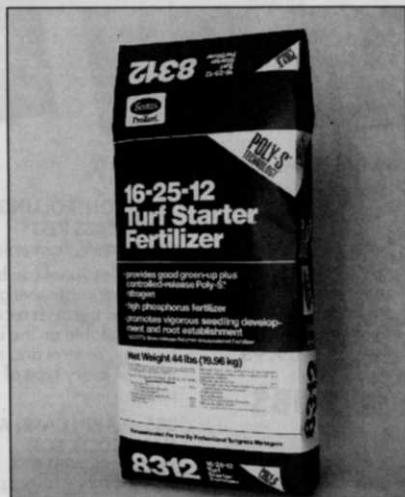
Circle No. 192 on Reader Inquiry Card

Turf Starter available, now with improved coating

O.M. Scott & Sons has marketed its 16-25-12 Turf Starter Fertilizer with the company's new POLY-S fertilizer coating.

The high-phosphorus product promotes vigorous seedling development and root establishment in new seedlings on all soil types. Readily-available potassium facilitates seedling development, and the POLY-S nitrogen meets the needs of growing turf, providing extended greening response.

According to the company, the product also fights purpling due to a cold-induced phosphorus deficiency on established turf.



Circle No. 193 on Reader Inquiry Card

New riding mower turns on a dime, recycles clippings

Ransomes newest riding mower, the Lynx 2000, features zero turning radius and optional clippings pick-up.



With the Lynx 2000, the operator has the versatility of collecting clippings or, by changing a pin and removing a quick-change panel, clippings can be discharged back to the turf.

Changing from side-discharge to blower pick-up of clippings takes just a few seconds and can be done without tools.

The Lynx 2000 is powered by a 16hp Vanguard Twin engine and features twin hydro-ground drive with individual steering control to each wheel. Ground speed is from 0 to 6 mph forward and up to three

mph in reverse.

The three-blade deep draft cutting deck cuts a 42-inch swath, and cutting height can be adjusted from 1.5 to 4.5 inches in 1/4-inch increments.

Circle No. 194 on Reader Inquiry Card

Utility truck equipped with many user accessories

Jacobsen utility trucks are versatile enough to accommodate a variety of operator safety and comfort accessories.

For all-weather protection, a full cab



with windshield wiper is available on all three-quarter and half-ton Jacobsen trucks. All four models can also be equipped with front and rear turn signals.

Jacobsen's gas and electric Express trucks can be fit with a canopy with a canopy and windshield or a protective ball cage with plexiglass windshield. For added safety, a light bar kit is available for both models. An hour meter can be added to both. A charge meter is available for electric-powered trucks.

Circle No. 195 on Reader Inquiry Card

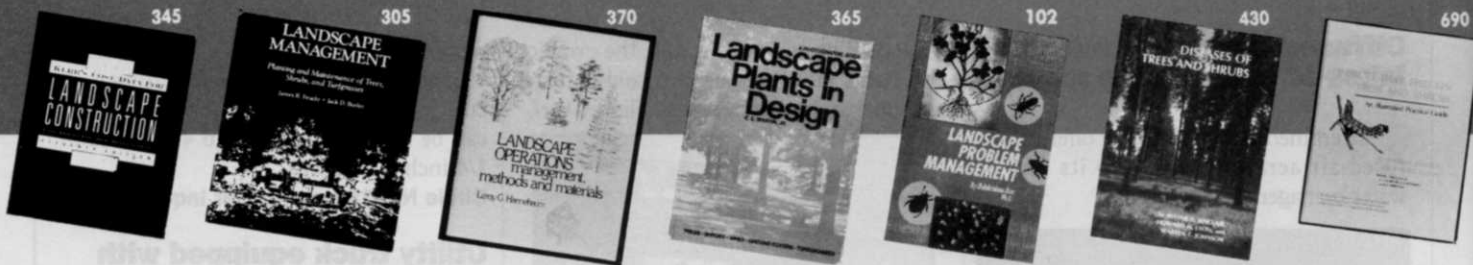
Fungicides now available in dry-flowable formula

Sierra Horticultural Products Company has introduced Vorlan turf fungicide and Fungo systemic turf and ornamental fungicide in safe and convenient dry flowable forms. New Vorlan DF and Fungo 85 DF provide excellent control of key diseases, including brown patch, fusarium blight, summer patch, necrotic ring spot and anthracnose. The dry-flowable forms are easy to dispense and packaged in small, space-saving cardboard boxes that do not require special disposal services.

Circle No. 196 on Reader Inquiry Card

LANDSCAPE MANAGEMENT

BOOKS



LANDSCAPE

345 – KERR'S COST DATA FOR LANDSCAPE CONSTRUCTION

by Norman L. Dietrich
Eleventh edition.
Gives you all the pricing data you need in one convenient source! Save hours on time-consuming research and calculations. Covers site, recreation and landscape development, plus specific data on materials, equipment, labor.

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305 – LANDSCAPE MANAGEMENT

by James R. Feucht and Jack D. Butler
Learn important principles of installed landscapes – tree, shrub and turfgrass soils and fertilizers, improved planting and pruning techniques, integrated pest and disease management, spray-equipment calibration and care.

\$42.95

370 – LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS

by Leroy Hannebaum
Combines technical training in landscape science with easy-to-understand accounting, business management, marketing and sales techniques – all in one handy volume! Covers lawn installation, landscape planting and maintenance.

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365 – LANDSCAPE PLANTS IN DESIGN

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

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102 – LANDSCAPE PROBLEM MANAGEMENT

by Balakrishna Rao, Ph.D.
Enjoyable and educational! Dr. Rao has revised and updated his popular "Problem Management" columns and arranged them in a convenient, categorized format. Dr. Rao sheds light on a wide range of questions.

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TREES & SHRUBS

430 – DISEASES OF TREES AND SHRUBS

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

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690 – INSECTS THAT FEED ON TREES AND SHRUBS

by Johnson and Lyon
Essential information on readily identifying more than 650 insect pests and recognizing the injuries they cause. Enhanced with more than 200 color illustrations.

\$52.50

720 – SHRUB IDENTIFICATION

by George Symonds
Pictorial key to shrub identification. Contains more than 3,500 illustrations. Popular and botanical names are given to each shrub. Handy index tabs for quick reference.

\$19.50

750 – TREE IDENTIFICATION

by George Symonds
Pictorial reference to tree identification. Illustrates leaves, buds, branches, fruit and bark. Like its sister publication, SHRUB IDENTIFICATION, popular and botanical names are listed with index tabs for easy reference.

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TURF

220 – CONTROLLING TURFGRASS PESTS

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

\$56.95

235 – LAWN CARE: A HANDBOOK FOR PROFESSIONALS

by H. Decker, J. Decker
An invaluable guide for playing field managers, golf course managers, lawn care practitioners. Written by turfgrass professionals, this handy reference covers all aspects of turfgrass management.

\$56.95

640 – TURF IRRIGATION MANUAL

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

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620 – TURF MANAGEMENT HANDBOOK

by Howard Sprague
Practical guide to turf care under both healthy and poor conditions. Covers special turf problems in cool and warm regions, fertilizer use, regular turf care, weed and disease control. Includes useful seasonal schedules.

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630 – TURFGRASS: SCIENCE AND CULTURE

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

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110 – TURF MANAGERS' HANDBOOK

by Daniel and Freeborg
Second edition. Entirely updated! Innovations resulting from research and practice have been added to reflect current techniques. Chapters on grasses, growth regulators and diseases have had extensive modification.

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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.

\$55.00



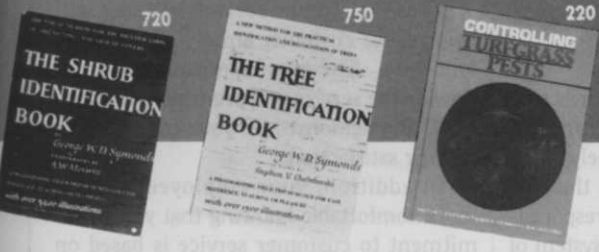
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ORE



LANDSCAPE PROBLEM MANAGEMENT

By Balakrishna Rao Ph.D.



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CUSTOMER SERVICE TIPS

Make time for service calls

by E.T. Wandtke

■ One of the most difficult tasks for a lawn service company is making time to follow up on customer service calls during the busiest times of the year. These scheduling conflicts will not disappear, but the following tips will help you to weather the customer service pressure easier:

1) Use the team approach. The team approach means that any employee is able to solve a customer service problem that's brought to their attention. Whenever a customer who needs help calls, the office can dispatch the nearest available service technician, even if the customer is not his.

2) Review the nature of service requests. When customer service requests and service delivery requirements are the highest, it is important to review and rank the type of customer service request being received.

Take the time monthly or biweekly to review and discuss the nature of service call requests and what can be done to reduce them. Use this review period as a time to reinforce your company's commitment to delivering the best service the first time you are on a customer's property.

3) Focus on quick attention to a service

call. Much of a lawn service company's customer service pressure comes from not attending to service calls on a timely basis, or from not communicating with the customer. Implement a "minimum response-time policy." Then put in place a system of written follow ups for the service calls to make certain the customer is satisfied with what you did to solve their service call request.

These customer service systems will help relieve customer anxiety over delayed follow-up. The team approach helps you provide the service you promise in the contract, and demonstrates your commitment to their satisfaction.

In addition, your employees will be more comfortable knowing that your commitment to customer service is based on the trust and confidence you have in their ability to solve a customer's problem.

GREEN INDUSTRY EVENTS

JUNE

17: Sports Turf Field Day, Talbot Theatre, University of Western Ontario, London, Ontario, Canada. Contact: Sports Turf Association, 82 Rodney Blvd., Guelph, Ontario, Canada, N1G 2H3; (519) 763-9431.

17-18: Midwest Grounds Management Conference, Miami University, Oxford, Ohio. Contact: Professional Grounds Management Society, 10402 Ridgland Road, Suite 4, Cockeysville, MD 21030; (301) 667-1833; or K. Havens, Miami University (513) 529-6786.

17-18: "Systems Approach to Practical Tree Care," by Dr. Alex Shigo, Holiday Inn on the Lane, Columbus, Ohio. Contact: Lana J. Ahlum, Ohio Chapter/International Society of Arboriculture, P.O. Box 967, Hilliard, OH 43026; (614) 876-3694.

18: Tree Pruning Seminar, University of California, Riverside. Speakers include Donald F. Blair, Dan Condon, Ken Dyer, Alden Kelley, Ted Stamen, Seymour D. Van Gundy, Guy Witney. Contact: Hartley Bennett, U.C.C.E. Seminar Coordinator, P.O. Box 414, Wickenburg, AZ 85358; (602) 684-7308.

22: Fourth Annual Golf Tournament, to benefit scholarship and research, Normanside C.C., Delmar, N.Y. Contact: Northeastern Golf Course Superintendents Association, P.O. Box 391, Latham, NY 12110; (518) 783-1322.

22-23: Park & Recreation Design Symposium, Baltimore, Md. Contact: National Institute on Park and Grounds Management, P.O. Box 1936, Appleton, WI

54913; (414) 733-2301.

24: Turfgrass Research Field Day, Turfgrass Research Facility, South Deerfield, Mass. Contact: Dr. Rich Cooper, Stockbridge Hall, Univ. of Mass., Amherst, MA 01003; (413) 545-2353.

JULY

1: Cornell Turfgrass Field Day, Pine Island, Orange County, N.Y. Contact: Cornell Cooperative Extension Education Center, Dillon Drive, Community Campus, Middletown, NY 10940; (914) 344-1234.

8-9: Pennsylvania Pesticide Institute meeting, The Embers, Carlisle, Pa. Contact: Pennsylvania Nurserymen's Association, (717) 238-1673.

12-14: Summer Meeting, National Fertilizer Solutions Association, Peabody Hotel, Memphis, Tenn. Contact: Kelly O'Brien-Wray, 339 Consort Dr., St. Louis, MO 63011; (314) 256-4900.

15: Nursery Field Day, Hampton Roads Agricultural Experiment Station, Virginia Beach, Va. Contact: Dr. Bonnie Appleton, 1444 Diamond Springs Rd., Virginia Beach, VA, 23455; (804) 363-3906.

15: Maryland Turfgrass Field Day, Cherry Hill Turfgrass Research Facility, Silver Spring, Md. Contact: Dr. Peter Dernoeden, Dept. of Agronomy, University of Maryland, College Park, MD 20742; (301) 405-1337.

16-19: Florida Foliage Association Annual Convention, Jupiter Beach Hilton. Contact: Ann King, Florida Foliage Association, P.O. Box 2507, Apopka, FL, 32704-2507; (407) 886-1036.

IN THE GREEN

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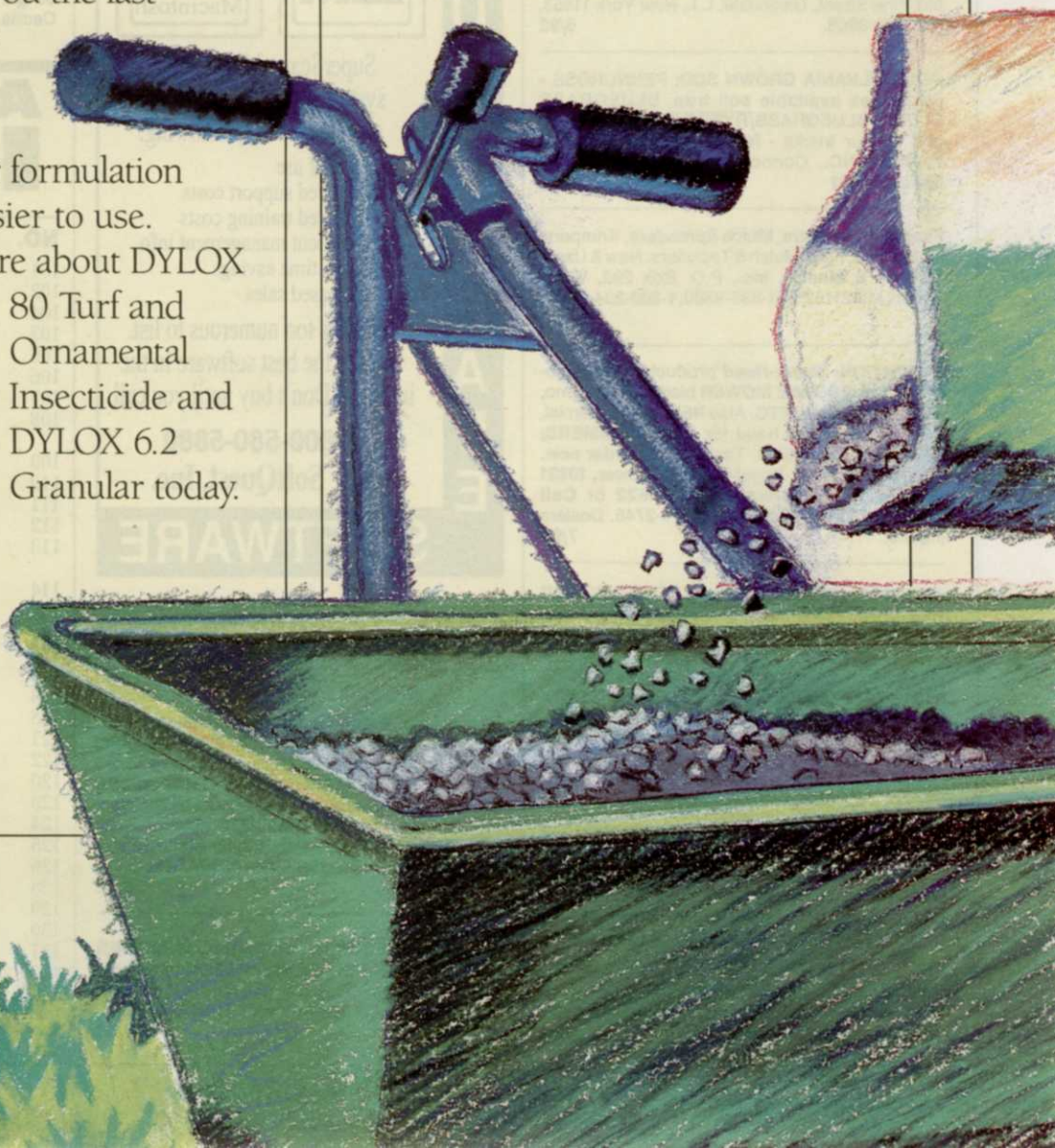
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