

LANDSCAPE MANAGEMENT

SERVING GOLF AND LANDSCAPE PROFESSIONALS

SCIENCE
DO NOT CIRCULATE

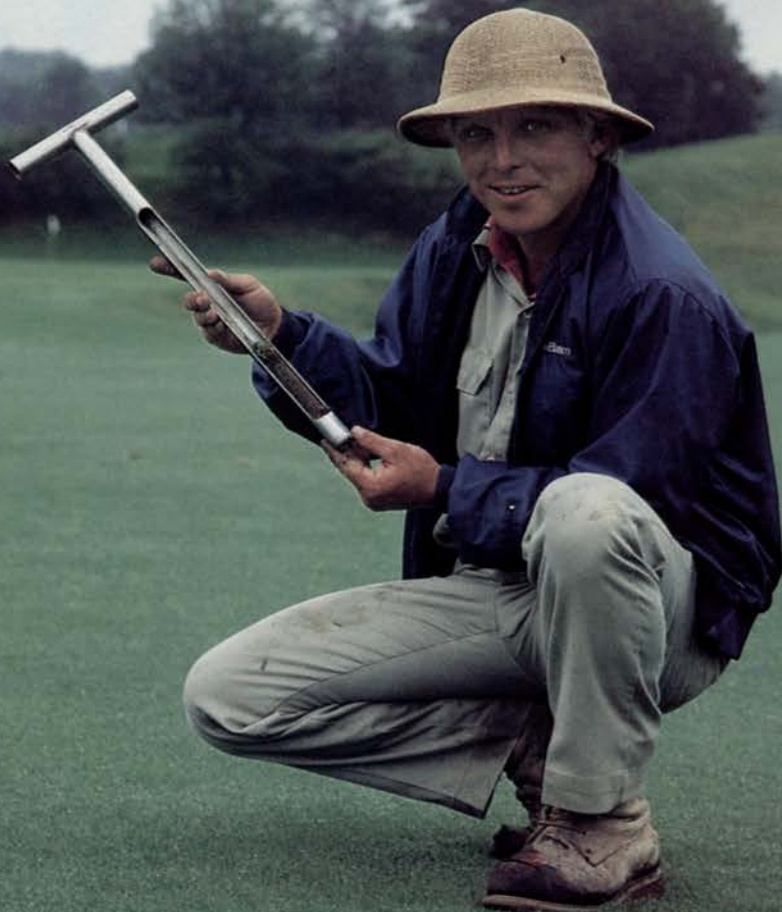
VERIFICATION EQUIPMENT

also:

- BENT VS. BERMUDA
- FALL FERTILIZATION GUIDE
- SELF-SUFFICIENT CREWS



**Penneagle/Penncross
Right on Course**



David Riedman, Superintendent, Crooked Stick GC, Carmel, Indiana.

When the 1991 PGA comes to Crooked Stick, the pros will be playing on 27 acres of Penneagle/ Penncross fairways.

Superintendent David Riedman is preening this exciting Pete Dye designed course for one of the major events in golf. His job: provide them with the best playing conditions possible. The turf the pros, as well as the club members, are pleased to play: Penneagle and Penncross.

To find out how David prepares 27 acres of Penn Pals bentgrass fairways for the PGA, call or write Tee-2-Green Corp. for a copy of our new 16 page booklet "Focus on Fairways", with comments by Byron Nelson and Patty Berg.

CROOKED STICK PREENS PENNEAGLE
AND PENNCROSS FOR THE 1991 PGA

FOCUS ON

Fairways

Tee-2-Green Corp.
PO Box 250
Hubbard, OR 97032
1-503-981-9574
FAX 503-981-5626
1-800-547-0255

LANDSCAPE MANAGEMENT



On the cover: Soil aeration is practiced by Grayling Ross of Custom Lawns in Olmsted Falls, Ohio. Photo by Wayne Rayburn, HW/R Productions.

22 COVER STORY: SOIL AERATION EQUIPMENT
by Jack Simonds. A wide variety of soil aeration tools have entered the market in recent years, filling every conceivable turf aeration need.

30 LEVELLING THOSE LOWBALLERS
by Terry McIver. In the Northeastern U.S., a 12-week season means that normal problems with lowballers are compressed and magnified. Successful landscapers still compete, though.

32 LATE-SEASON FERTILIZATION
by L.B. McCarty, Ph.D. Objectives of proper fertilization include year-round turf production, adequate vegetative growth and quality shoot growth.

38 SUPERS IN WARM-SEASON AREAS BEWARE!
by Jack Simonds. Bentgrass establishment in warm regions has never been—and probably never will be—easy. No matter how many golfers ask for it.

44 MANAGING STRESS
by Rudd McGary, Ph.D. Job stress is one of the banes of being a manager. But there are ways to relieve the day-to-day stress the job causes. Here are some suggestions.

48 SELF-SUFFICIENT CREWS
by Phil Christian. Front line people need to be empowered to respond to changes in our businesses. Highly productive, on-site crews can work to a higher standard than ever before.

DEPARTMENTS

- 4 As I See It...
- 8 Green Industry News
- 11 News Briefs
- 14 Athletic Turf
- 18 Info Center
- 20 Events
- 50 Jobtalk
- 53 Products
- 56 Classified
- 58 Ad Index
- 60 Problem Management

LM

Editorial Staff



Jerry Roche
Editor-in-Chief



Terry McIver
Mg. Editor

LM

Editorial Advisory Board



Doug Chapman
Horticulturist
Dow Gardens
Midland, MI



J.R. Hall
Extension Agronomist
VPI & SU
Blacksburg, VA



Kent Kurtz
Professor
Horticulture
Cal Poly-Pomona



Harry Niemczyk
Professor
Ohio State University
Wooster, OH



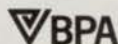
A. Marty Petrovic
Assoc. Professor
Cornell University
Ithaca, NY



A.E. Dudeck
Professor
Univ. of Florida
Gainesville, FL

LANDSCAPE MANAGEMENT (ISSN 0894-1254) is published monthly by Edgell Communications, Inc. Corporate and Editorial offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130. Advertising offices: 7500 Old Oak Boulevard, Cleveland, Ohio 44130, 233 North Michigan Avenue, 24th Floor, Chicago, Illinois 60601 and 3475 Lenox Road, N. E., Suite 665, Atlanta, Georgia 30326. Accounting, Advertising Production and Circulation offices: 1 East First Street, Duluth, Minnesota 55802. Subscription rates: \$30 per year in the United States; \$55 per year in Canada, all other countries: \$100 per year. Single copies (pre-paid only): \$3.00 in the U.S.; \$6.00 in Canada; elsewhere \$10; add \$3.50 per order for shipping and handling. Back issues, if available, \$10; add \$3.50 per order for shipping and handling (pre-paid orders only). Office of publication: Edgell Communications, Inc., 1 East First Street, Duluth, Minnesota 55802. Second class postage paid at Duluth, Minnesota 55806 and additional mailing offices. Copyright © 1991 by Edgell Communications, Inc. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.
Canadian G.S.T. number: R-124213133.

POSTMASTER: Send address changes to LANDSCAPE MANAGEMENT, P.O. Box 6198, Duluth, Minnesota







He gave our 1200 the test we couldn't

We couldn't go out and build 27 golf holes to test the durability of our 1200 Bunker and Field Rake. That's why we went to talk to John McWhite. Because that's exactly what McWhite did at the Buck Creek Golf Plantation near Myrtle Beach, South Carolina.

"The 1200 has been unbelievable," says McWhite. "I first looked at it wondering if it could even handle an 8-foot drag. We found it worked so well that we wound up

shaping much of the course with it before we were through.

"I used the 1200 to float all 27 greens.

I rough shaped them with a bulldozer and then went immediately to the 1200. It stood up to a tremendous amount of work and punishment.

"Nothing has the power or versatility of the 1200. You can use three implements at the same time with a blade in front, scarifier in the



The 1200's mechanical transmission and ability to carry a blade, cultivator and rake at the same time make it well-suited for both construction and bunker work.

middle and rake in the rear. A hydrostatic machine simply can't do what the 1200 can here.

"I've used the 1200 to move soil, prepare seedbeds, dig up roots, spread sand, smooth bunkers, and pull aerators. I still don't know what its limits are. I've never even seen its belt slip!"

For the name of your nearest distributor, or free literature on John Deere's Golf and Turf Equipment, call 1-800-544-2122 toll free or write John Deere, Dept. 956, Moline, IL 61265. Like John McWhite, we know you're going to like what you see.



NOTHING RUNS LIKE A DEERE®



A season for change?

"Turn, turn, turn," wrote The Byrds. "There is a season..."

The recent U.S. Supreme Court decision signals what could become an immense change in the way pesticide applicators are allowed to do business. Unless you've been on Mars, or had your head stuck in the sand for the past couple of months, you know that the high court ruling allows states and municipalities to enact regulations to supplement the Federal Insecticide, Fungicide and Rodenticide Act (see "Green Industry News").

This is not good news. As a matter of fact, it could put many small lawn care and landscape companies out of business.

Consider the plight of the company that applies pesticides to four or five large properties in each of six or seven communities. A worst-case scenario would have that company lobby its cause with six or seven city councils, comply with six or seven different sets of regulations, and maintain six or seven sets of application records.

How does the green industry cope with this action? Legally, there is no recourse to a Supreme Court decision. Well, maybe there is a viable alternative.

What the justices said with this decision is that the intent of FIFRA is to allow local regulations. This, then, is the law.

What we can read into the decision—a 9-0 whitewash at that—is that the judges are giving our U.S. Senators and Congressmen a much-needed kick in the pants. Since 1972, FIFRA has been a comprehensive regulatory statute that has been largely unworkable on many levels. The government's legislative branch has potted around for nearly six years now with proposed amendments that would make it a much more effective piece of legislation. But our law-makers have not yet been able to push through any of the much-needed changes.

The Supreme Court justices are telling the Senate and House: "You made the law. You don't like it, you change it."

It's the same message our legislators have been hearing for years from the agricultural community, the Environmental Protection Agency, the green industry, agricultural and chemical manufacturers, and just about everyone else with a vested interest in the application of pesticides.

Maybe one of these days our legislators will get the message. Until then, all the professional pesticide applicator can do is cross his or her fingers, then comply with the legislation that is bound to be passed by the Podunk Centers and Burgervilles of the country.

It's the law.

Jerry Roche, editor

EDITORIAL STAFF

Jerry Roche, Editor-in-Chief

Terry McIver, Managing Editor

Maureen Hrehocik, Group Editor

Office: 7500 Old Oak Blvd.

Cleveland, OH 44130

(216) 243-8100

FAX (216) 891-2675

MARKETING STAFF

Jon Miducki, Associate Publisher

Ann Langhenry, Central Sales Manager

Cynthia Gladfelter, Inside Sales Rep.

(216) 891-2658

Judy Allen, Group Marketing Manager

Bob Earley, Group Vice President

Office: 7500 Old Oak Blvd.

Cleveland, OH 44130

(216) 243-8100

FAX (216) 891-2675

Dick Gore, E. Coast Representative

Office: 3475 Lenox Rd. N.E.

Suite 665

Atlanta, GA 30326

(404) 233-1817

FAX (404) 261-7022

Bob Mierow, W. Coast Representative

Office: 1515 NW 51st Street

Seattle, WA 98107

(206) 783-0549

FAX (206) 784-5545

SUPPORT STAFF

Carol Peterson, Production Mgr.

Rosy Bradley, Sr. Production Mgr.

Ken McShane, Production Director

Dave Lynas, Graphic Design

Marilyn Copp, Circulation Super.

Lynn Viele, Directory Coordinator

Gail Parenteau, Reader Service Mgr.

Office: 120 W. Second St.

Duluth, MN 55802

(218) 723-9200

FAX: (218) 723-9223

David Komitau, Graphics Coordinator

Office: 7500 Old Oak Blvd.

Cleveland OH 44130

(216) 243-8100

Richard B. Swank, Chairman; Richard Moeller, President; Lars Fladmark, Executive Vice President; Arland Hirman, Vice President/Treasurer; James A. Adler, Vice President; Joe Bilderbach, Vice President; David T. Mayer, Vice President; Brian Nairn, Vice President; Phil Stocker, Vice President

A BLEND OF FOUR PREMIUM PERENNIAL RYEGRASSES FROM TURF-SEED, INC.
FOR WINTER OVERSEEDING, LAWN RENOVATION, ATHLETIC FIELDS AND PARKS.

ALLIANCE

BLEND

*Dark Green, Drought Tolerant, Insect
and Disease Resistant Turf... Naturally!*

Citation II

- Contains a high level of endophyte that enhances insect resistance.
- Very good resistance to leaf spot, brown patch, crown and stem rust, tolerance to red thread.
- Rich dark green color with good mowing quality.
- Excellent heat and wear tolerance.

Saturn

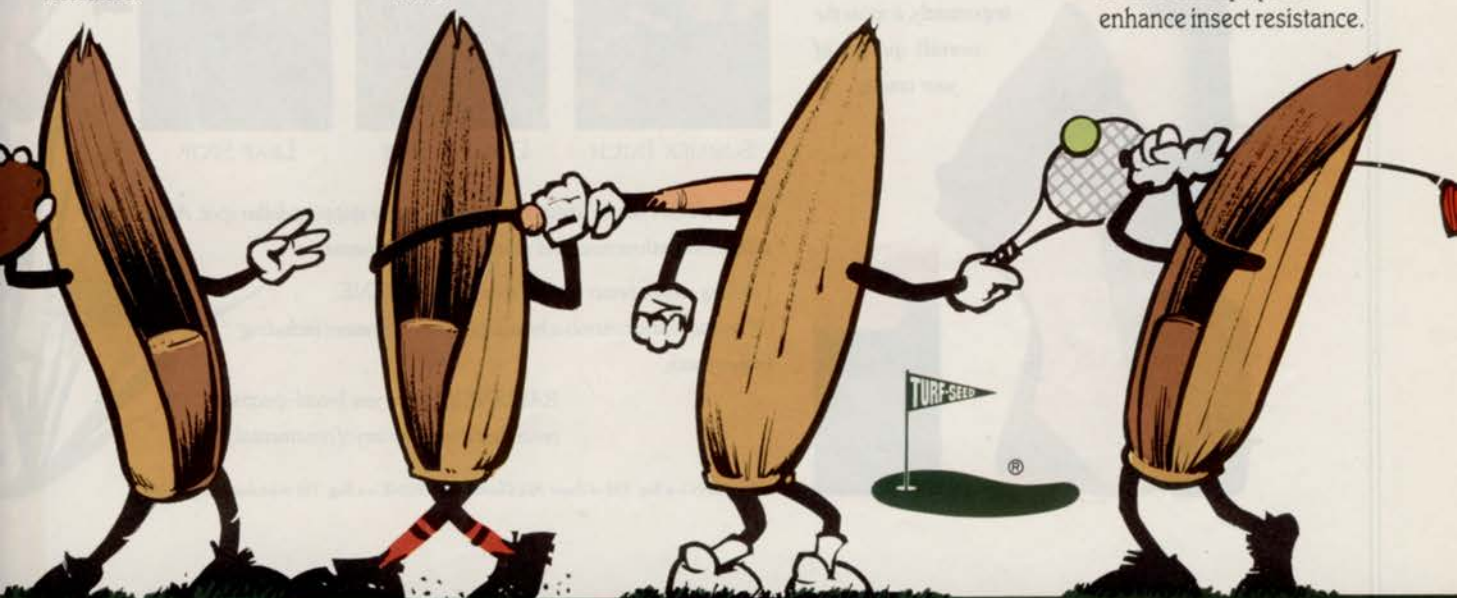
- The number 1 variety in the 1986 National perennial ryegrass trial.
- Dark blue-green colored low growing variety.
- Improved heat tolerance, and resistance to leaf spot, brown patch and stem rust.
- Very good performance in California overseeding trials.

Charger

- Improved resistance to leaf spot, brown patch, stem and crown rust. Tolerance to red thread.
- Good performance under low fertility and improved color and growth under cool weather conditions.
- Early maturity and tested as 2HH.

246 Sunrye

- Very dark blue-green colored turf-type variety.
- Dwarfier growth habit than other varieties in overseeding trials in Palm Springs area.
- Improved resistance to leaf spot, brown patch, and stem rust.
- Contains a moderately high level of endophyte to enhance insect resistance.



A BAYLETON AND DYRENE ALSO TURN YOUR



Treat your fairways with BAYLETON and DYRENE. It keeps your customers from tracking disease up on your tees and greens. More importantly, it raises the overall quality of your course.



For summer patch, nobody beats Mobay. BAYLETON provides superb control. And, Mobay can give you the information and practices to help keep this disease from coming back.



SUMMER PATCH



DOLLAR SPOT



LEAF SPOT

BAYLETON has an unequalled reputation for stopping dollar spot. And, it controls anthracnose and other major turf diseases.

Nothing works better on leaf spot than DYRENE. Of course it also controls a broad spectrum of diseases including brown patch.

BAYLETON gives you broad-spectrum control on a wide variety of ornamental plants.

BAYLETON is a Reg. TM of Bayer AG, Germany. DYRENE is a Reg. TM of Mobay Corporation.

FUNGICIDE PROGRAM WILL COLLEAGUES GREEN.



JUNE '91						
S	M	T	W	T	F	S
						1
	3	4	5	6	7	8
14	11	12	13	14	15	
21	22	18	19	20	21	22
28	29	30	26	27	28	29

BAYLETON is a powerful systemic. DYRENE is the only contact fungicide with its type of chemistry. Apply both as a program during the summer months.



Envy. You can see it in their eyes as they look at your tees, greens, and fairways. They may even start comparing. But deep down, you know they can't touch your course.



This kind of satisfaction starts with BAYLETON® 25 Turf and Ornamental Fungicide and DYRENE® 4 Turf Fungicide. Both have a long history of unparalleled performance.

Team them up for your premium fungicide program. They'll keep your course and colleagues turning green.

For more information contact your Mobay representative or Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120. (800) 842-8020.

Mobay 
A Bayer USA INC COMPANY

Circle No. 110 on Reader Inquiry Card

LANDSCAPE MANAGEMENT

LEGISLATION

High court says localities may regulate pesticides

WASHINGTON, D.C.—The U.S. Supreme Court ruled unanimously that local governments may regulate pesticide use on public lands, private lands subject to public use, or in aerial applications, as the final act of *Wisconsin Public Intervenor v. Mortier* was played out June 24th.

What does this mean for the professional pesticide applicator? According to Deb Strohmaier, director of public relations for ChemLawn: "It might not be as difficult to manage (for companies that) are just servicing one or two communities," but ChemLawn, for one, must be concerned about "all the individual possibilities in 45 states."

In two preceding court battles, representatives for the lawn care industry had argued that the 1972 Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) pre-empted such local regulation.

Allen James, executive director of Responsible



"Trouble" states where localities have tried in the past to pass local legislation, according to the PLCAA.

Industry for A Sound Environment (RISE), says the court determined that neither FIFRA's language nor its history "provided sufficient justification for pre-empting local regulation of pesticides."

"The decision creates an unworkable framework for the regulation of pesticides," says Ralph Engel, president of the Chemical Specialties Manufacturers

Association (CSMA). "Jurisdictions by the tens of thousands now have the authority to impose regulations."

Tom Dawson of the victorious Wisconsin Public Intervenor's office calls that "a garbage argument." He says that many town supervisors are themselves farmers, who would not inflict undue hardship on their own livelihoods.

Case Western Reserve University law professor William Marshall in Cleveland, Ohio—who is familiar with the case—says a salvo of new regulations will not necessarily follow the decision.

"All the opinion does is say that the federal law allowed for localities to engage in additional kinds of restrictions if they wanted to," says Marshall. "That's neither an incentive nor a disincentive for localities."

Strohmaier doesn't expect a rash of local action, but suspects certain areas of the U.S. previously active against pesticides to now be motivated further. Strohmaier suspects that more legislative activity will occur next spring, as companies gear up for the new season.

Dawson says he hopes that perhaps now the pesticide industry will agree to "help draft model ordinances."

—Terry McIver □

WASHINGTON, D.C.—What remains to be seen in the epilogue to the Wisconsin/Mortimer courtroom drama is the amount of legislative action to be taken by communities.

"The ruling," says CSMA's Ralph Engel, "makes it extremely important that Congress

Congress may intervene

once and for all closely re-examine the issue of local preemption, and expressly state in FIFRA that local jurisdictions are preempted from regulating pesticides—products that are already heavily and effectively regulated on a

national level."

Congress would certainly be pressured further to amend FIFRA, if what results is indeed a "patchwork quilt" of divergent laws. Justice Byron White, in writing for the court, concluded that "Congress

is free to find that local regulation does wreak havoc, and enact legislation with the purpose of preventing it."

Allen James says RISE will consider whether it will seek a FIFRA amendment immediately, or wait for localities to begin passing laws.

—T.M. □

Circle the Reader Service numbers of those items of interest to you.

NAME _____
 TITLE _____
 FIRM _____
 ADDRESS _____
 CITY _____
 STATE _____ ZIP _____

 TELEPHONE () _____

HAVE A SALES REP CALL ME (A)

101	118	135	152	169	186	203	220	237	254	271	288	305	322	339	356
102	119	136	153	170	187	204	221	238	255	272	289	306	323	340	357
103	120	137	154	171	188	205	222	239	256	273	290	307	324	341	358
104	121	138	155	172	189	206	223	240	257	274	291	308	325	342	359
105	122	139	156	173	190	207	224	241	258	275	292	309	326	343	360
106	123	140	157	174	191	208	225	242	259	276	293	310	327	344	361
107	124	141	158	175	192	209	226	243	260	277	294	311	328	345	362
108	125	142	159	176	193	210	227	244	261	278	295	312	329	346	363
109	126	143	160	177	194	211	228	245	262	279	296	313	330	347	364
110	127	144	161	178	195	212	229	246	263	280	297	314	331	348	365
111	128	145	162	179	196	213	230	247	264	281	298	315	332	349	366
112	129	146	163	180	197	214	231	248	265	282	299	316	333	350	367
113	130	147	164	181	198	215	232	249	266	283	300	317	334	351	368
114	131	148	165	182	199	216	233	250	267	284	301	318	335	352	369
115	132	149	166	183	200	217	234	251	268	285	302	319	336	353	370
116	133	150	167	184	201	218	235	252	269	286	303	320	337	354	371
117	134	151	168	185	202	219	236	253	270	287	304	321	338	355	372

LANDSCAPE MANAGEMENT
 AUGUST 1991
 This card is void after Oct. 15, 1991

MY PRIMARY BUSINESS AT THIS LOCATION IS:
 (PLEASE CHECK ONE ONLY IN EITHER A, B OR C)

A. LANDSCAPING/GROUND CARE AT ONE OF THE FOLLOWING TYPES OF FACILITIES:

- 0005 Golf courses
- 0010 Sport complexes
- 0015 Parks
- 0020 Rights-of-way maintenance for highways, railroads & utilities
- 0025 Schools, colleges & universities
- 0030 Industrial & office parks/plants
- 0045 Condominiums/apartments/housing developments/hotels/resorts
- 0050 Cemeteries/memorial gardens
- 0060 Military installations & prisons
- 0065 Airports
- 0070 Multiple government/municipal facilities
- Other type of facility (please specify) _____

B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:

- 0105 Landscape contractors (installation & maintenance)
- 0110 Lawn care service companies
- 0112 Custom Chemical Applicators
- 0125 Landscape architects
- 0135 Extension agents/consultants for horticulture
- Other contractor or service (please specify) _____

C. SUPPLIERS:

- 0205 Sod growers Other supplier (please specify)
- 0210 Dealers, Distributors

What is your title? (please specify) _____

I would like to receive (continue receiving) LANDSCAPE MANAGEMENT each month: YES NO

Your Signature: _____ Date: _____

Circle the Reader Service numbers of those items of interest to you.

NAME _____
 TITLE _____
 FIRM _____
 ADDRESS _____
 CITY _____
 STATE _____ ZIP _____

 TELEPHONE () _____

HAVE A SALES REP CALL ME (A)

101	118	135	152	169	186	203	220	237	254	271	288	305	322	339	356
102	119	136	153	170	187	204	221	238	255	272	289	306	323	340	357
103	120	137	154	171	188	205	222	239	256	273	290	307	324	341	358
104	121	138	155	172	189	206	223	240	257	274	291	308	325	342	359
105	122	139	156	173	190	207	224	241	258	275	292	309	326	343	360
106	123	140	157	174	191	208	225	242	259	276	293	310	327	344	361
107	124	141	158	175	192	209	226	243	260	277	294	311	328	345	362
108	125	142	159	176	193	210	227	244	261	278	295	312	329	346	363
109	126	143	160	177	194	211	228	245	262	279	296	313	330	347	364
110	127	144	161	178	195	212	229	246	263	280	297	314	331	348	365
111	128	145	162	179	196	213	230	247	264	281	298	315	332	349	366
112	129	146	163	180	197	214	231	248	265	282	299	316	333	350	367
113	130	147	164	181	198	215	232	249	266	283	300	317	334	351	368
114	131	148	165	182	199	216	233	250	267	284	301	318	335	352	369
115	132	149	166	183	200	217	234	251	268	285	302	319	336	353	370
116	133	150	167	184	201	218	235	252	269	286	303	320	337	354	371
117	134	151	168	185	202	219	236	253	270	287	304	321	338	355	372

LANDSCAPE MANAGEMENT
 AUGUST 1991
 This card is void after Oct. 15, 1991

MY PRIMARY BUSINESS AT THIS LOCATION IS:
 (PLEASE CHECK ONE ONLY IN EITHER A, B OR C)

A. LANDSCAPING/GROUND CARE AT ONE OF THE FOLLOWING TYPES OF FACILITIES:

- 0005 Golf courses
- 0010 Sport complexes
- 0015 Parks
- 0020 Rights-of-way maintenance for highways, railroads & utilities
- 0025 Schools, colleges & universities
- 0030 Industrial & office parks/plants
- 0045 Condominiums/apartments/housing developments/hotels/resorts
- 0050 Cemeteries/memorial gardens
- 0060 Military installations & prisons
- 0065 Airports
- 0070 Multiple government/municipal facilities
- Other type of facility (please specify) _____

B. CONTRACTORS/SERVICE COMPANIES/CONSULTANTS:

- 0105 Landscape contractors (installation & maintenance)
- 0110 Lawn care service companies
- 0112 Custom Chemical Applicators
- 0125 Landscape architects
- 0135 Extension agents/consultants for horticulture
- Other contractor or service (please specify) _____

C. SUPPLIERS:

- 0205 Sod growers Other supplier (please specify)
- 0210 Dealers, Distributors

What is your title? (please specify) _____

I would like to receive (continue receiving) LANDSCAPE MANAGEMENT each month: YES NO

Your Signature: _____ Date: _____



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 665 DULUTH, MINNESOTA

POSTAGE WILL BE PAID BY ADDRESSEE

READER SERVICE DEPARTMENT

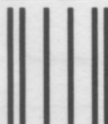
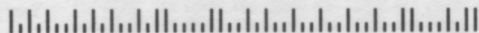
**LANDSCAPE
MANAGEMENT**

POST OFFICE BOX 6049
DULUTH, MINNESOTA 55806-9843

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



GET
MORE
FACTS



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 665 DULUTH, MINNESOTA

POSTAGE WILL BE PAID BY ADDRESSEE

READER SERVICE DEPARTMENT

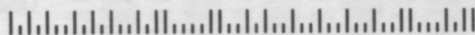
**LANDSCAPE
MANAGEMENT**

POST OFFICE BOX 6049
DULUTH, MINNESOTA 55806-9843

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



GET
MORE
FACTS



It's time to act—now!

HAZELTON, Pa.—PLCAA president Neal DeAngelo of Lawn Specialties expects the Supreme Court's ruling to have "immediate impact" as local municipalities resurrect past, failed initiatives. An example is Pennsylvania's Packer Township, which tried to initiate a pesticide ban 18 months ago.

Although DeAngelo expects "some activity" in the way of ban initiatives, he does not believe pesticide bans will ever catch on.

DeAngelo insists that industry must take "immediate action," preferably by joint efforts between the PLCAA and state lawn care associations.

"If we can nip a lot of these (proposed laws) in the bud, and stop them from ever beginning in the



Neal DeAngelo

first place," says DeAngelo. "I think we'll do our industry a great service."

DeAngelo says associations need financial support and time commitments to relay information, "whether it's just brochures, whether it's video tape programs, something that they can take to their local garden clubs and rotary clubs and borough officials to help educate them." —T.M. □

PESTICIDES

Pro golfer questions source of health woes: could it be pesticides?

An Oregon professional golfer has been told his health problems may be the result of pesticide ingestion from the course. However, questions remain about the mysterious case which has set off some alarms in the golf and green industries.

Golfer Peter Jacobsen has said his symptoms of dizziness, listlessness and fatigue may not be a sinus condition, but rather linked to the practice of putting golf tees into his mouth after they'd been used on the turf surface.

Jacobsen's case figured centrally in a mid-June (Salem, Ore.) editorial which condemns chemical use in many lawn care operations, terming his case a "living example of a problem that few realize and even fewer want to acknowledge: the danger of a perfect lawn."

According to Oregon Golf Course Superintendents Association president Dick Malpass, Jacobsen learned from a homeopathic doctor that some phosphosore E has settled in his liver. But Malpass says he has checked with Oregon State University officials who have told him that they'd not heard of the substance.

"We're just keeping our fingers crossed, waiting to see how this will be resolved," said Malpass in mid-June. "We've put out feelers. The main thing now is to find out if there is just such a chemical."

Therein lies the mystery.

Oregon State University toxicologist Terry Miller, contacted by Malpass, says he has never heard of phosphosore E.

"I can't find it anyplace,"

to page 12

NEWS BRIEFS

RETIREMENT INVESTMENTS...Alabama has come up with a unique idea for developing new high-quality public golf courses: let state employees invest retirement funds. At least 12 championship-caliber courses are now planned. "Golf courses are a sound investment, so we've taken a leadership role in their development and construction," says Dr. David Bronner, CEO of Retirement Systems of Alabama.

ON TO DALLAS...The Golf Course Superintendents Association of America has moved its 1994 conference and show from Houston to Dallas. The show, Jan. 31 to Feb. 7 three years hence, was moved because it outgrew Houston's George R. Brown Convention Center.

A UNIQUE IDEA...The Grounds Management Association of Wisconsin added a unique public relations tool this year: sponsorship of a poster contest titled "Benefits of Turf." The competition was open to any sixth- through eighth-grader in the state, and 500 posters were received. Winners at each level received \$200 savings bonds, and the grand prize winner received an all-expense paid family trip to a Milwaukee Brewers baseball game, hosted by Brewers grounds manager Gary Vandenberg.

A NATIONAL CELEBRITY...Bill Thornton, president of Thornton Environmental Industries, Maineville, Ohio, has been named to the board of directors of the National Federation of Independent Business. The NFIB is the nation's largest small-business advocacy organization, headquartered in Washington, D.C. Founded in 1946 by Thornton's father, the company employs more than 150 people during the peak landscaping season.

AWARD-WINNERS...Nichols Lawn Service of Wichita, Kan. and the F.A. Bartlett Tree Expert Co. of Stamford, Conn. were recently winners of prestigious awards. Nichols was named 1991 Prime Contractor of the Year for four states by the Small Business Administration. President Larry Nichols was honored two months ago in Washington, D.C. Bartlett was one of four corporate recipients of the Green Star award presented by the Environmental Action Coalition of New York, N.Y. President Robert A. Bartlett Jr. accepted the award for the company's urban and suburban tree preservation programs.

'OVER THERE'...George Toma of Kansas City, turf consultant to the NFL, has been helping prepare playing surfaces in Japan and Germany this summer. Japan was to host an exhibition game between the Denver Broncos and the Seattle Seahawks on Aug. 4. Kansas City was to play the Los Angeles Rams there on Aug. 11. When Toma visited Tokyo's MacArthur Park, he was greeted by Tokyo Parks Department and other officials.

LM

GOLFER from page 11
but that doesn't necessarily mean it doesn't exist," says Miller.

He says he checked with the distributor of an insecticide believed to be the problem, as well as with the original supplier, but neither source had heard of the compound. Neither had a turf profes-

sor at the university.

The June 13 "Statesman-Journal" editorial, entitled "Oregon golfer an example...Perfect lawn can make you ill," says the Jacobsen case exhibits "what problems youngsters might have with toys, balls and other objects that have rolled about in their own yards." □

PRODUCTS

EPA registers new pre-, post-emergent

ST. LOUIS—Dimension herbicide, manufactured by Monsanto, received EPA registration in June.

Dimension controls crabgrass, goosegrass, fox-tail, spurge, oxalis and other weeds.

Product manager Jim Budzynski says it may be used for pre- and post-emergence weed control.

The active ingredient in Dimension, dithiopyr, is environmentally desirable in part because of low use

rates, the company says.

Budzynski says Dimension has provided longer crabgrass control than other pre-emergence herbicides, and does not interfere with fall overseeding.

Dimension can be applied over a wide variety of turfgrasses without damage to foliage or root systems, Monsanto says. The herbicide will also not injure ornamentals near treatment areas, according to the company. □

TURFSEED

New burning fees won't hurt buyers

TANGENT, Ore.—New field burning fees charged to seed harvesters will apparently have little immediate effect on seed prices.

"I don't think you'll see dramatic changes in prices," says Dave Nelson of the Oregon Fine Fescue Commission, which negotiated the fee system with state legislators.

"The cost to farmers will probably go up by as much as \$35 an acre," says Nelson. "On a 1000-pound yield, that's going to be 3-1/2 cents a pound."

Jim Enyart of Turf Seed, Inc., is more cautious. He says it's too early to say which way prices will go. But he sees no drastic change in prices this year.

"Until we get some viable alternatives (to burning), it's hard to say. Everybody's talking like

it's going to drive the price up, but I'd reserve judgement until we have to start reducing the burning."

This year under the new fee schedule, 180,000 acres may be burned and 75,000 acres may be propane flamed, each at a cost of \$8 an acre. Burnable acreage will decrease to 40,000 by 2001 when an additional 75,000 acres may be propane flamed, provided particulate matter discharge does not go beyond a proscribed minimum.

"There will be more stability over the long run, but not much effect on prices in the short run," says Steve Tubbs of Turf Merchants, Inc.

Tubbs says the burn legislation might ultimately hurt bluegrass yields, because burning is especially beneficial to bluegrass. □

Olathe TURF CARE EQUIPMENT

Field Proven Equipment For Turf Care Professionals!

Reliable and durable Olathe equipment has been helping turf and grounds maintenance professionals maintain large turf areas for over 18 years!

Model 61

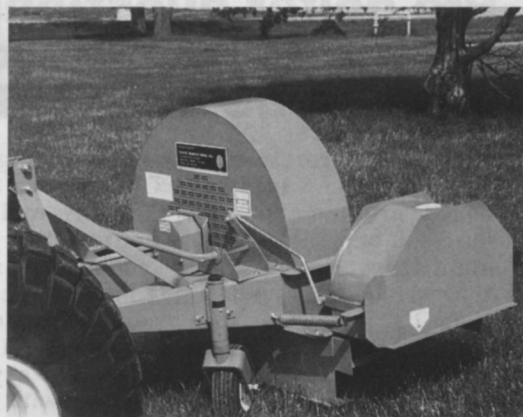
Leaf & Debris Blower

PTO-powered, 3-pt. hitch heavy-duty blower. Hurricane velocity air blast easily blows leaves, grass clippings, trash and light snow into windrows ... cutting clean-up time. Removes debris and moisture from turf areas, greens/tees, playing fields and relocates dirt and debris from roads and drives.

Model 31

Leaf and Debris Loader

Powerful 20 and 24 hp units for easy pick up and loading of leaves, grass and debris from turf and pavement into a loading vehicle. Trailer mounted with 12" intake on a 9' extension hose to reach hard-to-sweep areas. Ideal for golf courses, parks, contractors and governmental agencies.



Model 61

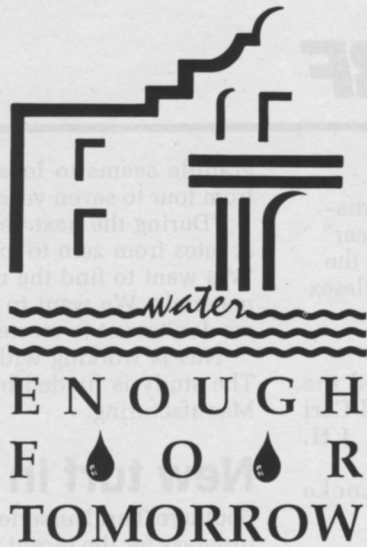


Model 31

OLATHE MANUFACTURING, INC.

100 INDUSTRIAL PARKWAY, INDUSTRIAL AIRPORT, KANSAS 66031
913-782-4396 FAX 913-764-1473

Circle No. 120 on Reader Inquiry Card



The Irrigation Association's 1991 International Irrigation Exposition and Technical Conference

November 10-13, 1991
Convention Center
San Antonio, Texas

The place to be if you're involved in irrigation...

This is the only Exposition that is devoted
Exclusively to Irrigation...

It's the showcase for the industry's finest products and services...

*The best event of the year for the
irrigation professional...*

The conference offers the latest information on irrigation
technologies and business strategies...

These in-depth sessions are given by the industry's leaders
and cover the issues that matter to you...

Name _____

Company _____

Address _____

City _____

State _____ Zip _____

Country _____

Tel/Telex/Fax _____

____ Also send exhibitor information.



The Irrigation Association

For more information contact:

The Irrigation Association at (703) 524-1200

Return to: The Irrigation Association

1911 North Fort Myer Drive, Suite 1009
Arlington, VA 22209-1630

Tel: (703) 524-1200 • Fax: (703) 524-9544

Telex: TWX 910-250-8332 IRRIG ASSOC UQ

Circle No. 108 on Reader Inquiry Card

ATHLETIC TURF

Paying dividends

The high school coach whose student-built ball diamond was named Beam Clay "Diamond of the Year" now has a new 30-inch reel mower for grooming the infield turf. It was delivered as a gift to the Middlesex County Vocational-Technical School in East Brunswick, N.J. by Locke Mowers Inc.

Locke vice president **Ian Burden** presented the mower to Coach **Ray Cipperly**, school principal **Carl J. Klumb** and school superintendent **Dr. J.H. Zanzalari**.

Coach Cipperly also has an 87-inch Locke Professional mower.

Bounce per pounce

Dr. **Jeff Nus** of Kansas State University is studying a way to add "mini-shock absorbers" to the rootzones of practice football and soccer fields that may otherwise become compacted.

Nus has a granulated polymer that resembles triple-strength gelatin when water is added to it. After one year of applying the polymer to Manhattan, Kansas's Frank Anneberg Sports Complex fields via aeration, soil compaction has been reduced.

The polyacrylamide granules, each about the size of a BB, can absorb from 50 to 1,000 times their weight in water. When added to turf, the expanding

granule seems to loosen the soil. They stay active from four to seven years.

"During the next year, we'll be adding acrylamide at rates from zero to extremely high rates," Nus says. "We want to find the upper limit for the use of these materials. We want to soften playing field some, but we don't want to create a marsh, either."

Nus is working with graduate student **Mike Boaz**. The study is funded by a \$20,000 grant from Olathe Manufacturing.

New turf in Atlanta

Southern Turf Nurseries was chosen to provide new turfgrass for the recent field renovation of the Atlanta-Fulton County Stadium. The renovation was undertaken to rectify problems caused by non-sports events.

Tifway 419, overseeded with Laser *Poa trivialis* was chosen by Southern's turf consultant **Turner Gibson** and his team of division manager **Steve Mathis** and project manager **Steve Quinn**.

The new field was changed from a baseball/football combination field with a crown to a traditional baseball configuration, which is a level grade.

Ed Mangan, new field manager for the Atlanta Braves who most recently was field manager for the Kansas City Royals' spring training facility in Florida, is now in charge of maintenance. **LM**



Pioneers of top dressers since 1961

TURFCO

Self-propelled, truckster mounted, and 5th wheel hitch models also available.

Call for free demonstration or videotape.

Turfco Mfg. Inc., 1655 101st Ave. NE, Minneapolis, MN 55434
Phone (612) 785-1000 Fax (612) 785-0556

The TOP Top Dresser Mete-R-Matic III

95% Customer Satisfaction

Course superintendents know who's the best. Surveys show they choose Turfco's Tow-Type Top Dresser for superior performance. The new Mete-R-Matic III Tow-Type lowers PSI by one-third with its unique ground-driven design. It's the best Turfco top dresser yet!



- Huge 22.5 cu. ft. capacity
- New 6-wheel design lowers PSI
- Distributes evenly
- Ground driven, no engine, no hydraulics

When you want the best . . .
get a **TURFCO**

Circle No. 129 on Reader Inquiry Card

**"Are you kidding? Spray herbicide
over the top of my flowers?"**

Surflan* proved I could."

Cynthia Harper
Color Burst, Atlanta, Georgia

Ritz-Carlton, Buckhead
Atlanta, Georgia

© 1990 DowElanco

"I was hesitant to try it at first. I thought, surely, there would be some injury to my flowers. But Surflan herbicide convinced me otherwise. It didn't harm them at all when we sprayed directly over the top.

"Surflan wasn't so gentle to the weeds. We used to have a real problem with crabgrass and foxtails. We'd have to go in and pull them all by hand. It was so time-consuming. I figured I was paying close to \$50 for each thousand square feet just for labor.

"But with Surflan, the job took only minutes. And cost me less than \$1.50 for what used to cost me almost \$50.

"Surflan also took care of our oxalis and chickweed. And many other problem weeds, too. For almost eight months."

Prove Surflan for yourself. Get full details in our free technical guide on Surflan. Just call toll-free: **1-800-729-3693, ext. 7612.**



DowElanco

*Trademark of DowElanco



EXPLORE HOW DYLOX RE PROGRAM AND YOU'LL DISCOV



DYLOX stops grubs in 24 to 48 hours. Nothing works faster.

To identify grub infestation, look for wilted or dying turf. The pruned roots make it easy to pull back the turf like carpet.



Choose DYLOX Insecticide in a soluble powder or now in granular form.

DYLOX doesn't have the restrictions that limit other products. You can treat tees and greens as well as fairways.

In addition to grubs, DYLOX controls cutworms, sod webworms and armyworms.

DYLOX is a Reg. TM of Bayer AG, Germany.
© 1991 Mobay Corporation 911462



JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.

You'll find grubs at various depths according to their development, soil moisture and temperature.

Scout and document grub populations, then time applications accordingly. This eliminates unnecessary applications.

LATES TO A PRE-DAMAGE ER SOME IMPRESSIVE LINKS.



Irrigate a day prior to treatment. Water in an application to a depth of 1 to 1½ inches.

DYLOX controls all species of white grubs including the Japanese Beetle and the Black Turfgrass Ataenius Beetle.



Top grub control experts agree that a pre-damage program offers the most effective and efficient use of insecticide. Of course, you need a product that works fast after you identify a problem and before damage occurs.

Look how DYLOX® Insecticide fits. It doesn't require the lead time other insecticides need to control grubs. Nothing stops grubs faster.

Connect DYLOX with your pre-damage program. And discover some impressive links of your own.

For more information contact your Mobay representative or Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120. (800) 842-8020.

Mobay 
A Bayer USA INC COMPANY

Circle No. 111 on Reader Inquiry Card

INFO-CENTER

CRABGRASS CONTROL...A 10-minute video on strategies for controlling crabgrass with Acclaim 1EC herbicide is available from Hoechst-Roussel Agri-Vet free to lawn care operators. To receive a copy, write to: Crabgrass Control Strategies, 3343 Peachtree Rd., Suite 1220, East Tower, Atlanta, GA 30326.

ON THE ENVIRONMENT...Golf superintendents who have been frustrated by negative reports about golf courses now have "Links with Nature," a 14-minute video to help respond to misconceptions about golf course management. Price is \$20 for GCSAA members and \$30 for non-members. To order, call (913) 832-4480.

WESTERN WEEDS...More than 300 weeds found in 12 western states have been identified in a new book available through the New Mexico State University Cooperative Extension Service. "Weeds of the West" is directed at anyone with weed problems. Copies are \$19.50 each. To order, phone Diane Lopez at (505) 646-5280.

PESTICIDE DIRECTORY...Thomson Publications has released its newly-revised "1991 Pesticide Directory." Cost is \$75 plus tax. For ordering information, write P.O. Box 9335, Fresno, CA 93791 or phone (209) 435-2163. Thomson's fax number is (209) 435-8319.

ON MOWER SAFETY...A 20-minute video on commercial mower safety and preventive maintenance is available for \$15 (plus sales tax in Illinois and Iowa). To order, phone (800) 544-2122 or write to: Responsible Front Mower Operation (DS0457), John Deere & Co., Distribution Service Center, Safety Films Dept., 1400-13th St., East Moline, IL 61244. Credit card and money orders are accepted.

COST ESTIMATING...The University of Georgia Cooperative Extension Service has a revised 3.2 version of Hort Management computer cost estimator for landscape managers. It operates on SuperCalc 4 or SuperCalc 5 software which must be purchased through private vendors. The program can be purchased by sending \$10 to: Extension Ag Economics Dept., Hort Management Software, The University of Georgia, Athens, GA 30602.

A CHEMICAL REFERENCE..."Turf & Ornamental Chemicals Reference" is available through the Professional Lawn Care Association of America for September shipment. Cost is \$95 for approximately 1200 pages of information. Send your check payable to the PLCAA to: Turf & Ornamental Chemicals Reference, 1000 Johnson Ferry Rd. NE, Suite C-135, Marietta, GA 30068-2112. **LM**

REDUCE WATER COSTS, INCREASE TURF QUALITY

with

ISOLITE
POROUS CERAMICS

for Root Zone Modification

THE **ISOLITE** (ees-o-lite) ADVANTAGE

- Upward to 50% water savings
- Remarkable water holding capacity permanently solves drought problem areas.
- Relieves compaction permanently - hard porous granules will not compress.
- Environmentally safe - will not effect soil chemistry.
- Hard ceramic granules - will not breakdown, shrink or swell in the soil.
- 70% porosity - holds water against gravitational and evaporative loss, but releases it to the root.
- Extremely low C.E.C. (1.2-1.9 meq/100g) - will not tie up nutrients.
- Low bulk density (.5~.6 g/cc) - improves both water and air permeability.
- Low E.C. (.1~.4 mmhos/cm) helps to eliminate salts.

For information on **ISOLITE** or a Distributor in your area,

CALL NEW GOLF CONCEPTS, INC.

1-800-533-7165

THOUSANDS OF SUPER CLEAN, WELL MAINTAINED 14', 18', 22' & 24' CLOSED BOX MODELS AVAILABLE.

**SPECIAL
LIMITED TIME
OFFER**



USED TRUCK SPECIFICATIONS

ITEMS	MEDIUMS		1-TON
ENGINE	366 V8	366 V8	350 V8
FRONT AXLE	7,000	7,000	9,000
REAR AXLE	17,000	17,000	18,500
TRANSMISSION	5-SPEED	5-SPEED	5-SPEED
BODY	18' FRP	22' FRP	24' FRP
STEERING	POWER	POWER	POWER
FUEL TANK	50 GAL.	50 GAL.	50 GAL.
DOORS	ROLL-UP	ROLL-UP	ROLL-UP
TIRES	10-22.5	10-22.5	11R-22.5
WHEELS	DISC	DISC	DISC

"LOTS OF MILES LEFT"

**LET US LOCATE AND PROVIDE
THE RIGHT TRUCK FOR YOU...
NOW WITH AVAILABLE 9.9%
FINANCING FROM GMAC***

GMC Truck not only can find the right used truck for your job requirements, but now can provide this attractive 9.9% APR GMAC financing rate (to qualified buyers) to make these used trucks even more affordable to you.



6.0 LITER V8 ENGINE

All of the Medium used trucks are equipped with this proven engine generating 200 SAE Net Horsepower at 3800 RPM. Combine that with 300 (lb/ft) of torque at 3200 RPM (SAE Net) and you have a truck that can meet some of the most demanding load requirements. **



DRIVER MINDED COMFORT

All of the Medium trucks were designed to support the driver during those long hours on the road. Each truck is equipped with a full bench seat, full gauge instrumentation, sound deadening materials to reduce noise, 3 safety belts and a forward folding seat back.

CALL NOW AND LET US FIND THE RIGHT TRUCK FOR YOU

1-800-843-6900

** Trucks equipped with California emissions have slightly different net H.P. and net torque ratings.

Circle No. 105 on Reader Inquiry Card

* CALL 1-800-843-6900 FOR QUALIFICATION DETAILS.

Dealer financial participation may affect purchase cost.

LEGISLATION

Local pesticide regs tough to enforce, don't make sense

MAYFIELD VILLAGE, Ohio—Enforcement of a pre-notification law here has authorities, LCOs and homeowners confused.

"The ordinance...is really quite unenforceable," says Phil Fogarty, president of the Ohio Lawn Care Association and Crowley Lawn Service, Inc. in Cleveland. The company

operates in the village.

"I don't know how we're going to police it," says Gus Amendola, Mayfield's building commissioner charged with enforcing a 1987 pre-notification law. That law requires that all abutting property owners be given 24 hours notice before pesticide applications by

either professionals or homeowners.

According to law director, Fred P. Ramos, applicators will be notified of the law: "We want to be fair. We don't want to be citing people tomorrow, says Ramos."

Amendola says he was told to start enforcement immediately.

"I'm a little skeptical," says Amendola, "because the 24-hour notice will be difficult." He expects notices to be placed in

mailboxes. "Someone could put the notice in the mailbox at 2 o'clock in the morning and then come back and spray at 8 a.m. How do I know what time they (put the notice in the mailbox.?)"

Citizens who work during the day are another concern. "People will not get their mail until they come home," Amendola points out.

Also, it's against federal law to place non-mailed items in mailboxes.

Fogarty is trying to come up with a sensible ordinance that can be used in Mayfield and surrounding communities. "I'm attempting to get these cities to sit down with the industry and environmental people and work something out," he says. Fogarty admits that he has a tough job when it comes to seeking suitable pesticide ordinances. The co-host of a gardening radio show, Fogarty is bringing 2,4-D developer, Wendell Mullison, to town. The plan was to have Mullison meet with local officials, yet one mayor up for reelection this fall told Fogarty that he wouldn't be seen in public with Mullison.

Fogarty still hopes a solution can be negotiated. "I'm trying to get something accomplished, not draw battlelines," he says.

—Jim Guyette □

TURF • TYPE
OREGON TALL FESCUE
SEED FROM OREGON

Beautiful or Functional

Have them both! Rich, green Turf Type Tall Fescue gives you the beauty you want with a minimum of care.

Excellent for lawns, play areas, parks, airfields, roadways, golf courses and industrial sites.

Proven disease resistant, Oregon Grown Tall Fescue seed produces an adaptable, weed free turf that not only persists through summers and winters, but maintains its beauty.

Insist on Turf Type Tall Fescue seed grown in Oregon.

For more information contact your seed dealer, or write to:
OREGON TALL FESCUE COMMISSION
866 Lancaster Dr. SE, Salem, Oregon 97301
Phone: (503) 585-1157

EVENTS

AUGUST

13: Associated Green Industries of Northeastern Ohio summer field day, Great Lakes Evergreens, Madison, Ohio. Contact: AGI, (216) 572-2784.

15: The Wisconsin Nurserymen's Association, summer field day and trade show, Lied's Nursery Farms, Sussex, Wisc. Contact: (414) 246-7445.

21: Michigan Nursery and Landscape Assoc., field day, The Cottage Gardens, Inc., Lansing, Mich. Contact: MNLA, 819

continued on page 50

News from Monsanto...

ROUNDUP[®]

HERBICIDE

PRICE CUT

\$22

ON 2 $\frac{1}{2}$ 'S!

Monsanto has lowered the price of Roundup[®] herbicide by \$22 on the 2 $\frac{1}{2}$ gallon container size!

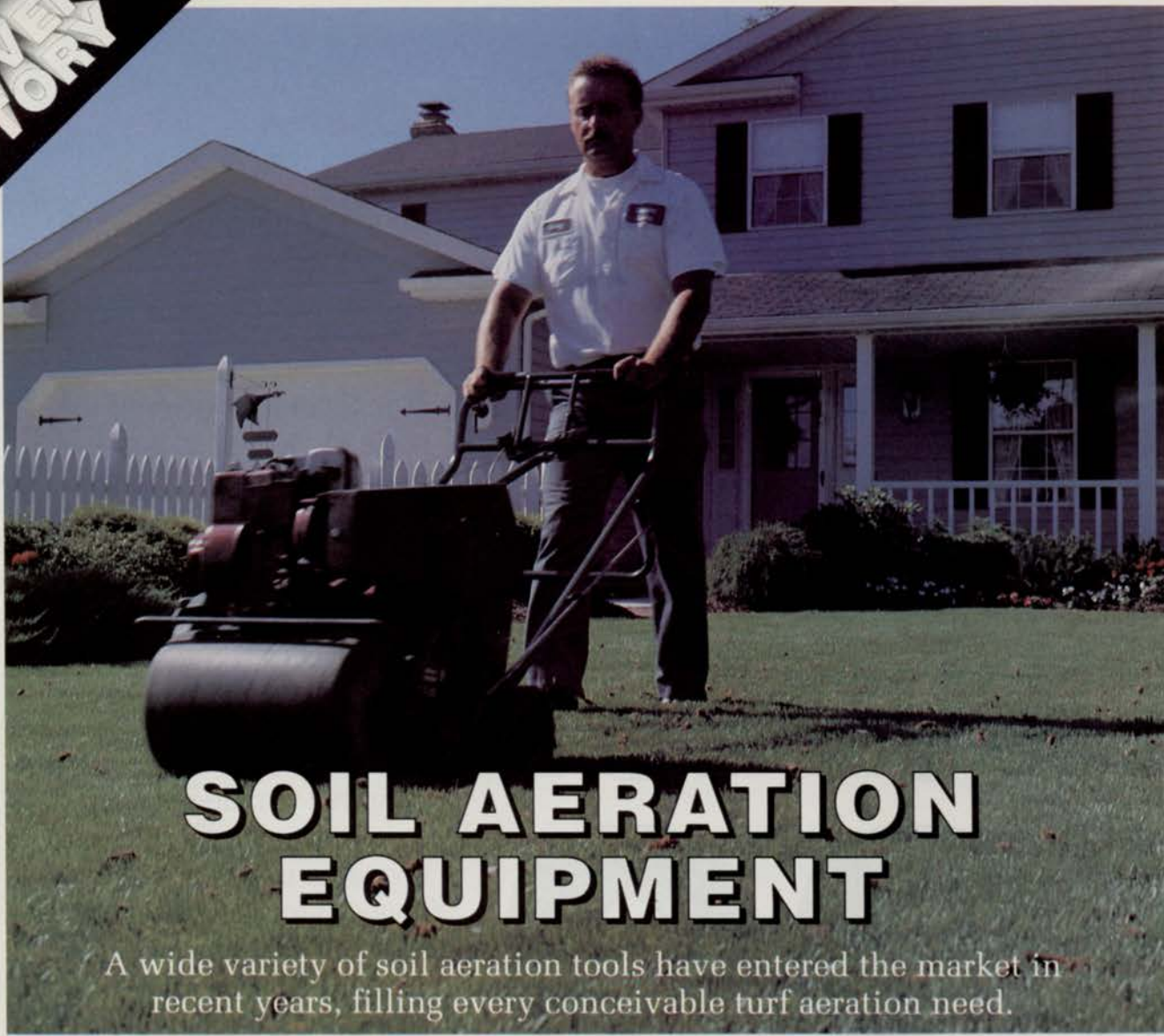
The price is even lower in 30's. Now you'll find even *more* value in Roundup and *more* places to use it *more* often.

Think of the budget-stretching savings Roundup can bring you compared to time-intensive string trimming. Or the labor-savings in using lower-priced Roundup to maintain weed-free beds and pine islands. Use it to eliminate brush, poison oak, poison ivy...in landscape site preparation and turf renovation.

Figure your savings at the new lower price. Then see your dealer or retailer to save on Roundup.



Always read and follow the label for Roundup herbicide. Roundup[®] is a registered trademark of Monsanto Company. © Monsanto Company 1991 RGP-1-170BR



SOIL AERATION EQUIPMENT

A wide variety of soil aeration tools have entered the market in recent years, filling every conceivable turf aeration need.

Soil aeration techniques open to green industry professionals have quickly moved from discussion to practice.

A helpful treatment for compaction and thatch, aeration can be accomplished in a variety of ways, perhaps as varied as the equipment. Generally, either solid tine, hollow core (open spoon) and shatter/slicer

Turf in warm-season climates is best aerated in late spring and early summer.

designs are common. Turf research has suggested solid tining may be less beneficial overall.

Water entered the picture this year with Toro's Hydroject 3000, which uses high pressure water coring.

Giving the turf "room to breathe" at the

For more aerator information

Specifications for shatter/slicer aerators available to landscape professionals can be found on page 26.

Specs for core aerators can be found on the following page and page 24.

To obtain information from individual companies, circle the numbers listed below on the Reader Service Card.

Shatter/slicers		Core aerators			
Co. name	Circle No.	Co. name	Circle No.	Co. name	Circle No.
Aer-Way	300	Befco	308	Hahn	311
Brinly-Hardy	301	Brinly-Hardy	301	Jacobsen	312
Cushman	302	Cushman	302	Lesco	313
John Deere	303	John Deere	303	Olathe	307
Feldmann	304	Feldmann	304	Ransomes	314
Green Care	305	First-Products	309	Terracare	315
Hoffco	306	Gandy	310	Toro	316
Olathe	307	Green Care	305	Verti-Drain	317

right time saves later headaches as grass roots welcome the opening of the turf surface to air and moisture.

Options range from model to

model, manufacturer to manufacturer. Superintendents, landscape and lawn care operators, and sports turf

continued on page 26

CORE AERATORS

Manufacturer	Model	Pull/Walk/Ride	Penetration	Plug Diameter	Overall Width	Weight (lbs.)	Speed
Befco ¹	Green-Rite I	pull	1"	N/A	52"/68"/84"	1,383/1,636/ 2,063	conditional
Befco	Green-Rite II	pull	1"	N/A	50"/58"/66"	N/A	conditional
Befco	Green-Rite III	pull	1"	N/A	58"	N/A	conditional
Befco	Green-Rite IV	ride	1"	N/A	58"/66"/74"	N/A	conditional
Brinly-Hardy	CA-30 BH	pull	N/A	N/A	30"	75	conditional
Brinly-Hardy	CA-36 PR	pull	N/A	N/A	36"	84	conditional
Brinly-Hardy	AS-24 BH	pull	2"	N/A	24"	50	conditional
Cushman	Ryan DGA 30-06 Model 544882	ride	4"-6"	1/2"-3/4"-7/8"	30"	1,960	up to 19,920 ³
Cushman	Ryan GA 30 Model 544875	ride	3 ³ / ₄ "	5/8"	30"	1,200	up to 28,125 ³
Cushman	Ryan Greensaire 24 Model 544872	walk	3"	1/2"	24"	800	up to 8000 ³
Cushman	Ryan Lawnaire 28 Model 544874	walk	2 ¹ / ₂ "	3/4"	28"	400	up to 24,000 ³
Cushman	Ryan Lawnaire IV Model 544863	walk	2 ³ / ₄ "	3/4"	19"	188	up to 21,000 ³
Cushman	Ryan Lawnaire V Model 544883	walk	2 ³ / ₄ "	3/4"	26 ¹ / ₂ "	218	up to 29,300 ³
Cushman	Ryan Lawnaire Tow 36 Model 544860	pull	4"	1/2" or 3/4"	36"	500	up to 10 mph
Cushman	Ryan Lawnaire Hitch Model 544859	pull	4"	1/2" or 3/4"	36"	475	N/A
Cushman	Ryan Lawnaire Hitch Model 544876	pull	4"	1/2" or 3/4"	48"	675	N/A
Cushman	Ryan Renovaire Hitch Model 544317	pull	4"	1/2" or 3/4"	72"	1,445	up to 10 mph
Cushman	GA 60	pull	4"	3/4"	60"	2,209	up to 1.3 acres/hr
Cushman	Quick Aerater	pull	5"	1/2" or 3/4" slicing knives	46"	N/A	N/A
Cushman	Greensaver Model 884716	pull	2 ³ / ₄ "	3/8" or 1/2"	22 ³ / ₄ "	N/A	N/A
John Deere	132/232	pull	N/A	1/2" or 3/4"	32"	N/A	conditional
John Deere	270	pull	N/A	1/2" or 3/4" Slicer blades	72"	N/A	conditional
Feldmann	2300	walk	2 ¹ / ₂ "	(Slicer available)	26"	128	1,800 ³
Feldmann	2340-32/2340-48	pull	2 ¹ / ₂ "	1/2"	32"	85/100	conditional
Feldmann	2552/2528	pull	2 ¹ / ₂ "	1/2"	32"/48"	83/98	conditional

¹ Befco aerators are also overseeders & fertilizers

² Model also a seeder/fertilizer

³ Square feet per hour

CORE AERATORS

Manufacturer	Model	Pull/Walk/Ride	Penetration	Plug Diameter	Overall Width	Weight (lbs.)	Speed
First-Products	Aera-rator	pull	3"	1/2"	60"	635	3 1/2 mph
Gandy	aerater attachment	pull	2 1/2"	N/A	24"	N/A	conditional
Green Care	Core Master 12	pull	3 3/4"	1/4"-3/8"-1/2"- 5/8"-3/4"	49"	N/A	conditional
Green Care	Core Puppy	walk	3 3/4"	1/4"-3/8"-1/2"- 5/8"-3/4"	25"	650	conditional
Hahn	TB-60/TM-60	pull	N/A	N/A	32"	550/500	conditional
Hahn	TM-140/TB-140	pull	N/A	3/4" or 1"	72"/90"	672/954	conditional
Hahn	EA-3	walk	N/A	N/A	22"	166	conditional
Jacobsen	Aero King PT 2448	pull	3"	1/4"-3/8"-1/2"	48"	885	conditional
Jacobsen	T 3019	walk	3"	3/4"	19"	250	24,000 ¹
Jacobsen	P 4024/T 6030	walk	3"	1"	24"/30"	240/285	24,000 ¹ / 30,000 ¹
Lesco	Aerator 30	walk	3"	5/8"	30"	254	conditional
Olathe	88	walk	3 1/2"	3/4"	32 1/2"	260	19,000 ¹
Ransomes	XRA 550R/ XRA 540	ride	up to 6" up to 5"	1/4"-3/8"-1/2"- 5/8"-3/4"	54"	1,600/1,200	up to 60,000 ¹
Ransomes	XRA 240	walk	2 3/4"	5/8"-3/4"	24"	440	25,800 ¹
Ransomes	XRA 250/ XRA 270	walk	4"	1/4"-3/8"-1/2"- 5/8"-3/4"	25"	440	25,800 ¹ / 13,900 ¹
Terracare	WR 2 ²	walk	2 3/4"	1/2"-5/8"	36"	600	3/4 acre/hr
Terracare	T 98/T 200/T 320	pull	2 3/4"	1/2"-5/8"	9'3"/4'/7'	600/1,100/1,600	1 acre/hr, 1 1/2 acre/hr, 3 acre/hr
Toro	HydroJect 3000	walk	4"-20"	N/A	33"	995	up to 26,000 ¹
Toro	Greens Aerater 09110	walk	3 1/2"	3/8"-1/2"-5/8"-3/4"	27"	1,275	13,000 ¹
Toro	686/687/96	pull	N/A	1/2" or 3/4" ³	90"/82"/48"	1,420/1,290/600	1-10 mph
Toro	Fairway Aerater 09500	pull	3" to 5"	3/4" or 7/8"	63"	2,975	61,000 ¹
Verti-Drain	305-250/ 305-200H	pull	16"	3/4" or 1"	98"/79"	4,685/3,515	21,500 ¹ / 17,200 ¹
Verti-Drain	105-145	pull	12"	1/2"-5/8"-3/4"-1"	57"	1,850	7,800 ¹
Verti-Drain	005-120	pull	10"	1/2"-5/8"-3/4"	48"	1,100	7,500 ¹
Verti-Drain	001-060	walk	6"	1/2" or 5/8"	24"	680	5,700 ¹

¹ Square feet per hour

² 4" spiking tine available for all models

³ 4" slicing blades available



ADD MUSCLE TO YOUR WORK FORCE, GET A BIG BOSS

The term "labor-saving device" might have been coined to apply to the Polaris Big Boss. It's your worker of choice when human hands, arms and backs aren't quite enough, but a pickup or dump truck is too much. And it's a terrific recreational vehicle as well, able to haul an entire campsite in a single trip, or supply a remote hunting cabin with food and equipment for a week. For farms, construction



sites, back yards, or the back woods, a Big Boss gives you the extra strength you need to do what needs to be done.

Warning: ATV's can be hazardous to operate. For your safety: Never carry



passengers, avoid excessive speeds, and be particularly careful on difficult terrain. Polaris ATV's may not be ridden by people under 18 years of age. Polaris recommends that all ATV riders take a training course. For safety and training information, see your dealer or call Polaris at 1(800)328-9975. (In MN, 1(800)247-6670).

POLARIS
Believe It.

SHATTER/SLICERS

Manufacturer	Model	Pull/Walk/Ride	Penetration	Overall Width	Weight (lbs.)	Speed
Aer-Way	AWO40T-1365T	pull	6 1/2"	4'	N/A	conditional
Aer-Way	AWO56S-1365T	pull	8"	5' 6"	N/A	conditional
Aer-Way	AWO60Q-2380C	pull	6 1/2"	6'	N/A	conditional
Aer-Way	AWO76S-2380T	pull	6 1/2"	7' 6"	N/A	conditional
Aer-Way	AWO80Q-2380C	pull	6 1/2"	8'	N/A	conditional
Aer-Way	AW150T-4380T	pull	6 1/2"	15'	N/A	conditional
Brinly-Hardy	SA-30 BH	pull	2"	30"	22	conditional
Brinly-Hardy	SA-36 BH	pull	2"	3'	40	conditional
Brinly-Hardy	SA-36 PR	pull	4"	3'	95	conditional
Cushman	Ryan Tracaire Model 544423	pull	4"	6'	1037	up to 10 mph
John Deere	140S	pull	N/A	41"	360	conditional
John Deere	260S	pull	N/A	5'	420	conditional
John Deere	280S	pull	N/A	82"	690	conditional
Feldmann	2200S	walk	2 1/2"	26"	128	18,000 ²
Green Care	Shattermaster SH-6/250	pull	12"	5'	725	conditional
Green Care	Shattermaster SH-8/250	pull	12"	80"	950	conditional
Hoffco	L'I Hoe	walk	N/A	10"	25	conditional
Olathe ¹	83	pull	3 1/2"	4'	N/A	conditional
Olathe ¹	84	walk	2 1/2"	29 1/2"	350	conditional
Olathe ¹	37	pull	3"	5'	N/A	conditional

¹ Slit Seeder attachment available ² Square feet per hour

AERATION from page 22

professionals must decide what system best suits their needs.

Aeration is most effective when the surface plant is actively, healthfully growing. Early aeration can lead to disruption in the grass root system.

Another important consideration: aeration plans must consider the climate. Cool-season climates,

Aerate cool-season turf in early spring and early fall, during periods of vigorous growth.

generally, favor early spring and early fall programs when the grass shows vigorous growth. Warm-season climates, as a rule of thumb, invite aeration benefits in late spring and early summer.

The accompanying chart lists what is available to professional lawn/landscape maintenance contractors this fall. **LM**

WHEN YOU'VE GOT GRUB CONTROL THAT'S THIS GOOD, WHY NOT SPREAD IT AROUND?

When it comes to grub control, there's nothing faster or more effective than DYLOX® Insecticide from Mobay.

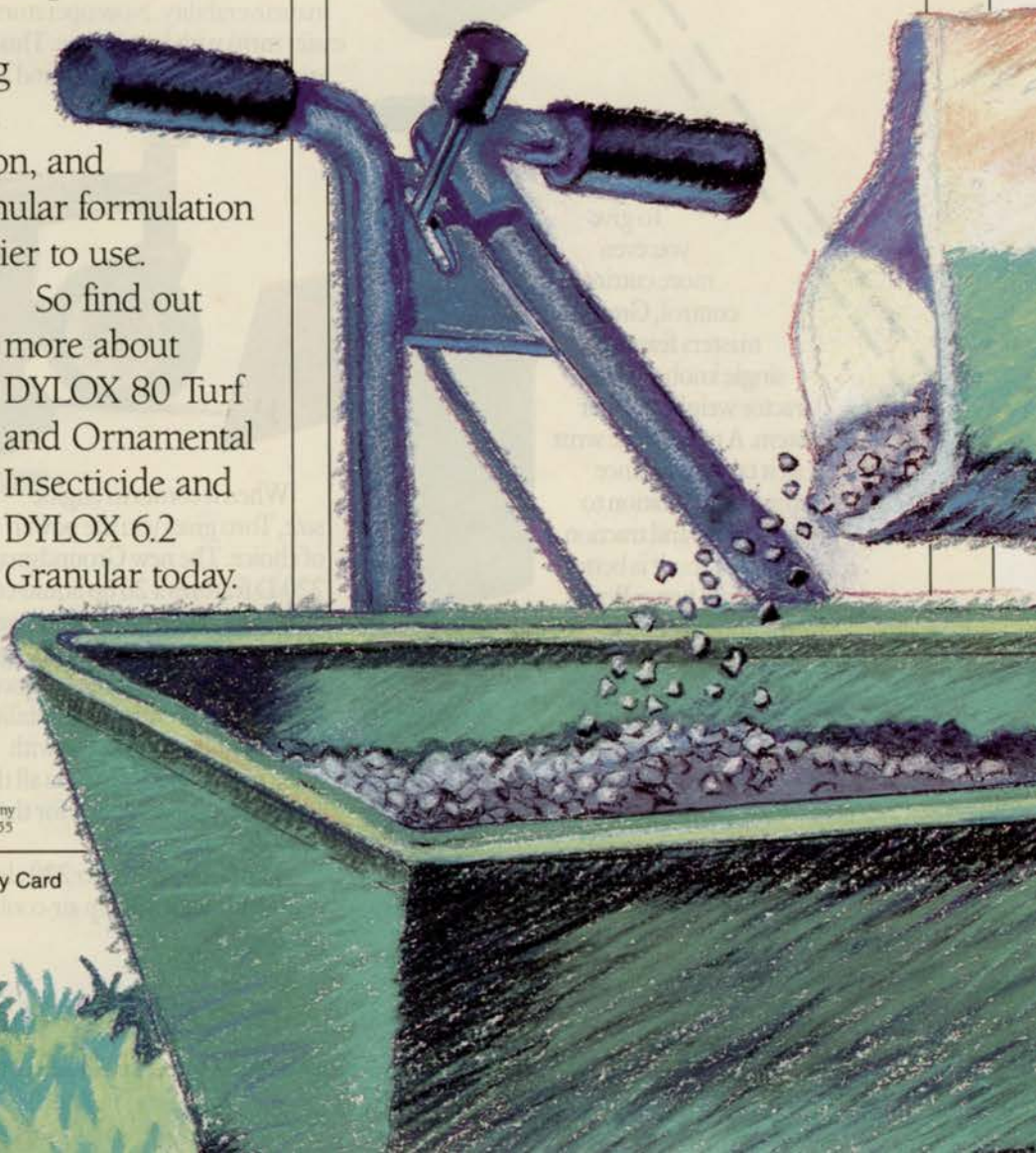
Now, thanks to DYLOX 6.2 Granular Insecticide, there are two great formulations of DYLOX to tackle tough grub problems.

DYLOX gives you the fast-acting protection you've come to depend on, and now the new granular formulation makes it even easier to use.

So find out more about DYLOX 80 Turf and Ornamental Insecticide and DYLOX 6.2 Granular today.



Because the only thing faster than DYLOX at work, is the way its reputation for grub control has been spreading. Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, MO 64120. (800) 842-8020.



DYLOX is a Reg. TM of Bayer AG, Germany
©1991 Mobay Corporation 911355

Circle No. 112 on Reader Inquiry Card

Mobay 
A Bayer USA INC COMPANY

This Time, We Did Competition, We Out

To make a dramatic turnaround in your productivity, put yourself behind the wheel of the machine that outmaneuvered them all: The new Groundsmaster® 220-D or the new gas-powered 224 from Toro. No other out-front rotary mowers are as maneuverable, as effortless to operate or provide as much trim productivity.



Fourlink power steering is your link to unmatched maneuverability. Now operators can make sharper, easier turns with less fatigue. This makes trimming around any obstacle quick and almost effortless.

To give you even more cutting control, Groundsmasters feature a single knob deck-to-tractor weight transfer system. A twist of the wrist is all it takes to balance cutting unit flotation to height of cut and traction needs. The result is better traction and better flotation without scalping.



When it comes to engine size, Toro gives you the power of choice. The new Groundsmaster 220-D features a 20 hp liquid-cooled, 3-cylinder Mitsubishi diesel engine. The new Groundsmaster 224 gives you the same engine in a gas model, providing you with the durability diesels are known for, but with more power. Both give you all the speed and power needed for the most demanding jobs.

The Groundsmaster 220 also is available with a 20 hp air-cooled gas engine.



n't Overpower The maneuvered Them.

A small, compact wheelbase provides a small uncut trim circle and tight turn-around enabling you to trim close around any obstacle. Just what you need to get into or out of tight areas.



With all these performance features, it's obvious why the new Groundsmaster 220-D and 224 are so popular. And why Toro is the leader in out-front riding rotary mowers. To request a demonstration, call your local Toro distributor or contact Toro at the address below.



TORO

The Professionals
That Keep You Cutting.

A patented, heavy-duty carrier frame with floating cutting decks allow the cutting units to follow ground contours for a superb quality of cut. For added cutting control, there are three decks to choose from: 72", 62" or 52". And the 52" is available with an optional grass collection system.

The Toro Company, Commercial Marketing Services, 8111 Lyndale Ave. So., Minneapolis, MN 55420.

Circle No. 128 on Reader Inquiry Card

LEVELLING THOSE LOWBALLERS

In the Northeastern U.S., a 12-week season means that normal problems with lowballers are compressed and magnified. Successful landscapers still compete, though.

by Terry McIver, managing editor

Little things mean a lot." "The whole nine yards." "Bang for the buck." You hear those expressions a lot when you visit Levinsky's Landscaping in Colchester, Vt.

Peter, Jonathan and Mark Levinsky, ages 40, 35 and 32, respectively, combine their individual drive and business sense to power a 12-man company that sells landscaping, mowing, chemical application, and snow plowing services. They're dedication and work ethic is plain to see, which explains why they're still a success after eight years in business.

But success doesn't come easy, because of two factors they find most challenging: a relatively short season, and price-cutting competitors.

The eastern United States is a challenging area for anyone in the lawn care or landscape business. A hundred miles can chop two or three weeks off the season, so time is a great motivator. You can't sit still. You need men who feel the same way you do about success.

"We figure we have 12 weeks, from Memorial Day to Labor Day," Peter Levinsky, estimates. "If we don't have a run of good weather between May and July 4th, it's an awfully short season."

People who work for nothing

Remember Mr. Haney, the nasal-voiced huckster on "Green Acres"? He had a business for every day of the week, advertised on a window shade on the side of his wheezing old pick-up. The Levinskys, and other reputable landscaping/lawn care companies in the Colchester area, often have to contend with that kind of competition. One "landscaper" they have seen posts a chalkboard on the side of his truck. One

day he's a landscaper, the next day he's a painter. The only difference is that Mr. Haney was a price gouger; these guys are undercutters extraordinaire.

The glut of lowball contractors thus compounds the hassles in the race to make money during a 12-week season, and the Levinskys can relate endless stories about the constant assault to the image of the professional landscaper.



The Levinsky brothers (from left, Jon, Mark and Peter) believe that, in time, most lowballers will leave the green industry because of financial failure.

There's the story of the lowballer who beat them out of a mowing contract for a chain of McDonald's restaurants. One evening at 9 p.m., Peter spotted the crew at one of the restaurants, cutting grass in a driving rainstorm.

What's in question is not a person's right to a decent living. The trouble is, "instant landscapers" apparently don't know the first thing about professionalism, and don't want to learn.

Poor quality shows up later

Though the Levinskys do well, they have a hard time convincing customers or prospects that less is not always better when it comes to price. Poor quality work is always an intangible before the fact.

Then there are the annual battles with condominium managers who

will award contracts to the lowest bidder, regardless of quality, reputation, or whether or not the company carries workmen's compensation.

"The important thing for condominium boards to remember," says Peter, "is that when you're dealing with a landscaper, make long range plans, monthly or seasonal. And don't shop strictly for price." The brothers lost one condominium bid because the manager "wanted to see if the lowballer could handle the job."

"Then," Peter recalls, "condo managers look back in their books and say, 'we were billed for all this work that was never done. The Levinskys say they can do it the right way.' Why didn't they call us two or three years ago?"

Peter says some condominium directors prefer winter cut hemlock mulch, with its bright red color. That red color is most vibrant in March, but the directors won't sign contracts until April. "People on the boards procrastinate. They don't realize that

you've got to be on top of this."

Jon asks: "Why should we go out and buy 100 yards of winter cut hemlock for \$1250, dump it in their lot, and then see them sign with someone else because they're 10 cents cheaper? Then we have to remove it."

Lowball competition has succeeded in moving the company away from residential cutting. They simply can't compete on volume with the nickel and dime outfits. They maintain their commercial landscaping and condominium maintenance clientele, which includes grasscutting at IBM's corporate headquarters. Other competition, though fair-and-square, is simply too well-established to compete against. "We're competing with people who have nurseries, and have paid for them a thousand times over," says Peter. So

Introducing
DIMENSION[®]
Stay a step ahead



...by stretching your application time for crabgrass treatments.



Break-through chemistry allows preemergence and postemergence crabgrass control.

New DIMENSION® turf herbicide helps you take your busiest season in stride. Break-through chemistry makes Dimension the only herbicide on the market with both preemergence and postemergence activity. This wider application window gives you up to 13 weeks to apply Dimension, instead of the normal five to seven.*

No other herbicide gives you so much flexibility. With Dimension, you'll have more time to serve more customers — more efficiently.

Season-long crabgrass control with one application.

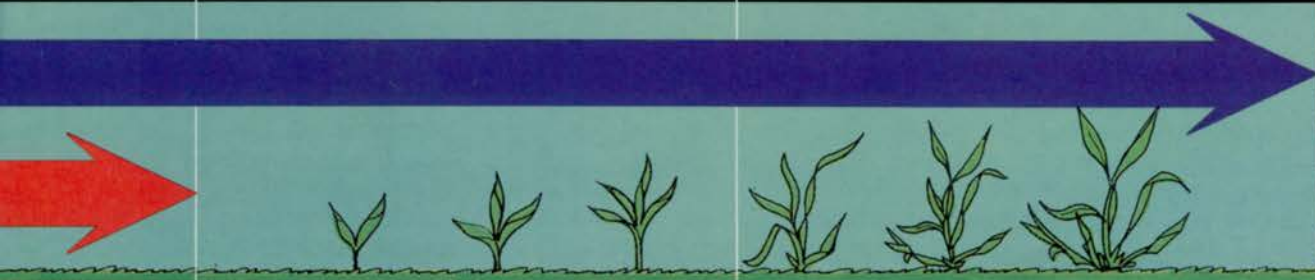
Advanced chemistry also makes Dimension the first turf herbicide to allow true season-long control of crabgrass. Unlike competitive products, Dimension keeps working, month after month. So you won't have to waste time on re-treatments to maintain great-looking turf. Plus, you'll have happier customers and fewer call-backs.

*Based on a single application. **For control of tillered crabgrass, tank mix Dimension with Acclaim¹ or MSMA.



POSTEMERGENCE—PRE-TILLERED
3 weeks

POSTEMERGENCE—TILLERED**
3 weeks



Foxtail

Goosegrass



Spurge

Oxalis



Controls more than crabgrass.

Dimension herbicide doesn't stop with crabgrass. Its broad-spectrum activity targets a variety of annual grasses and broadleaf weeds. This control includes foxtail, goosegrass, spurge and oxalis.



DIMENSION[®]
Turf Herbicide
by **Monsanto**

Easy on turf, permits fall overseeding.

A wide variety of cool- and warm-season turfgrasses show exceptional tolerance to Dimension. When used according to label directions, this herbicide does not cause injury to turf or a reduction in turf quality. You can also overseed with confidence three months after an application of Dimension.

Low rates, easy handling.

Dimension does not require you to put down as much herbicide as you would with other pre-emergent herbicides. That means there's less material to mix. And there's no settling in liquid fertilizer.

You'll also like the fact that Dimension is compatible with all common herbicides, insecticides and fungicides. And, unlike other postemergent products, it is not affected by temperature at application time. In addition, Dimension does not stain.

Join the professionals who have stepped up to Dimension.

David Hanus
Herwald Lawn Care
Bryan, TX



"Dimension works very well for me on crabgrass, mainly because it is flexible. The wider window allows us to visit a customer in March or April with a one-time application and get lasting control. Having that flexibility is a big benefit."



Mike Kowalchuk
Owner
Gro-Control Inc.
Westland, MI

"I like Dimension because there is no staining and it mixes easily. Also, you can spray it late in Round 1 and kill any emerged crabgrass, while putting a barrier down for the rest."

Randy Zweifel
President and Owner
Lawn Managers
St. Louis, MO



"We used Dimension on lawns with crabgrass in the two- and three-leaf stages and were very pleased with the results. The one application eliminated the existing plants while keeping the new ones from emerging. It's nice to have the option of applying a product with both preemergent and postemergent activity."



Ray Sammis
Technical Manager
Professional
Grounds
Lorton, VA

"The worst time of the year for every LCO is the spring burst; trying to get the pre-emergent down with a very narrow window. Dimension doubles that window. It takes you out of the push, saves you overtime and saves wear and tear on your equipment. It literally takes the pressure out of the chemical maintenance program."

Call Monsanto toll-free 1-800-323-1421



DIMENSION[®]
Turf Herbicide
by Monsanto

The toughest thing to emerge since crabgrass.

ALWAYS READ AND FOLLOW LABEL DIRECTIONS FOR DIMENSION TURF HERBICIDE.

© Monsanto Company 1991 Dimension[®] is a registered trademark of Monsanto Company.

¹PreM is a trademark of LESCO, Incorporated. ²Team is a trademark of DowElanco. ³Acclaim is a trademark of Hoechst AG.

DMP-1-257

the plan is to lay low.

"During (recession)," says Peter, "instead of experimenting, and expanding into areas that compete with established businesses, we're better off identifying what our particular niche or niches are, and developing them to the highest degree."

Getting together

It's time to talk. "We feel that a real failing in our profession up here is that we don't get together as a group in the off-season," says Peter, who would like to see more discussion among competitors. "A little talk could go a long way. Sit down and discuss pricing. I think people should bare their souls a little bit. If somebody is sitting there who is (pricing) so ridiculously low, some of us should be able to ask: how do you come up with your prices? What's your goal? Where do you want to take your business?"

"I'm partially to blame for not taking it to the next step and doing something about it. Now, during the '90s, I'm going to have to. Nobody wants to get together and say, 'this is what our rate should be.' A lot of companies will chase 1000 accounts for \$10 each, because it's impressive to say, 'I do 1000 accounts.'"

Other ways to beat the competition

1. If you plow, make it pay.

Snow plowing shouldn't come cheap. "The man in the truck is worth over \$100 an hour," Peter asserts. "There's liability, wear and tear on the truck, the driver, I may have to come back a second time and clean up something I missed. You don't go out and plow for \$10 or \$15."

Oil is changed on all trucks after every big plowing run. Peter says he wonders if people realize how many miles are put on a truck in reverse during snow plowing season. "Then there's the equipment and maintenance: sanders, cutting edges, hydraulics; changing the plows when it's 10 degrees below zero, and we have to bring torches out to loosen the fittings. Changing a flat in 18 inches of snow at 3 a.m."

Which is why landscapers are exasperated when people want work done for nothing. "We read *Condo* magazine," says Peter, "and a writer says to condominium boards, 'play one landscaping group against the other.' You can't be in this business and do the snowplowing for nothing."

2. Be environmentally diplomatic.

Vermont has its share of rules and regulations on pesticide use, and is

Bigger jobs can bump lowballers

Robby Mazza, president of All Seasons Landscaping, Colchester, Vt., also sees his share of price-cutting.

He recently put in a bid of \$6500 for a grounds facelift at a low-income housing project. He estimated the work would require five or six men and take five days to complete. The job went to a competitor for \$2500, which Mazza calls "totally impossible; it can't be done."

How does it happen, these shamelessly low bids? Mazza believes there are a number of factors: "People pay under the table, there's no workmen's compensation, no one pays liability insurance, there's no payroll tax. (Customers) don't ask for proof of insurance."

In business for five years, All Seasons' specialties include landscape design/build, snow plowing, material hauling, excavating and land clearing.

Mazza's background includes experience in earthmoving, which makes him feel right at home around the big equipment. His inventory includes two bucket loaders; a bulldozer; 16 trucks; a Bob-Cat skid-steer; turf aerators; a parking lot sweeper; International dump trucks; and John Deere, Toro, Ransomes and Gravely mowers.

Heavy work provides an extra advantage: more time to work. "You can work later in the fall," Mazza explains. "If you're ever going to have anything, you're going to have to be able to work year-round.

"In the winter time, there are too many guys who can buy a pick-up truck with a snow plow and do driveways for \$25. When you start moving up into the heavier work, the overhead (between companies doing the heavy work) is pretty much the same, so you don't see a lot of cutthroat stuff."

Mazza never burns bridges, and he never forgets how he started. "Sometimes, when we're doing the big work," he says, "I get calls for small jobs. But I remember when we had the one pick-up truck. That's what got us here."

All Seasons sells topsoil and mulch—two popular items—to walk-in customers. It's a great way to advertise.

—Terry McIver □



Robby Mazza: Heavier jobs give a company more time to work.

active in the environmental movement.

Knowing that an overly defensive posture can hurt a company's image, the Levinskys have a "live and let live" philosophy. "We're going to have to accommodate a certain percentage of the population," says Peter. "We're not going to win (environmentalists) over to our camp. Personally, I have no problem with them and I feel I can accommodate them. From a professional standpoint, we have to present an image that we appreciate where they are coming from. If somebody can show us a better way; if there is a safer way, less toxic, less harmful, more environmentally friendly, we're willing and capable of incorporating it into our business."

"We don't have a problem with the people who are against herbi-

cides and pesticides," adds Jonathan. "It's just that we're the ones that have to deal with the people when their lawns are full of crabgrass, chinch bugs and sod webworms. Then what are we supposed to say to (customers)?"

But the procrastination so characteristic of anything legislative can go only so far. Then, it's time to get to work, and negotiate later.

"A lot of the people on boards of condominium associations take an active interest, they will listen to the pros and cons (of pesticide use)," says Jon. "But as the lawns become more visibly effected, there is a clamor for action. They say, 'enough talk; let's continue the program until something better comes along. Until there is a more effective or safer way of doing things.'" **LM**



The importance of timing: fertilizing less than 30 days before a frost will result in low temperature kill, left, and spring dead spot, right.

LATE-SEASON FERTILIZATION

Objectives of proper fertilization include year-round turf production, adequate vegetative growth and quality shoot growth.

by L.B. McCarty, Ph.D., University of Florida, Gainesville

Late-season fertilization helps maintain turf color and density longer. Improved turf density promotes a more competitive turf that can better crowd out weeds, and helps turf recover from summer heat or pest damage.

Fall fertilization was not previously widely used due to the concern that excessive shoot growth would deplete root carbohydrate reserves and reduce the turf's cold tolerance. New research suggests an opposite trend—if appropriately timed and moderate nitrogen amounts are used. The ratio of nitrogen to other nutrients such as phosphorus and potassi-

um also influences root growth and temperature tolerance.

Spring green-up

Proper late-season fertilization also provides spring turf recovery by promoting earlier spring color, increasing turf density, and improving turf appearance. Less follow-up spring fertilization is required since the fall-fertilized turf has a more desirable appearance following winter. In many instances, proper late-season fertilization also increases the plant's ability to withstand heat and droughty conditions the following summer.

Cool-season turf needs

Maximum fall fertilization effects are obtained with the cool-season turf-grasses grown in the transition zone.

Add the majority (approximately 80 to 90 percent) of the total annual nitrogen applied during fall and winter months. Reasons for this are related to the temperatures that affect turf growth. Cool-season grasses have optimum top growth when temperatures are in the middle 70s to low 80s and optimum root growth when soil temperatures are in the high 50s.

The amount of sunlight plants receive is also important. In fall, days

become shorter, light intensity becomes brighter, and night temperatures become cooler. These three variables, when combined, encourage production of storage carbohydrates that accumulate in the roots and discourage production of leaf tissue. These stored carbohydrates provide the energy for new top growth in early spring and reproductive (seedhead) tissue in late spring. Adequate fall root carbohydrate production also enables plants to withstand winter temperatures and, surprisingly enough, provides much of the vigor and warm temperature stress resistance the following summer. Research indicates that if fall root carbohydrates are not present in adequate quantities, long-term damage due to these reasons can be expected.

Warm-season grasses

Benefits of late fall fertilization of warm-season turfgrasses are less understood than with cool-season grasses. Growth of warm-season grasses start to decline once temperatures drop below 78 degrees.

General fertilization of non-overseeded warm-season grasses usually consists of applying 10 to 20 percent of the total annual amount of nitrogen during the fall months. This amount promotes desirable turf density and better recuperative ability in spring without sacrificing cold tolerance. A balance must be made between retaining desirable green color in warm-season grasses as late as possible without over-stimulating succulent grass growth which is more susceptible to low temperature damage.

The importance of timing

In general, cool-season grasses should be fertilized between mid-October and mid-November in northern areas of the transition zone and between mid-November and mid-December in southern areas of the transition zone. Late fall fertilization needs to be supported with early fall fertilization to provide adequate green tissue for the second application.

Warm-season turfgrasses such as bermudagrass and zoysiagrass should be fertilized no later than 30 days prior to the first anticipated frost. Fertilizing closer than 30 days to this frost date, especially with heavy nitrogen rates, results in succulent shoot growth at the expense of root growth. If such is the case, the plant is generally much more susceptible to problems such as direct low temperature kill and spring dead spot.

Warm-season grasses to be over-

The prime nutrients

Nitrogen is generally the most important turf nutrient. It is a major constituent of plant proteins and is vital for chlorophyll production. Most naturally-occurring nitrogen in turf soils is released in inadequate amounts for turf needs. In addition, this nitrogen is in a soluble form enabling it to move below the turf-grass rootzone out of the plants' reach.

Turf managers must constantly add some nitrogen on highly maintained turf, especially when clippings are routinely removed.

Phosphorus is a building block in photosynthesis and in the formation of necessary proteins. It is also involved in a complex carbohydrate transport system which moves energy to all parts of the plant for vital growth processes.

Phosphorus availability is highly dependent on the soil pH,

with the range of 6.2 to 7.0 being optimum. Most sandy soils are inherently low in available phosphorus. A difficulty when dealing with phosphorus fertilization is its lack of mobility into the rootzone.

Potassium is essential in the transport of carbohydrates. It serves as a catalyst in numerous plant processes, and promotes sturdier plants with increased stress tolerance. Available soil potassium is held on the surface of clay and organic matter particles. It is less affected by soil acidity than either phosphorus or nitrogen. Almost as much potassium is needed for optimum turf health as nitrogen. High organic soils such as mucks and peats as well as sandy soils are typically low in potassium.

—Dr. McCarty □

seeded should not be fertilized for at least 30 days prior to overseeding. Fertilizing warm-season turf to be overseeded closer than 30 days to the first anticipated frost also encourages excessive turf growth that does not allow good ryegrass germination and establishment. Once the overseeded grasses germinate, at least two weeks should elapse before fertilizing. Do not exceed 0.5 pound of actual nitrogen per 1000 square feet until the warm-season grass goes completely dormant.

Rates and ratios

Research indicates that excessive nitrogen use in late fall contributes to problems previously mentioned. It has also been demonstrated that the relationship of nitrogen to phosphorus and potassium will influence these problems. Late fall fertilization should not exceed 1 lb. of actual nitrogen per 1000 square feet per application. This is especially true when quickly-available nitrogen sources are used. In this case, a split application of 1/2 lb. actual nitrogen per 1000 square feet may be more beneficial than the single full rate.

A 1:1, or even better, a 1:2 ratio of nitrogen to potassium has consistently been demonstrated as the optimum. Excessive phosphorus at this time neutralizes the beneficial effects of the potassium and nitrogen resulting in less cold hardy plants. This is especially true for St. Augustine-

grass. Therefore, late-season phosphorus applications are recommended only if soil test results indicate a deficiency. In addition, research suggests that a 4-1-6 ratio fertilizer is most desirable for late fall fertilization of bermudagrass. A 1-0-1 or 1-0-2 (such as a 15-0-15 or 15-0-30) ratio fertilizer has been successfully used on other warm-season as well as cool-season turfgrasses.

Other N sources

Nitrogen sources dependent on soil microbes to release nutrients are less effective for late fall fertilization since temperatures are not high enough for microbial activity. Soluble sources such as ammonium nitrate or ammonium sulfate and certain slow-release fertilizer sources such as IBDU are not temperature dependent, thus are able to release the nitrogen easier during late fall. If other nitrogen sources are chosen, use finer or microprilled grade fertilizer forms.

Iron applied in late fall often provides desirable green color and can favorably influence turf tolerance to cold temperatures. Benefits of iron applications are usually seen in soils with high pH (>7.0), high available phosphorus, or when turf rooting is restricted. One to two ounces of an iron source such as ferrous sulfate in one gallon of water is normally applied per 1000 square feet of turf. Chelated iron sources also are used.

'Bridge products' for late-season fertilization

Two concerns often voiced by landscapers and lawn care companies regarding late-season fertilization are:

- higher precipitation and decreasing nutrient uptake by the plant during this time of year create a potential for leaching and run-off of soluble fertilizers; and
- soil micro-organisms and macro-organisms don't react well to harsh chemical changes in their environment, so heavy doses of soluble salts in the soil can have detrimental effects.

Landscape professionals might respond to these concerns by using chemicals more judiciously and by exploring alternative products and technologies.

Until recently, landscape professionals had to choose between synthetic fertilizers and natural (organic) products, each with its own set of strengths and weaknesses. But a new category of fertilizers called "bridge products" combine organic material with a moderation of environmentally-safe synthetic ingredients. They have all the safety and benefits of natural fertilizers without sacrificing the high nitrogen and lower cost of synthetics.

Bridge products are an advantageous choice for late-season fertilization. In addition to providing nutrition for the plant, fall fertilization benefits soil life: bacteria, protozoa, nematodes, earthworms, insects, fungi and algae.

Bridge products provide a combination of water insoluble nitrogen (WIN), quick-release nitrogen and organic material to create the optimum soil condition for fall and winter. The quick-release nitrogen in bridge products is available to the plant immediately, regardless of temperature. Yet the amount of quick-release nitrogen is balanced with slowly-available organic sources in order to minimize waste or leaching.

The long-term benefits of bridge products lie in the slow release, water insoluble nitrogen. WIN breaks down gradually through microbial activity and thus will not leach excessive nitrogen. If temperatures fall below those required for organic breakdown, unused WIN is stored in the soil until microbial activity resumes in the spring.

Results of late-season fertilization can be observed in the head start it gives in spring. The stores of nitrogen and other essential nutrients enhance root growth and promote early spring green-up.

Bridge fertilizers are made from materials that

enhance macro- and micro-organisms in the soil, each of which plays a synergistic role in plant life functions. For example, the earthworm—probably the single most important macro-organism in soil—keeps the soil aerated and creates channels for water distribution and root growth. Bacteria and fungi are also necessary to maintain balance in the dynamic soil environment.

Bridge products work well with IPM, a system that allows for reduced and more efficient usage of pesticides and other chemical products. Through agronomic practices—such as judicious use of chemical treatments and close monitoring of turf—IPM promotes healthy, fertile soil. By promoting a balanced soil and turf environment, bridge products can reduce the need for more frequent application of ecologically harmful chemicals to control insects and weeds.

Beneficial nematodes, bacteria and fungi help keep their turf-damaging close cousins in check. Soil micro-organisms also break down organic and mineral materials in the soil, making them available to nourish plants. Keeping this dynamic environment in balance is the secret to successful, economical turf management.

A two-year study by Dr. Charles Peacock, associate professor of crop science at North Carolina State University, found that bridge products are effective fertilizers. Organic materials used as fertilizer bases provide an energy source for soil micro-organisms, enabling them to continue their soil-building activity; this in turn provides optimum conditions for plant growth.

—J. Mark Nuzum □



J. Mark Nuzum is president of Harmony Products, Chesapeake, Va., a leader in developing bridge products. Formerly a division of Nitrex, Harmony was formed in January 1989 to research, develop and market environmentally sound products for professional and consumer use.

Iron application is preferred for providing late fall green color for warm-season grasses such as centipedegrass, bahiagrass, and St. Augustinegrass.

Consider the species

Not all turf species should be fertilized late in fall due to excessive damage that often occurs during the winter.

Centipedegrass and bahiagrass should not only be fertilized earlier in the season; annual nitrogen rate should be minimum for both turf species. Problems such as centipedegrass decline have consistently been

associated with heavy annual nitrogen use and late fall nitrogen fertilization. Potassium fertilization of these species is, however, recommended in fall to promote rooting and cold hardiness. One to two pounds of potassium should be applied 30 to 45 days prior to the first killing frost.

As mentioned above, iron applications to centipedegrass and bahiagrass often provide the desirable green color without resulting in undesirable effects.

A light fertilization of St. Augustinegrass may be applied in

early- to mid-fall but is not recommended in late fall. No more than 1½ lbs. actual nitrogen should be applied at this time. St. Augustinegrass has less natural temperature tolerance than most other warm-season grasses, therefore, is not normally grown where temperatures fall consistently into the teens. Iron application to St. Augustinegrass also often provides desirable green color without undesirable effects. **LM**

Dr. McCarty is an assistant professor of turfgrass science at the University of Florida, Gainesville.

Par Ex Keeps Working When Mother Nature Stops Other Fertilizers Cold.

The days are growing shorter, and the first blast of cold weather is just around the corner — perfect conditions for a late-season application of Par Ex.®



Even when there's a hard frost around the corner, it's the perfect time for late-season fertilization with Par Ex.

Most competitive fertilizers rely on warm temperatures or bacterial activity to release their nitrogen. So when cold weather hits and bacterial activity stops, they become inactive and ineffective.

But Par Ex with its exclusive IBDU® slow release nitrogen goes on about its business, slowly activating controlled portions of nitrogen until the



soil actually freezes.

That's because Par Ex releases its nitrogen through hydrolysis, a process triggered by moisture rather than temperature and bacterial activity.

The result is extended greening of your turf into fall and winter. And a healthier root and rhizome system with increased carbohydrates, to reduce the potential for cold damage and stimulate an earlier green-up in the spring.

To find out more about what Par Ex can mean for your course year-round, call us at 1-800-521-2829.

There's more than just a few degrees of difference.



VIGORO®

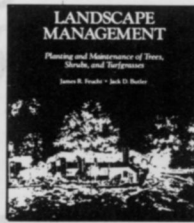
BOOKSTORE



345 - KERR'S COST DATA FOR LANDSCAPE CONSTRUCTION 1991
By Norman L. Dietrich
Eleventh edition. Provides all the pricing data you need in one convenient source. 28 major sections cover site, recreation and landscape development, 65 subsections provide specific data on materials, equipment and labor. Will save you hours on time-consuming research and calculations. Organized in easy-to-use CSI format. **\$44.95**



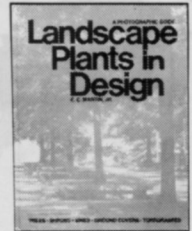
300 - LANDSCAPE DESIGN: A PRACTICAL APPROACH
by Leroy Hannebaum
Geared for the commercial designer/salesperson, this is a one-stop guide to the landscape design process. Covers the entire highly competitive field including design analysis techniques, pointers on land forms, specialized business landscaping methods, environmental design guidelines, specifications, estimations, bids. **\$54.95**



305 - LANDSCAPE MANAGEMENT
by James R. Feucht and Jack D. Butler
Planting and Maintenance of Trees, Shrubs, and Turfgrasses. Describes the basic principles of cultural management of installed landscapes. The important factors of plant growth, soils and fertilizers, improved planting techniques and new pruning techniques, integrated pest and disease management, and spray-equipment calibration and care are all featured. **\$35.95**



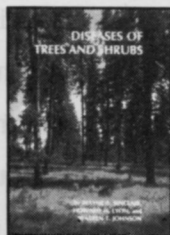
370 - LANDSCAPE OPERATIONS: MANAGEMENT, METHODS & MATERIALS
by Leroy Hannebaum
An in-depth examination that combines technical training in landscape science with methods of accounting, business management, marketing and sales. Discusses effective methods for performing lawn installations, landscape planting and maintenance. Step-by-step accounting calculations are explained in simple terms. **\$54.95**



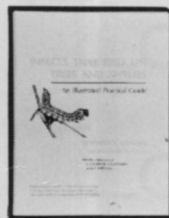
365 - LANDSCAPE PLANTS IN DESIGN
by Edward C. Martin
An annotated black & white photographic guide to the design qualities of ornamental plants and their aesthetic and functional use in landscape designing. Over 600 trees, shrubs, vines, ground covers and turfgrasses are described in non-technical language. Over 1900 photographs. Provides a basis for selecting the best plant materials for any particular use in landscape design. Contains detailed indexes that provide quick reference to particular design qualities and growing conditions. **\$69.95**



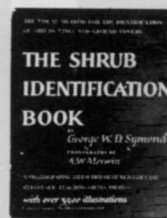
665 - ARBOREAL CULTURE: THE CARE OF TREES, SHRUBS AND VINES IN THE LANDSCAPE
by Richard W. Harris
Provides comprehensive coverage of complete planting, site analysis, preparation and special planting methods, fully detailed coverage of fertilization, irrigation and pruning guidelines on preventative maintenance, repair and chemical control, how-tos of diagnosing plant problems, practical data on non-infectious disorders, diseases, insects and related pests and pest management. **\$63.00**



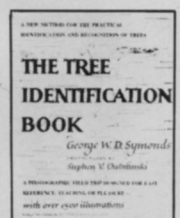
430 - DISEASES OF TREES AND SHRUBS
By Wayne Sinclair, Howard Lyon and Warren Johnson
A comprehensive pictorial survey of the diseases of, as well as the environmental damage to, forest and shade trees and woody ornamental plants in the United States and Canada. Reflects the most important developments in fungal biology and taxonomy, plant bacteriology, virology, and environmentally induced stress in plants. Summarizes information about newly discovered diseases and provides up-to-date accounts of old ones. **\$52.50**



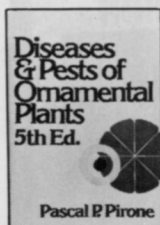
690 - INSECTS THAT FEED ON TREES AND SHRUBS
by Johnson and Lyon
Essential information for identifying more than 650 insect pests and the injuries they cause. More than 200 color illustrations. **\$49.95**



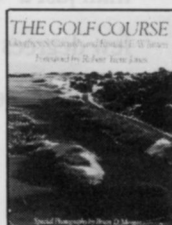
720 - SHRUB IDENTIFICATION
by George Symonds
Pictorial key to identify shrubs. Contains more than 3,500 illustrations to check specimens. Popular and botanical names are given for each shrub and handy index tabs for quick reference. **\$17.95**



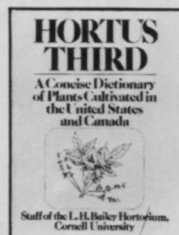
750 - TREE IDENTIFICATION
by George Symonds
Pictorial reference to identifying trees by checking leaves, buds, branches, fruit and bark. Like its sister publication, SHRUB IDENTIFICATION, popular and botanical names are listed with index tabs for easy reference. **\$17.95**



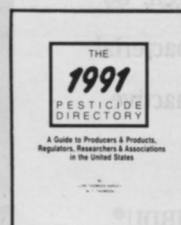
410 - DISEASES & PESTS OF ORNAMENTAL PLANTS
by Pascal Pirone
This standard reference discusses diagnosis and treatment of diseases and organisms affecting nearly 500 varieties of ornamental plants grown outdoors, under glass or in the home. Easy to understand explanations of when and how to use the most effective fungicides, insecticides and other control methods. **\$49.95**



800 - THE GOLF COURSE
by Cornish and Whitten
The first book ever to give the art of golf course design its due, and golf course architects the credit and recognition they deserve. 320 pages and 150 color and black and white photographs. Traces the history and evolution of the golf course, analyzes the great courses, shows how they were designed and constructed. **\$35.00**



510 - HORTUS THIRD
from Cornell University
A 1,300 page concise dictionary of plants cultivated in the United States and Canada. A reference which every horticulture professional should have. **\$135.00**



500 - THE 1991 PESTICIDE DIRECTORY
by Lori Thomson Harvey and W.T. Thomson
A Guide to Producers and Products, Regulators, Researchers and Associations in the United States. For the person who needs to know anything in the United States pesticide industry. **\$75.00**



125 - SCIENTIFIC GUIDE TO PEST CONTROL OPERATIONS
by G.W. Bennett, J.M. Owens, R.M. Corrigan
Fourth Edition. New chapters on fumigation, urban wildlife, special facilities, plus updated, improved chapters on pesticides, cockroaches, birds, termites, equipment, sanitation, stored product pests and more. Don't be without this updated edition. **\$49.95 Domestic All Others \$60.00**

BOOKSTORE



375 - RESIDENTIAL LANDSCAPES
 by Gregory M. Pierceall
 An excellent reference for individuals involved in the design and development of plantings and constructed features for residential sites. Illustrations and actual residential case study examples are used to communicate graphic, planning and design concepts which are the focus of this text. **\$55.95**



220 - CONTROLLING TURFGRASS PESTS
 by Shurtleff, Feranian, Randall
 New comprehensive guide provides the most up-to-date information available on the identification, biology, control and management of every type of turfgrass pest. **\$48.95**



235 - LAWN CARE: A HANDBOOK FOR PROFESSIONALS
 by H. Decker, J. Decker
 Written by turfgrass professionals, this handy guide will be invaluable for playing field managers, golf course managers, or any lawn care practitioner. Covers all aspects of turfgrass management. **\$48.95**



640 - TURF IRRIGATION MANUAL
 by James Watkins
 A guidebook for engineers, architects, designers and contractors. Keeps pace with the latest developments in turf and landscape irrigation. Specific chapters devoted to rotary sprinkler systems, golf course design systems and expanded engineering and reference material. **\$29.90**



615 - TURF MANAGEMENT FOR GOLF COURSES
 by James Beard
 Written by an eminent turfgrass researcher, this USGA sponsored text is an ideal reference and "how to" guide. Details all phases of golf course design and construction, turf management, course administration, irrigation, equipment and disease and pest control. Fully illustrated. **\$74.00**



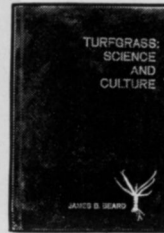
760 - TREE MAINTENANCE
 by Pascal Pirone
 The sixth edition of this guide for anyone involved in the care and treatment of trees. Special sections on tree abnormalities, diagnosing tree troubles, non-parasitic injuries and assessing the suitability of different trees. **\$49.95**



620 - TURF MANAGEMENT HANDBOOK
 by Howard Sprague
 Practical guide to turf care under both healthy and poor turf conditions. Chapters cover turf in cooler and warmer regions, fertilizer use, regular turf care, weed and disease control and special turf problems. Useful seasonal schedules for management of turf areas. **\$26.60**



225 - TURFGRASS MANAGEMENT REVISED
 by A.J. Turgeon
 Covers the latest developments in turfgrass science and technology. Heavily illustrated with dozens of new drawings. Provides specific recommendations for applying the newest pesticides, fertilizers and other materials to combat turfgrass problems. **\$54.95**



630 - TURFGRASS: SCIENCE AND CULTURE
 by James Beard
 Comprehensive basic text and reference source used in many leading university turf programs. Includes findings of current research compiled from more than 12,000 sources. **\$54.95**



110 - TURF MANAGERS' HANDBOOK-Second Edition
 by Daniel and Freeborg
ENTIRELY UPDATED. A practical guide for the turf practitioner. Chapters on grasses, growth regulators and diseases have had extensive modification. Innovations resulting from research and practice have been added to reflect the current techniques available for turf managers. **\$32.95**

RETURN THIS COUPON TO: BOOK SALES, ONE EAST FIRST STREET, DULUTH, MN 55802

PLEASE SEND ME THE FOLLOWING BOOKS. MY PAYMENT* IS ENCLOSED.

Book Number and Title	Quantity	Price	Total Price

Domestic—*Please add \$3.50 per order plus \$1.00 per additional copy for postage and handling.

All others—*Please add \$5.00 per order and if ordering multiple copies, also add \$2.00 per additional copy to cover postage and handling.

Please allow 6-8 weeks for delivery. Prices subject to change. Quantity rates available on request.

Questions? Call 218-723-9471 or 9472

PAYMENT MUST ACCOMPANY ORDER

Please charge to my Visa, MasterCard or American Express (circle one)

Account Number _____

Expiration Date _____

Name _____

Street Address _____

City _____

State _____

Zip _____

Phone Number () _____

Signature _____

Date _____

Total _____

Postage & Handling _____

Total Enclosed _____

SUPERS IN WARM-SEASON AREAS **BEWARE!**

Bentgrass establishment in warm regions has never been, and probably never will be, easy. No matter how many golfers ask for it.

by Jack Simonds, contributing editor

Let the golf course superintendent beware: bentgrass—the “Cadillac” of greens turf by many measures—is not, and may never be, adapted for climates south of the Mason-Dixon line.

The species—commonly, comfortably nurtured in the East, Midwest and other temperate climes—can be grown and maintained in Dixie, Southwest and Western settings, but not without a lot of daily handholding. All who spoke with **LANDSCAPE MANAGEMENT** agree that the decision to establish bentgrass greens in warm climates must be carefully considered. Also generally agreed: increasingly, golfers are asking for bentgrass greens over bermudagrass.

Opinions are not hard to unearth:

●Mississippi State University agronomy professor Dr. Jeffrey V. Krans: “It’s like taking a fair-haired person, putting him in the desert and expecting him not to get sunburned. It just doesn’t work.”

●Golf Course Superintendents Association of America president Stephen Cadenelli: “You try to locate the proper plant in the proper place. It (bentgrass down South) can be very difficult to deal with. It may be too difficult to maintain and can put a stress on everyone.”

●Superintendent Jerry Lemons of Old Hickory Country Club in Hermitage, Tenn.: “From Memorial Day to Labor Day, it is 90 days of hell. You try your best to keep every bit of grass you’ve got alive. Sometimes it is impossible.”

●Ray Hansen, president of the Florida Golf Course Superintendents Association: “The solution to this question is to educate (Florida) course members that green isn’t always beautiful. Golf courses over the years have become so beautiful that the question becomes: Where do we go from here?”

●University of Florida environ-

Bentgrass in warm climates? Here’s what they say:



Jeffrey Krans: “It just doesn’t work.”



Dr. A.E. Dudeck: Year-round bentgrass “environmentally unsound.”



Stephen Cadenelli: “It may be too difficult to maintain.”



Ray Hansen: Educate club members: “Green is not always beautiful.”



Jerry Lemons: “Sometimes it is impossible.” Photo by Larry Kassell.



Jim Simmons: “The secret is to keep it growing constantly.” Photo by Steve Alvis.

mental horticulture professor Dr. A.E. Dudeck: "Environmentally, I see it (a year-round bentgrass green) as unsound. (But) it is the Cadillac of putting surfaces and people seem to want it here."

A sensitive species

Bentgrass, coveted for its fast putting speed and fine, rolling texture, is also among the most sensitive species; responding both positively and negatively to fertilizers, pesticides, herbicides and fungicides—all necessary "toolbox" items in a warmer climate.

BENT AND BERMUDA, THE BASICS

Bentgrass:	Cold tolerance: Good to excellent Ideal growing conditions: 60-75 degrees F. More susceptible to disease in warmer climates
Bermudagrass:	Heat hardiness: Excellent Low temperature hardiness: Poor Drought resistance: Excellent Salt tolerance: Good Wear tolerance: Very good
Pest susceptibility:	Sod webworms, armyworms, mole crickets, bermudagrass mite, fruit fly

A warning against bentgrass greens by the IFAS

Year-round bentgrass greens in the Sunshine State pose difficulties and make the practice difficult, says a June, 1990 report from the Institute of Food and Agricultural Sciences, part of the Cooperative Extension Service at the University of Florida.

Researchers conclude in the four-page report that the institute "does not recommend the use of bentgrass as a year-round putting surface in this state." The recommendation comes after reviewing the species' reliance on precise water requirements as well as dependence on weed, disease, nematode and insect controls and other quality control concerns.

"Bentgrass in Florida, Some Important Considerations" combines the work of the Institute's L.B. McCarty, J.L. Cisar, A.E. Dudeck, T.E. Freeman, G.W. Simone and R.A. Dunn who collectively summarize that bentgrass in Florida "should be considered only as a temporary turf suitable for winter overseeding play."

The research team details that bentgrass grows best in air temperatures between 60 and 75 degrees and soil temperatures between 50 and 65. Many areas of Florida exceed these ranges and although direct-kill temperatures rarely are the isolated cause for failure, elevated temperatures do contribute to the plant's lowered capacity for photosynthesis, leading to diminished root development.

"While direct-kill soil temperatures are rarely achieved or maintained for long periods of time, soil temperatures above optimal for bentgrass does not efficiently

produce carbohydrates by photosynthesis," states the report, adding carbohydrate reserves become depleted and root growth declines.

Other cautionary notes:

- Exact water management—including application amounts and proper drainage—to deter wet wilt and algae layer growth is "the most important key to quality bentgrass production."

- 4 to 8 lbs. of slow-release nitrogen is recommended per 1,000 sq. ft.

- Iron is needed for color.

- Potassium and phosphorus levels are also important.

- Soil pH levels should hover between 5.5 and 6.5.

Bentgrass has a relatively low tolerance to most post-emergence herbicides, the report states, although pre-emergence products can be effective. When weeds strike, say researchers, hand removal is the only effective method once the turf has been established. Also, broadleaf herbicides can be used at half strength, but only at temperatures below 80 degrees.

Bentgrass is also more susceptible to disease in warmer climates because of its weakened condition in summer heat. Common fungi diseases for bentgrass include dollar spot, brown patch, helminthosporium, Southern blight (sclerotium), fairy wings and pythium.

Other difficulties cited in the report include nematodes, insect infestation, heat build-up, compaction, bermudagrass encroachment and traffic control.

If successfully established and maintained, bentgrass greens in warm climates can be chalked up as a status coup. Success singles out a course from others in the vicinity still with coarser, "slower," more yellow bermudagrass greens.

"But there have been as many failures as there have been people who have been able to pull it off. When you make that decision to go to bentgrass, you have made a serious commitment of time," warns Krans.

Ask Jim Simmons, superintendent at Shoal Creek Golf Course in Shoal Creek, Ala.

Twice the site of the PGA Championship (1984, 1990), the 18-hole Jack Nicklaus course has had Penncross bentgrass greens since 1980, although "the grass just didn't perform" in its first year, according to Simmons.

"The most important thing is to keep that grass growing constantly. If it just sits there, it will slowly fade out over the summer," says Simmons. Krans says Simmons is one superintendent who has consistently come up with formulas for success.

The course, which will expand to 27 holes in November, originally installed bentgrass under direct orders from Nicklaus. Although initially cautioned that bentgrass doesn't grow in the South, designers proceeded with the species, Simmons says, because Nicklaus insisted on only the best greens.

Fertilizer regimen essential

Soluble fertilizers are routinely applied, as is a fungicide, Simmons says. Routine supplements of iron and potassium have augmented the stay-green program as well.

"Those are the biggest things that helped our greens," says Simmons. His 17-member crew also overseeds greens every other year.

"When I first came down here, our

CORE MASTER 12

TURF AERATOR

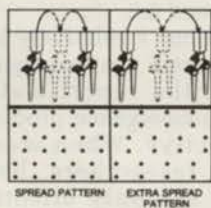
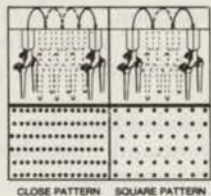
The Legend Lives On.

Greencare developed CoreMaster 12 to give you the much needed features previously thought impossible.



- Variable tining depths to 3 3/4 inches (avoids compaction pans)
- Variable tine patterns spaced (adjustable aeration patterns)
- Unique quadra-tine system for light aeration and overseeding
- True 2 inch spacing between tine holes and full range of tine sizes (1/4 to 3/4 inch)
- Incredible strength and reliability
- High speed operation on greens, tees and fairways
- Inquire about our new auto-lube systems for even greater performance and convenience

VARIABLE TINE PATTERNS



CoreMaster 12 - the true choice of professionals because we know aeration...best!

GREEN CARE
INTERNATIONAL

17851 GEORGETOWN LANE, HUNTINGTON BEACH CA 92647
(714) 842 6003 (800) 635 8761 FAX: (714) 842 1707

idea to grow the bentgrass was to not fertilize it; to let it lay dormant and not do anything except maybe use some iron. Well, that didn't work. The grass just didn't perform (and) it became obvious we had to do something to keep grass growing year-round."

The greens also receive a fine fog-like misting on particularly hot days at around 10 a.m. and noon. The syringing technique is accomplished with smaller irrigation heads.

One other ingredient: commercial-styled fans trained over greens to keep a constant air flow, reducing the ravaging effects of 95 degree temperatures and 60 to 70 percent humidity. Dr. Dudeck says hot, stagnant air is equally harmful to bentgrass, and applying moving air currents may be equally important at night. Soil temperatures, coincidentally, which reach and maintain 80 degrees can severely affect bentgrass sod. Ornamentals surrounding greens can contribute to heat build-up.

Keep it going, remain on alert, spot for trouble...all recurring messages from those who have succeeded with bentgrass in warmer months in warmer climates.

'Every green, every day'

Lemons, during Nashville's peak golf season, wrestles regularly with high temperatures, high humidity and heavy rainfall.

"The key is daily management. It is not just a matter of checking greens out once a week. You check out every green every day," notes Lemons.

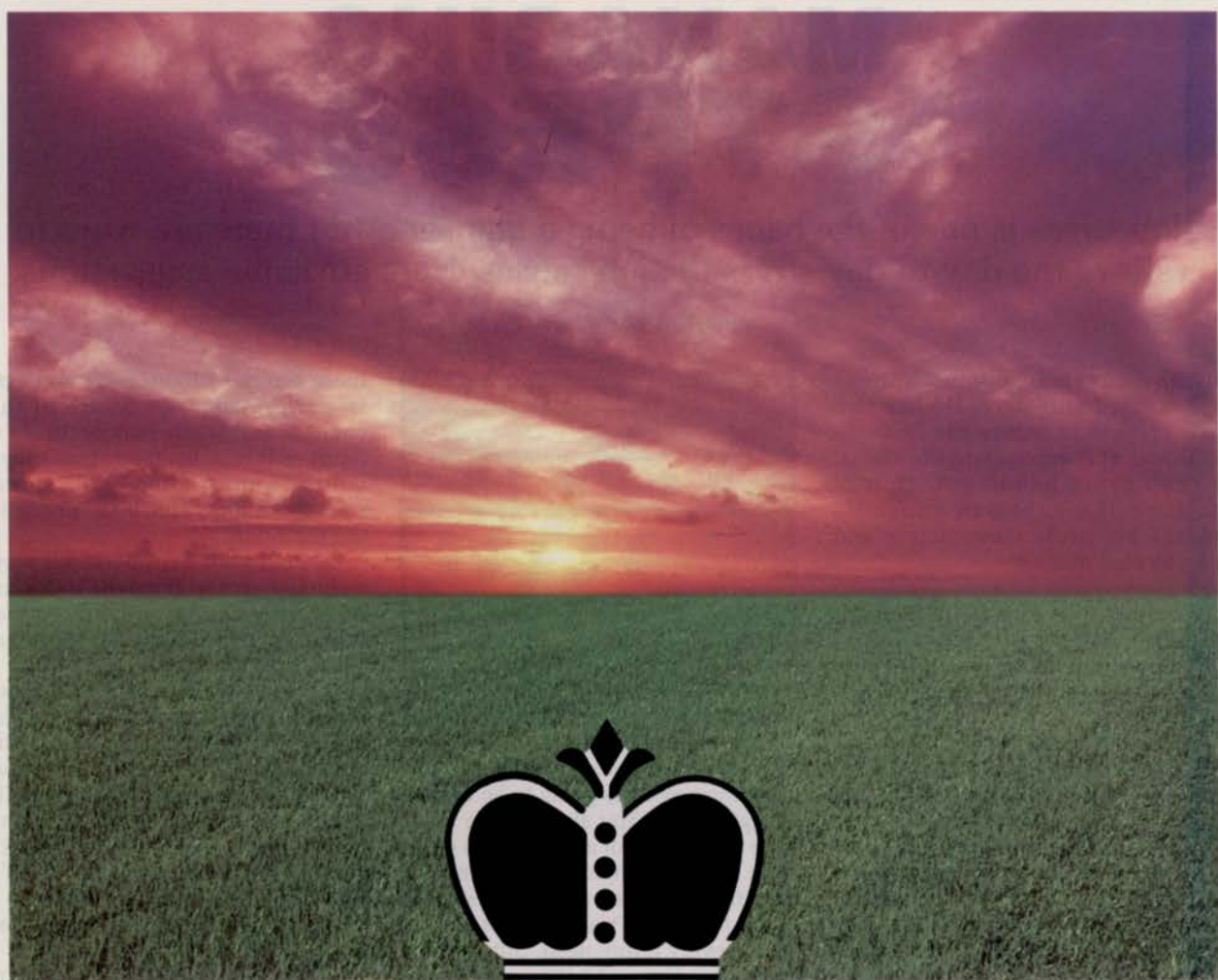
He "waters the dickens" out of the greens, sometimes by hand. He also uses wetting agents. Aerification is performed in stress times, sometimes as late as August. He says he does not overseed nor is artificial air movement needed in his circumstance.

Cadenelli says the GCSAA does not take a formal position on the practice, preferring to support the USGA's continuing research with grasses requiring less water, nutrient supplements and pest and infestation controls.

Hansen says few of the Florida GCSA's 740 member superintendents keep year-long bentgrass greens; with 95 percent opting for an adapted Tifdwarf and other heat-tolerant varieties. Winter overseeding with bentgrass is practiced, but the association president says anticipated water restrictions, along with restrictions on fungicides and pesticides, could make the choice for bentgrass moot in future seasons. **LM**

Circle No. 106 on Reader Inquiry Card

Coast to Coast Command Performance



EMPEROR

Dwarf TALL FESCUE



Compare Emperor's growth habit and rich color with other highly advertised varieties.

Turf managers have been looking for just such a variety for a long time. Darker green, lower growing, extensive root system...the natural choice for sod production destined for both recreational turf and the above average home lawn. Emperor stands up to environmental and management stresses. It can be mowed more closely, and because of its lower growth profile, Emperor looks more manicured between mowings. Whether seed or sod, specify Emperor... you'll see the difference.



ZAJAC PERFORMANCE SEEDS

201-423-1660 FAX 201-423-6018

33 SICOMAC ROAD NORTH HALEDON, NJ 07508

Circle No. 131 on Reader Inquiry Card

Other Zajac Performance Seed Varieties include Omega II and Saturn Perennial Ryegrasses, Jaguar II Tall Fescue, Vista Red Fescue and Liberty Kentucky Bluegrass.

MANAGING STRESS

Job stress is one of the banes of being a manager. But there are ways to relieve the day-to-day stress the job causes. Here are some suggestions.

by Rudd McGary, Ph.D.

The caveman comes upon a saber-tooth tiger. He has two choices to reduce the immediate threat and accompanying stress: he can fight or he can run. Most of the time the caveman runs. He reduces his stress immediately and in a physical manner.

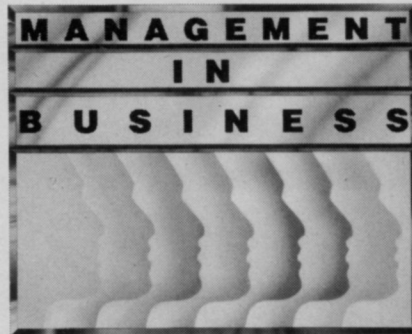
Wouldn't it be nice if, in the modern world, dealing with stress was as simple as that? But it's not. Let's show two examples of stress in the real world.

1. You are required to install some major landscaping at a golf course. It took you almost a year to land the job and a long time to plan out your materials, equipment and vehicles. You have them all ready to go on the start date. The entire crew shows up, on time. On the way to the site, your trailer loaded with the heavy equipment gets stuck on the railroad tracks and is hit by a train. You can't run and you can't fight. It's stress time.

2. In your other division, you find that a certain client—as a matter of fact, the single most important client you have—isn't happy about some construction you have done on his property. You agree to a walk-through with him. You find the staircase off his deck actually leads straight to a cesspool cover. You ask the foreman later what happened, and he replies, "That's what the architect said he wanted." You can't run and you can't fight. It's stress time.

The difference between these two examples lies in the control that you have over both. In the first illustration, having a train run over a piece of equipment isn't within your control. Sometimes things happen. But in the second illustration, communication with the production department is something you can manage.

Many green industry managers cause stress for the people who work with them because they fail either to plan, or to write down what is expected at a job site. While it isn't always possible to get everything



perfect on a drawing, the better companies seem to do it most of the time.

From the planning standpoint, you must know what is going to be needed on a given job. You also need to know if the same piece of equipment is going to be needed on two sites around the same time and plan for that ahead. I'm aware that it isn't always possible to foresee every future need. But, surprisingly, managers at better companies seem to be able to.

The key to planning, and to helping lower the stress level, is to go through contingency planning.

Remember the first time a truck broke down when it was needed on a job? Everyone ran around for a while and then decided what to do. Now you know how to deal with this type of emergency so that you can take faster action. Your stress is relieved somewhat by the fact that you know what to do. That is contingency management. Most companies learn it as they go. Some actually learn to plan for it, and that can help reduce stress.

Unfortunately, even the most brilliant planning isn't going to help if an unforeseen accident occurs: someone gets sick, a piece of equipment isn't shipped to you from the dealer on time. Different things can happen that will stress you. What can you do to help manage stress with these things that occur in every company?

Here are some general rules to follow to alleviate that type of stress:

1. Recognize when stress sets in. Usually, changes in patterns of communication occur. You start seeing

more errors of judgement and errors in performance. Be aware of these changes and when they occur, as difficult as it may be, take some time for yourself and reduce your stress. It sounds simple, and it is. Doing it is the trick part.

2. Find your own personal way of reducing stress. It might be exercising, or reading, or praying, or meditating, or talking with a confidante. What works for you?

3. Don't do something that will stress you further. For instance, having a beer or two may help reduce stress—but drinking too much will hurt you physically. The next day, you'll feel worse. Another example would be to work out so hard that you actually injure yourself. This will add to the stress. So know the limits of your stress reduction mechanisms. Don't overdo them.

4. Understand the difference between work and recreation. Sometimes people believe that simply doing physical work will relieve stress. But if the physical work is what you do for a living, it's unlikely that it'll help. For instance, taking a push mower and doing one more lawn isn't likely to reduce much stress, although it's a physical activity. You must change the pattern of the physical workout to something that is recreational.

5. Find time to do it. If you say that you're going to take some time off and go fishing, do it. Talking about it won't get you relief. Most of the time, it's possible to take some time off: the manager who is certain that he is the only one who can do the job is going to crash and burn sooner or later. He'll be short with his people, probably make a few more errors than normal, and generally not be a very good manager. Sure, it's often hard to find time, but being under constant stress isn't macho, it's stupid, and it hurts both yourself and the company. **LM**

Rudd McGary is a green industry consultant with AGMA, Inc., Columbus, Ohio.



With Apron® Systemic Fungicide Seed Treatment From Gustafson

For turfgrass that emerges faster . . . thicker . . . greener . . . healthier . . . have your seed treated with Apron fungicide seed treatment.

Apron translocates within the seed and seedling to provide effective protection against *Pythium* (damping off) and seedling blight during the critical early seedling development stage. Apron also enhances root development, to help your turf maintain its vibrant, lush appearance all season long.

Apron can be used on ALL varieties of turf and forage grasses. And the cost is just pennies per pound of seed.

Make sure your turf's up and started right. Specify seed that's treated with Apron from Gustafson, the worldwide leader in seed treatments and seed-treating equipment. For season-long *Pythium* control, ask for Subdue® fungicide.

Apron Dry now available for hopper box application

Gustafson 

P.O. Box 660065 Dallas, Texas 75266-0065 (214) 985-8877

Always read and follow label directions.

Gustafson (logo) is a Reg. TM of Gustafson, Inc. Apron and Subdue are Reg. TM's of Ciba-Geigy.



Untreated Creeping Bentgrass

Want proof of the effectiveness of SCOTTS® TGR® Turf Enhancer 50 WP?

SCOTTS® TGR® Turf Enhancer 50 WP not only improves the color, density and playability of turf.

It also reduces clippings (by up to 50%).

TGR Turf Enhancer controls turf growth for tees, fairways and greens, encouraging tightly knit turf stand. As turf growth

slows, clippings are reduced and water conserved—offering important economic and environmental advantages with regards to clipping disposal and water management.

When used with nitrogen fertilizers, TGR Turf Enhancer stimulates turf greening for

ORGANIZING SELF-SUFFICIENT CREWS

From the people need to be empowered to respond to changes in our businesses. Highly productive, on-site crews can work to a higher standard than ever before.

By Bill Christman



Treated with TGR Turf Enhancer

Read our clippings.

up to 12 weeks. And it is especially effective on perennial ryegrass turf.

Because Scott has been working with TGR technology for more than 10 years, our Tech Reps offer unsurpassed experience in managing growth regulator applications. Why settle for anything less?

Your Scott Tech Rep is ready to show you how TGR Turf Enhancer can improve the playability of your golf course as part of a total turfgrass program. For more information, contact him today. Or call 1-800-543-0006.



ORGANIZING SELF-SUFFICIENT CREWS

Front line people need to be empowered to respond to changes in our businesses. Highly productive, on-site crews can work to a higher standard than ever before.

By Phil Christian

If all, or part of your business includes delivering services to the exterior of existing residential or commercial real estate, then you and your company are subject to the natural laws we call "The Nature of the Business."

The "Natural Laws:"

1. We must deliver our service to the property because the customer does not have the option of bringing the property to us.

2. One or more of our people form a mobile crew to bring the material, equipment and technical skills to the customer's property to perform the services.

3. The service is mostly intangible and varies with each delivery.

4. The outside environment can not be controlled by us. It is ever-changing and often unpredictable.

5. The needs, moods, and focus of the customer are subject to change—without notice.

Most landscape owners and managers gained their experience in companies that had a headquarters, a base, with on-site support systems: information and communication systems; access to tools and equipment, materials; and training.

Today we manage mobile crews that by "the nature of the business" do not enjoy those support systems. We try to extend this support system to the mobile crews and are frustrated because it simply does not work.

We try in vain to supply supervision by meeting with the crews on-site, bringing information, instructions and directions. We even coddle



• We try in vain to extend headquarters support to on-site crews.

• We must structure crews to face the needs of the business.

• Crew chiefs must be able to work on-site with little supervision.

• Wean crews from middle management interference and watch them soar!

the customer and do a little training while we are there! We then rush to catch up with the next crew, reminding the dependent crew to "call us on the radio if you need support."

No long-distance

The fact is, you can not supervise or support mobile crews long distance. They must be self-sufficient, self-sustaining, temporarily self-contained, self-motivated and—above all—self-

supervised. That is a lot to ask of hourly or minimum wage people.

We must re-define the role of the mobile crew and structure them to face the needs dictated by the "nature of the business."

The solution is to have a trained and experienced crew chief or crew leader that can provide the needed support for a limited amount of time, perhaps one working day. The knowledge, experience, and skills that now exist in middle management must be rolled down to the front line on-site people.

The benefits, which can be enormous, will include:

- Increased productivity and profit
- Increased customer and employee retention
- Increased quality
- Reduced management hassles
- More efficient use of overhead

The solution

The solution to this problem is not easy: *hire, train, equip, direct, and empower competent crew chiefs who can produce the work on site with minimum or no supervision.*

This seems too simple. If the benefits are so great, why is "empowerment of the front line" not more popular in our industry?

The landscaping industry has a fear—with some justification—of spawning our own competition. We are afraid that if we make crew chiefs truly self sufficient they will chose to do it for themselves or move to a competitor in our market.

Added to that is the belief that we

It's a Sure Bet The World's Top Courses Aren't Cutting with a National Mower Because It's Pretty!



Discover why National Triplexes are the 1st Choice of the world's top turf professionals. Call today for a FREE video.

(612) 646-4079



NATIONAL MOWER COMPANY

700 Raymond Avenue
St Paul, Minnesota 55114
FAX (612) 646-2887

have valuable or proprietary information that, if revealed to competitors, could destroy the company. This need for secrecy is left over from the developing days of landscape services.

The reality is, today your competitors already know what they want to know about your business, and don't care about the rest.

Routine legal precautions should discourage your crew chief from "opening shop" in your immediate market. The future will judge us in terms of how much our people know. Jan Carlzon, president of Scandinavian Airlines wrote, "An individual without information cannot take responsibility, and an individual that is given information cannot help but take responsibility."

Our colleagues

We are in the information age and landscape service crew chiefs are examples of knowledge workers of the 1990s. They are specialists who should be treated as colleagues. They have the skills and mobility to change jobs, and they cherish professional dignity as much as money.

It will become normal in the

1990s for landscape service specialists to change jobs more often than in the past. Most will leave, not to form

The reality is, today your competitors already know what they want to know about your business, and don't care about the rest.

their own company, but to work for another company that will allow them to practice their speciality without undue interference.

There will be fewer middle managers in the future because fewer are needed when the "power to get it done" rests with on-site people. Middle managers who are left will be coaches, facilitators, and trainers rather than line supervisors.

Self-sufficient crews, managed by working empowered crew chiefs, make better use of overhead. The existing overhead structure can sup-

port more self sufficient than dependent crews reducing the overhead that must be recovered by each crew.

Start now with your best crew and work with them until they reach an acceptable level of self-sufficiency. Wean them from the interference of middle management clutter, and watch them soar. **LM**



Phil Christian of Alpharetta, Ga., is a green industry consultant with pdc consultants.

New

PORTABLE IRRIGATION SYSTEM

At Last A Solution for Watering Trees!

The **TREGATOR** is a portable, reusable, above ground irrigation system. It provides a careful controlled drip rate for consistent watering of trees for up to 32 hours. *Designed to be used on the root ball of a planted tree, or a balled & burlapped tree for maintenance until planting.* Works well for softening hard soils overnight making summer tree digging easy. Effortlessly zips around the tree trunk and can be filled with water and liquid fertilizers in less than 10 minutes.

- Save on water—
- Eliminate trenching
- Comes in two sizes (25 gal. and 50 gal.)
- Constructed of reinforced, UV coated polyethylene.
- Heavy duty nylon zippers.
- Zip in multiple configurations for big jobs.
- Folds down flat for compact, easy storage.

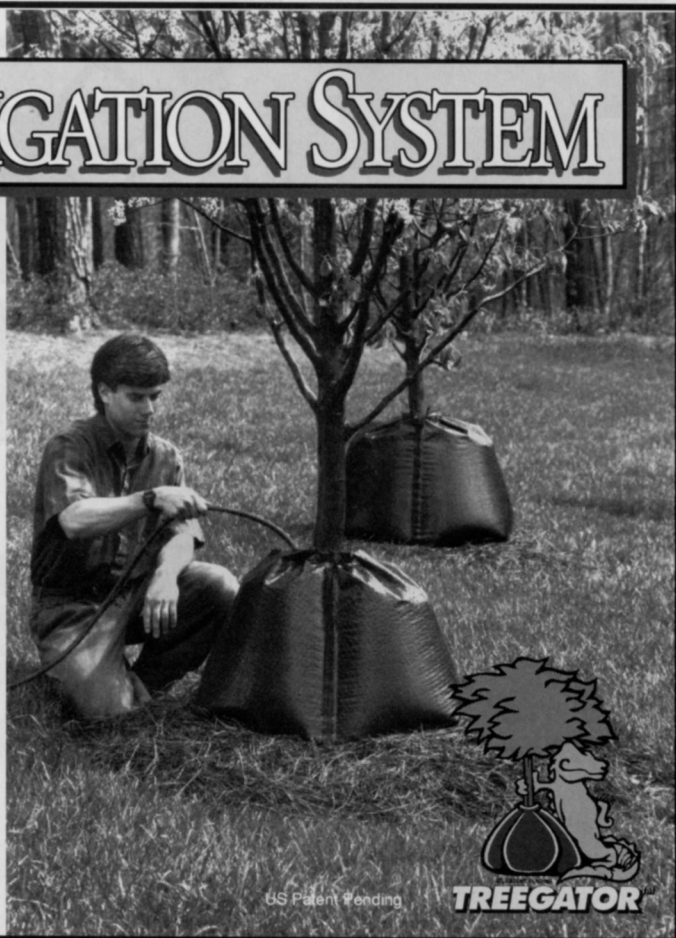
Save Time, Save Money, Save Water.
Solve Your Tree Watering Needs —

SPECTRUM PRODUCTS

3425 Hipsley Mill Road • Woodbine, Maryland 21797

FAX Us Your Order: 301-442-1223

For More Information Call: 1-800-800-7391



US Patent Pending

TREGATOR

Circle No. 125 on Reader Inquiry Card

OTF

25TH ANNUAL CONFERENCE & SHOW

The Ohio Turfgrass Foundation is proud to sponsor the 25th Annual OTF Conference And Show in Cincinnati, Ohio, December 2-5. This year marks the silver anniversary of the OTF show and is sure to be the most exciting ever.

THE REGIONAL SHOW THAT APPEALS TO PROFESSIONALS NATION-WIDE

In 1990, professional lawn care, golf course, maintenance, athletic field, and public turf managers came to Cincinnati from 35 states.

They'll be in Cincinnati again this December to learn from the industry's top experts, to share ideas with over 4,000 other pros like themselves, and to take a close look at one of the nation's largest displays of equipment, turf care products and supplies available to the turf industry.

FOUR OF THE MOST ACTION-PACKED DAYS OF THE TURFGRASS YEAR

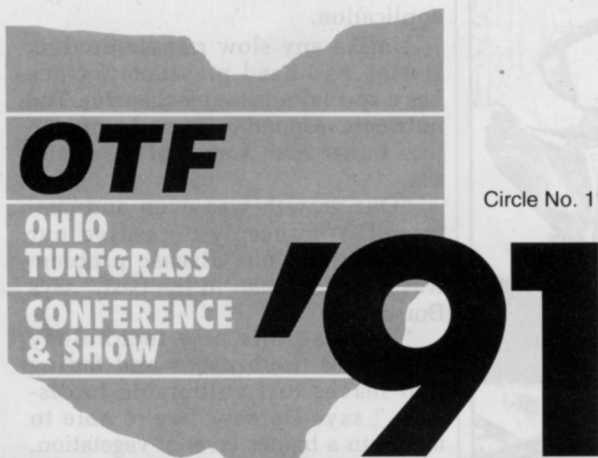
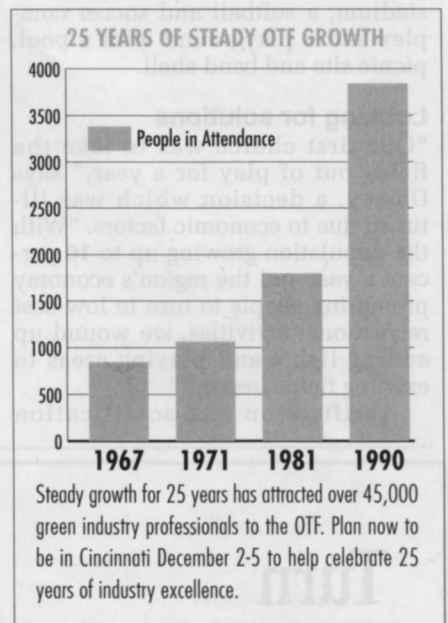
Whatever your business or career, you'll find what you need at OTF. The huge show floor of the Cincinnati Convention center will be filled with all the tools of your trade. The educational conference includes university researchers and industry professionals offering sessions and workshops on:

- Golf Turf
- Lawn Care
- Grounds Maintenance
- Sports Turf

Many of these sessions qualify for pesticide recertification credits.

NEW! FOR THE '91 OTF SHOW

New for 1991 will be **Buckeye Beer Garden** on the show floor, and a **Silent Auction** to give you the chance for some fantastic bargains. Be there, and join the fun!



Circle No. 119 on Reader Inquiry Card

YES! PLEASE SEND MORE INFORMATION ABOUT THE 1991 OTF CONFERENCE & SHOW.

Check appropriate boxes:

- I'm interested in exhibiting
- I'm interested in attending
- I'm interested in OTF membership

Name _____

Company _____

Address _____

City _____ State _____ Zip _____

Phone _____

DETACH AND MAIL TO: Ohio Turfgrass Foundation
2021 Coffey Road
Columbus, Ohio 43210
614-292-2601

Controlled release solves lazy turf green-up

How do you cope with tired turf, a rising demand for recreational land, and a frozen budget? Frank Dorsey, superintendent of the parks and recreation department of Nashua, N.H., was recently faced with those questions.

"Fifty thousand people use our fields every day from early April to mid-December, and we tried everything we could to keep them safe and playable," says Dorsey, who tends 648 acres. Included in his list of responsibilities are a multi-purpose stadium, a softball and soccer complex and a playground with a pool, picnic site and band shell.

Looking for solutions

"Our first choice was to take the fields out of play for a year," says Dorsey, a decision which was ill-timed due to economic factors. "With the population growing up to 10 percent a year and the region's economy prompting people to turn to low-cost recreational activities, we wound up adding lights and playing areas to existing fields instead."

Aerification and scarification



Frank Dorsey, right, of Nashua, N.H., found that the Once fertilizer product brought deep green color and even, sustained growth to recreational areas.

were the last resorts, culturally.

"Instead of rebuilding a field or tearing out damaged roots as we might have done with more

resources," Dorsey explains, "we overseeded worn areas and bare spots without disturbing the existing mature grass."

A 33-3-10 water soluble fertilizer applied every August, November and May brought short-term results. Spring fertilization created a similar temporary green-up, plus extra mowing and uneven clippings.

Results all season long

A visit to a New Hampshire parks and recreation trade show provided Dorsey with a solution. Once, a controlled release fertilizer described as an "environmentally-sensitive product" by its manufacturer, Grace-Sierra, released nitrogen, phosphorus and potassium continuously for up to a full season with only a single application.


Unlike any slow release product Dorsey had used previously, Once has a special-release mechanism. The nutrients respond to ground temperature rather than water, pH or bacteria.

"Our growth was even and sustained. We sharply decreased our mowing, and our disease problem was a lot less than in the past," says Dorsey.

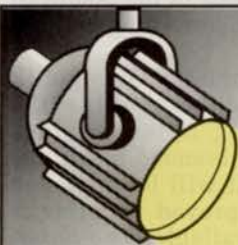
"Because this new technology eliminates the blushes and fading that leaves turf vulnerable to disease," says Dorsey, "we're able to maintain a higher level of vegetation, which allows a sensitive plant like bluegrass to thrive." **LM**

Turn A New Leaf

Bringing new life to the old neighborhood is as easy as one, two, tree! With the help of our city forester . . . a little muscle and sweat . . . and a lot of fun, we're bringing a fresh new look to our street by planting trees. You can turn a new leaf in your neighborhood, too. For your free booklet, write: Tree City USA, The National Arbor Day Foundation, Nebraska City, NE 68410.

 **The National Arbor Day Foundation**





Soil technology fills porosity gaps

Isolite is described as a breakthrough in soil modification technology which offers a permanent solution to soil management headaches, says its manufacturer, New Golf Concepts, Inc. of Westminster, Colo.

Isolite is a porous ceramic granule of uniform size with about 70 percent pore space throughout each granule. With no "dead-end" pore space, stored moisture is directly available to the plant, the company says. Isolite also does not break down in soil.

According to New Golf Concepts, lack of porosity is a main culprit in problem soils used as a growing medium. An "ideal" soil, says the firm, contains equal mix-

tures of solids and pore space.

In clay soils, solid particles create a large surface area to which a



thin layer of water adheres tightly. Plants often cannot extract water from the soil solution because attraction is so great and the water is unavailable. Result: poor plant growth. Also, clay-rich soil is more

susceptible to compaction in high traffic which decreases macroporosity.

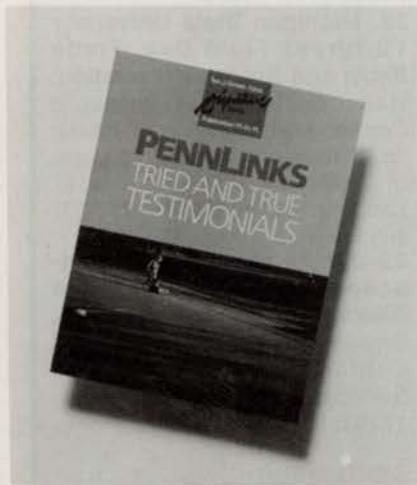
By contrast, sandy soils abound in macro pores, which leads to drought-like conditions. New Golf Concepts says a golf green can be an excellent example of a soil which is too sandy to retain enough water to sustain healthy plant growth without constant irrigation and management.

Adding the product to the root-zone can achieve the needed balance between micro- and macroporosity. Also, Isolite adds bacteriological temperature and water buffering especially important in sandy soils.

Circle No. 191 on Reader Inquiry Card

Read what supers say about this bentgrass

After 12 years of research and testing at Penn State University, PennLinks creeping bentgrass was marketed as a



deep-rooting species which provides a grainless putting surface.

"PennLinks Tried and True Testimonials" is a compendium of testimonials from superintendents in the U.S. and England on the

quality of PennLinks creeping bentgrass.

Tee-2-Green Corp., of Hubbard, Ore., says PennLinks sets new standards for upright growth, putting surface quality, wear tolerance and turf establishment.

Tee-2-Green also markets PennCross, PennEagle and PennWay Blend creeping bentgrass.

Circle No. 192 on Reader Inquiry Card

Creeping red fescue now on the market

Fine Lawn Research now offers Flyer, a new variety of creeping red fescue.

The company says Flyer produces a fine, dense, deep green turf which received overall quality ratings in the 1984 National Fine Leaf Fescue tests.

The firm says the variety is particularly suited to blend well with Kentucky bluegrass and enhances turf-type tall fescues and perennial ryes.

Circle No. 193 on Reader Inquiry Card

Turf-type tall fescue low growing, low maintenance

Rebel, Jr. from Lofts Seed, Inc. is darker than other turf-type tall fescues, says Dr. Richard Hurley, VP



and Research Director for the firm.

Rebel Jr. has a darker green color, offers moderately low growth with excellent performance in full sun or moderate shade and needs low to medium maintenances, says the company.

The variety adapts to a wide range of environments and is resistant to insect and disease damage.

Circle No. 194 on Reader Inquiry Card

Kentucky bluegrass ranks among the best

From Jacklin Seed Co. comes Suffolk Kentucky bluegrass, a variety which consistently ranked in the upper third in quality ratings of 72 like varieties, reports Jacklin.

Suffolk is a new, moderately low-growing, medium dark-green variety which has high test results in resistance to fusarium blight, powdery mildew, leafspot and dollar spot.

Circle No. 195 on Reader Inquiry Card

Three seed varieties enter the market

Three top-rated seed varieties from O.M. Scott & Sons Co. will hit the market as part of the Scotts ProTurf product line.

The varieties are: Sonesta seeded bermudagrass, Aztec tall fescue and Brigade (formerly Melody) hard fescue.

Sonesta will have limited availability this fall. The company says based on National Turfgrass Evaluation Program results, the variety will be the highest quality seeded bermuda on the market.

Aztec, an improved tall fescue, will be marketed next year. Dark green and fine textured, the variety received high ratings in national trials in 1988 and 1989.

Brigade will also be on the market in 1992. Ranking fifth out of 93 entries, the hard fescue placed well in national fine fescue tests.

Circle No. 196 on Reader Inquiry Card

Starter fertilizer lends a hand on greens, tees

Lebanon Turf Products recently introduced Country Club 10-18-18 AOS starter fertilizer which the company claims assures successful seeding and even nutrient distribution.

Country Club 10-18-18 AOS (aerification, overseeding, starter) contains the 1-2-2 ratio including 35 percent organic nitrogen, 2.2 units water insoluble nitrogen for safe and sustained feeding and 100 percent sulfate of potash.

Lebanon Turf Products says the fertilizer may be used effectively in aerification and topseeding, providing sufficient amounts of phosphorus and potassium while keeping available nitrogen at a manageable level. Spoon feeding cool season turf in



overseeding situations is possible.

Circle No. 197 on Reader Inquiry Card

Three turfgrasses now available commercially

Able-1, Honor Roll and Front Runner are available in ample supply from manufacturer Davenport Seed Corp. in Davenport, Wash.

Able-1 is a deep blue-green turf with dense, uniform growth. The company says the variety shows excellent disease resistance, early spring green-up, and high tolerance to heat, cold, drought, shade and wear.

Front Runner, a tall fescue, blends the qualities of Avanti, Guardian and Chieftain varieties, according to the company. Bright green in color, the product has high grassplant density, excellent low vertical growth, fine leaf texture and superior disease resistance.

Honor Roll premium bluegrass sod blend features the primary cultivar A-34 BenSun, the premium bluegrass which has been popular with growers for 20 years.

Circle No. 198 on Reader Inquiry Card

Self-healing tire more than normal sealant

Synair Corp. now markets the TyrLyner, a self-healing rubber liner for tires that the company says prevents puncture flats.

The TyrLyner bonds a layer of rubber to the tire casing, converting any pneumatic tire into one protected against air leaks. Synair says the process gives uniform coverage over the most vulnerable areas. It is called 99 percent effective in preventing puncture flats.

Circle No. 199 on Reader Inquiry Card

Tall fescue blend fills need in Southeast

Confederate brand tall fescue blend addresses the needs of the Southeast turfgrass market, according to Turf-Seed, Inc.

The blend contains Olympic II, Apache and Monarch plus the newly-released Safari. Since Confederate is a branded blend, the company says it will be upgraded with newer, improved varieties as they become available. The Safari component has improved brown patch resistance that is important to the Southeast region.

Confederate has a dark green color, and a moderate growth habit, which Turf-Seed says makes it adaptable and quick to establish.

Circle No. 200 on Reader Inquiry Card

Bermudagrass seed in many quantities

Numex Sahara bermudagrass is now available in one-, three-, five- and 50-pound bags and a 25-pound pail, manufacturer Farmers Marketing Corp. announces.

Numex Sahara is a seeded, turf-type bermudagrass with fine leaf texture, dark green color and uniform appearance, the company says. The variety shows superior drought avoidance characteristics and is recommended for lawns, sports fields, fairways, tees and roughs.

Circle No. 201 on Reader Inquiry Card

Events from page 20

N. Washington Ave., Suite 2, Lansing, MI 48906.

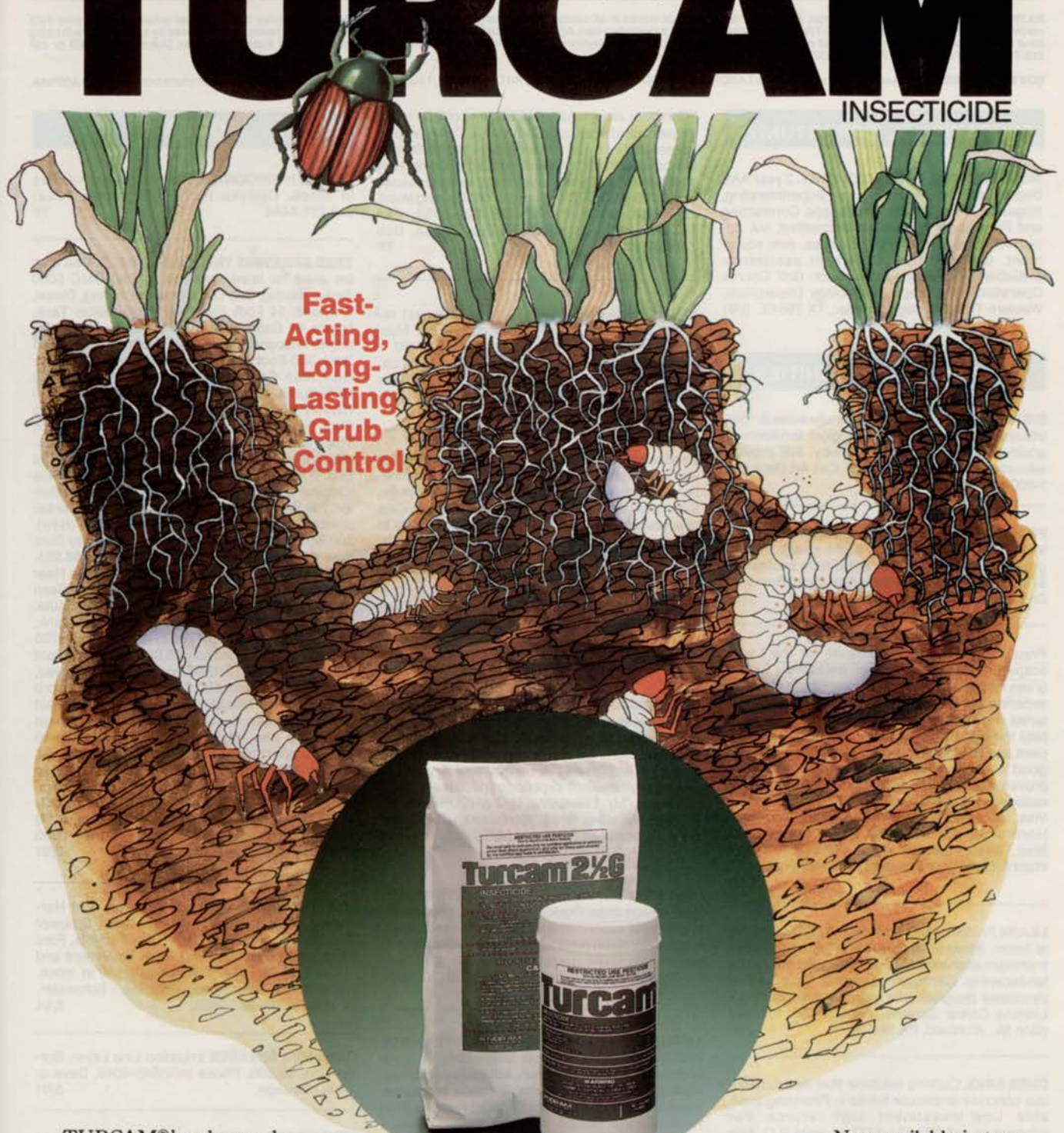
22: Michigan State University Turfgrass Field Day, Trade Show and Equipment Auction, Hancock Turfgrass Research Center, MSU campus. Contact: Dr. Bruce Branham, MSU Dept. of Crop and Soil Sciences, E. Lansing, MI 48824; (517) 353-2033.

22-23: Pennsylvania Landscape and Nursery Trade Show and Conference, ExpoMart, Monroeville, Pa. Contact: PNA, 1924 North Second St., Harrisburg, PA, 17102; (717) 238-1673.

SEPTEMBER
15-17: The Fertilizer Institute's World Fertilizer Conference, NY, N.Y. Contact: The Institute, 501 Second St. NE, Washington, DC 20002. **LM**

TURCAM®

INSECTICIDE



**Fast-Acting,
Long-Lasting
Grub
Control**

TURCAM®'s advanced carbamate chemistry goes to work fast—and offers effectiveness that lasts—against white grubs as well as mole crickets, chinch bugs, sod webworms and other destructive pests. This hard-working insecticide is odorless...cost-effective...easy to apply. What's more, TURCAM won't tie up in thatch or damage turf and ornamentals.

 **NOR-AM**
NOR-AM CHEMICAL COMPANY
A Schering Berlin Company

3509 Silverside Road, P.O. Box 7495, Wilmington, DE, 19803

Now available in two convenient forms—TURCAM WP a wettable powder and TURCAM 2 1/2 G granular—this versatile insecticide can take care of your toughest pest control problems. For more information on TURCAM, contact the NOR-AM

Communications Department or your local distributor.

CAUTION: TURCAM® is a restricted use pesticide.

Copyright © 1988 NOR-AM Chemical Company. All rights reserved.

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

Circle No. 118 on Reader Inquiry Card

CLASSIFIEDS

RATES: \$1.25 per word (minimum charge, \$40). Bold face words or words in all capital letters charged at \$1.50 per word. Boxed or display ads: \$105 per column inch-1x (one inch minimum); \$100-3x; \$95-6x; \$90-9x; \$85-12x. (Frequencies based on a calendar year). Agency commissions will be given only when camera-ready art is provided by agency. For ads using blind box number, add \$20 to total cost of ad per issue. Send ad copy with payment to Dawn Nilsen, LANDSCAPE MANAGEMENT, 1 East First Street, Duluth, MN 55802 or call 218-723-9483. Fax Number 218-723-9437.

BOX NUMBER REPLIES: Mail box number replies to: LANDSCAPE MANAGEMENT, Classified Ad Department, 1 East First St., Duluth, MN 55802. Please include box number in address.

EDUCATIONAL OPPORTUNITY

MOVE UP IN THE GREEN INDUSTRY. 2 year AAS Degree program in Golf Course Superintending, Irrigation Management, Landscape Contracting and Park Supervision. Fully accredited, VA approved, expanded learning facilities, new equipment. Graduate job placement assistance available. For information contact: Golf Course Operations/Landscape Technology Department, Western Texas College, Snyder, TX 79549. 9/91

BUSINESS OPPORTUNITIES

DISTRIBUTORS NEEDED: To handle sales & "distribution" of high quality biological fertilizers & additives for the turfgrass industry. Will provide educational & sales assistance. Call Art Germann 1-800-553-7585 for details. 8/91

PROPERTY MAINTENANCE COMPANY - DENVER, COLORADO: Over eight years strong growth. Sales \$733,000. Extremely profitable. \$75,000 down. Seller will finance. Omni Business Brokers (303)753-1233. 8/91

Practical Marketing Techniques for the Landscape Company. A new book exclusively for the green industry. A 70+ page compilation of notes, experiences, charts, graphs, examples, case histories and just plain common sense, all geared to help the landscape company make the most efficient use of time and money to attract and retain good customers. Contains how-to information proven successful by other landscape companies nationwide. \$19.95 plus \$3 S/H. To order with MC, Visa, call 1-800-359-6647. Checks to Landscape Horticulture Center, 2509 E. Thousand Oaks Blvd., #109, Westlake Village, CA 91362. "If You Want to Grow Your Business, Buy This Book." 9/91

LEARN Professional Landscaping and Gardening at home. Accredited program provides thorough training in all phases of commercial and residential landscaping. Certificate awarded. Free booklet describes program and opportunities in detail. Lifetime Career Schools, Dept. A-480, 101 Harrison St., Archbald, PA 18403. 9/91

CURB KING: Curbing machine that lays continuous concrete landscape borders. Financing available. Low investment, high returns. For information call 303-434-5337 or write P.O. Box 40567, Grand Junction, CO 81504. TF

HELP WANTED

Swingle Tree Company, Denver, Colorado, an industry leader since 1947 is looking for a supervisor for our tree spraying department. *Min. 2-3 yrs. experience in diagnosis and recommendations. *Working knowledge of tree spraying equipment. *Excellent communication skills combined with field and supervisory experience. *2-4 year related degree desired. *Health, Dental and Pension Plan. *Salary range: \$21,000-\$25,000. Call Tom or Greg (303)337-6200. 8/91

"Consider all of your employment options in the irrigation and landscape industries. Call **Florapersonnel**, the international employee search firm for the ornamental horticulture industry. Completely confidential. Employer pays fee. **Florapersonnel, Inc.**, 2180 West S.R. 434, Suite 6152, Longwood, FL 32779-5008. Phone 407-682-5151, Fax 407-682-2318. Jeff Brower, Joe Dalton, Bob Zahra, CPC." TF

BRANCH MANAGER: For large southeast regional landscape maintenance contractor. Must have 3 years experience running a \$1,000,000 + branch. Must possess good operational and customer service abilities. Excellent salary and benefits. Send resume to LM Box 488. 8/91

Landscape Maintenance Manager needed for well established firm in Mid-Atlantic state. Individual must possess enthusiasm, organization skills, extensive background and knowledge of all facets of landscape and grounds maintenance. Ability to do some design work. Experience with lawn irrigation required. Degree in horticulture preferred. Experience and track record of managing maintenance crews a must. Excellent salary plus benefits. Send resume and salary history in complete confidence to LM Box 487. Position available approx. Sept. 1, 1991. 8/91

GROUNDSKEEPER/MANAGER: Full-time for fast growing waterfront property which includes marina, restaurant, golf driving range and future construction. Must be a working supervisor over a staff of 5 employees. A minimum of 5 years of ground maintenance experience necessary. Send resume to: Mr. Trombetta, C/O ARCORP PROPERTIES, Pershing Road, Weehawken, NJ 07087. Equal Opportunity Employer M/F. 8/91

LANDSCAPE MAINTENANCE SUPERVISOR: For multi-million dollar Florida landscape company. To handle field supervision for up to 5 crews. Knowledge of southern horticulture preferred. Salary + benefits. Send resume to: Mr. S. Khalsa, 1174 Florida Central Parkway, Longwood, FL 32750. 8/91

COMMERCIAL LANDSCAPE MAINTENANCE FIELD SUPERVISOR for six million dollar Arizona contractor. Duties: hire, train, schedule personnel, develop and direct site maintenance programs, interface with clients, etc. Qualifications: B.S. in Horticulture or related, six years landscape management experience. Salary mid-20's DOE, benefits. EOE. Mail resume & handwritten letter to: Landscape Manager, P.O. Box 44224, Tucson, AZ 85733. 8/91

SOFTWARE

BOTANICUS-Tropical Plant Encyclopedia for IBM & Compatibles. Requires 256K, color graphics, printer, hard disk (Opt). Hundreds of trees, palms, shrubs, groundcovers, grasses & weeds. For pros or hobbyists. Send \$49.95 + \$2.50 S/H to: **BOTANICUS SOFTWARE**, PO Box 39619, Fort Lauderdale, FL 33339. Includes next two releases. 10/91

FOR SALE

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

TREE SPRAYING TRUCKS FOR SALE. Can also be used for lawn spraying. 2-1990 GMC 5000 Series (Isuzu), Cab Over, Power Steering, Diesel, 5 Speed, 14 Foot Flat Bed, 1,000 Gallon Tank, Hypro 44 Gallon Per Minute Pump, 30 Horsepower Wisconsin Industrial Engine, Hannay Hose Reel, 300 Foot 3/4" Hose, John Bean 785 Spray Gun. Also Second Pumping System Hypro 10 GPM Pump, 11 Horsepower Honda Engine, Small Hannay Hose Reel, 250 Foot 1/2" Hose, Deep Root Feeding Gun and JD9 Gun. \$24,995 Each Truck (Cost \$40,000 New). 1984 GMC 6000 Series, 350 V8, 4 Speed, Power Steering, 14 Foot Flat Bed, 6 New 8:25x20 Tires, 48,000 Original Miles (Original Owner), 1,000 Gallon Tank (New), 44 Gallon Per Minute Hypro Pump (New), 23 Horsepower Kohler Engine, Hannay Hose Reel (New), 300 Foot 3/4" Hose (New), Bean 785 Spray Gun, New Paint on Cab. Excellent Condition. \$8,995. 1982 Ford F600, 370 V8, 4 Speed, 2 Speed Rear Axle, 14 Foot Flat Bed, Power Steering, FMC Bean Tree Spraying Machine, 35 Gallon Per Minute, Wisconsin Industrial Engine, 600 Gallon Tank, Hannay Hose Reel, 300 Foot 3/4" Hose, Bean 785 Spray Gun. Approximately 46,000 Miles. Excellent Condition. \$8,995. 2-1990 Dodge 0350's 4 Speed, V8, 12 Foot Flatbed, 500 Gallon Poly Tank, Hypro 44 Gallon Per Minute Pump, 30 HP Wisconsin Engine, Hannay Reel, 300 Ft 3/4" Hose, Bean Gun. Also Second Pumping System Hypro 10 GPM Pump, 11 Horsepower Honda Engine, Small Hannay Hose Reel, 250 Foot 1/2" Hose, Deep Root Feeding Gun and JD9 Gun. \$16,995 Each Cost \$30,000 New! **CALL NOW! - PRICES NEGOTIABLE. Photos Available Upon Request. (516) 331-4713 Evenings & Weekends, (201) 785-0985 Monday-Friday Days.** 9/91

FOR SALE: New and used Brouwer Sod Harvesters. Also in stock, new and used: Brouwer Vacs, Brillion Seeders, Hitch-Hiker Forklifts, Ford and Kubota tractors, Land Pride equipment and McCord Terra Tires. Full line of parts in stock. Huber Ranch Power Equipment, Inc. - Schneider, IN. Phone: 219-552-0552. 8/91

CASE MINI SNEAKER Irrigation Line Layer, Boring Unit, \$5,500. Phone (402)643-4049, Dave or leave message. 8/91

BENT GRASS available for immediate pick-up or delivery. For information call Jade Run Turf and Sod Farm: 800-332-1220. 12/91

LAWN SEED: Wholesale. Full line of top quality grasses. Improved bluegrass varieties, tall fescues and fine bladed ryegrasses. We specialize in custom mixing. Oliger Seed Company, 89 Hanna Parkway, Akron, OH 44319. Call collect (216)724-1266. TF

FREE CATALOG - Complete line of COMMERCIAL WALK BEHIND MOWER PARTS, AIR FILTERS, BLADES, WHEELS, TIRES, GRASS CATCHERS AND ACCESSORIES. Call 1-800-666-5344, Akron Landscape Supply. 8/91

You aren't born smart. That's why there's
such a thing as experience.



© 1991 Stihl Inc.

STIHL®

Circle No. 126 on Reader Inquiry Card

"With equipment, like a lot of things in the lawn-care business, you learn the hard way.

I put the equivalent of five years of 'homeowner' use on a trimmer in five days.

Same thing with chain saws and backpack blowers. I bought the discount-store brands first, before I knew better.

But after my first Stihl, I never even looked at another brand.

I need to get the job done in the least amount of time, so I can go on to another job and make more money. It's that simple."

- John Frick
Owner, Grassroots, Cincinnati, OH



Stihl makes chain saws, blowers, and trimmers for professionals who depend on their tools for a living.

Stihl. For the part of you that promised you'd never compromise.

AD INDEX

PAUL FLORENCE Turfgrass: Quality seed for the Turf Professional. Elite Bluegrasses, Fine-Leaf Ryegrasses, and Turf-Type Tall Fescues. Custom mixing our specialty. Silva-Fiber mulch and supplies for hydro-seeders. Quality Elite Bluegrass Sod. Call us! (513)642-7487. 13600 Watkins Rd., Marysville, OH 43040. TF

Finn Hydroseeders, Mulch Spreaders, Krimpers, Pit Burners, Fiber Mulch & Tackifiers. New & Used. Wolbert & Master, Inc., P.O. Box 292, White Marsh, MD 21162, 301-335-9300, 1-800-234-7645. TF

PIPE LOCATOR INEXPENSIVE! Locates, traces underground drain, water pipe lines of clay, PVC, ABS, steel, cement. Finds sprinklers, valves, clogs. Bloch Company, Box 18058, Cleveland, Ohio 44118. (216)371-0979. TF

PRINCETON LIFTS: *1- 1989 D4500, excellent condition, new tires, new paint, no frame damage, no leaks, low hours; \$17,500. *1- NEW D4500; Price \$24,500. (405)771-5122 Chris. 8/91

FOR SALE - HYDROSEEDER - FINN TITAN 3000: Very good condition. John Deere diesel engine with 800 hours. Mounted on a 1978 Mack 685. \$32,000. 216-539-4450. 8/91

NEW AND USED BROUWER EQUIPMENT: Mowers - VACS - Fork Lifts - Harvesters - and full line of replacement parts. USED PRINCETON and SPYDER FORKLIFT. Contact Ed, Glenn or Pat Markham at 1-800-458-3644. TF

Jacobsen HF5, Lightweight Fairway Mower, diesel, sharpened, \$7,900. Toro Greensmower, sharpened, \$3,000. Jacobsen Greensmower, sharpened, \$3,000. '86 Ransomes 213-D, Kubota Diesel, sharpened, \$7,500. '85 Jacobsen 5 gang Hydraulic Fairway Mower with Power Pac, sharpened, \$5,250. Jacobsen Blitters 7 gang, sharpened, \$5,250. Photos available. Call for information 313-653-5695. 8/91

Replacement bedknives and reels for Toro and Jacobsen mowers. Big savings on these parts! Same day shipping. Call **LESCO** to order or ask for a free catalog (800)321-5325. 10/91

PENNSYLVANIA GROWN SOD: PENNCROSS Bentgrass-Fourway Blend of BLUEGRASS-BLUEGRASS/RYEGRASS Blend-Shipped via our trucks - forklift unloaded. **VICNOR FARMS, INC.,** Connoquenessing, PA 16027. 800-842-0461 10/91

HYDRO-MULCHERS AND STRAW BLOWERS: New and used. **JAMES LINCOLN CORPORATION,** 3220 S. Jupiter Rd., Garland, TX 75041. (214)840-2440, (800)527-2304. TF

KELWAY® professional SOIL ACIDITY and SOLUBLE SALTS TESTERS, available from distributors nationwide. **HB-2** and **SST** brochures from **KEL INSTRUMENTS CO., INC.,** Dept. 1, P.O. Box 2174, Vineyard Haven, MA 02568. (508)693-7798. 10/91

High quality professional horticulture training videos. 100% satisfaction guaranteed! Call or write for a free color catalog. San Luis Video Publishing, P.O. Box 4604, San Luis Obispo, CA 93403 Tel: (805)545-5426. Fax: (805)545-5423. 9/91

SPYDERS - New/Used/Rebuilt. New Kohler engines, short blocks and a complete line of engines and Spyder replacement parts. New Style Nichols-Fairfield Torque Hub Kits, heavy duty Wilton Caster Kits, Remote Air Cleaner Kits, heavy duty Carriage Side Plates. We repair and rebuild hydraulic pumps and motors for your Spyder. Same day service. Call or Write: Mobile Lift Parts, Inc., 5402 Edgewood Rd., Crystal Lake, IL 60012. 815-455-7363; 1-800-397-7509. 8/91

USED EQUIPMENT

NEW and USED EQUIPMENT--Asplundh, Hi Ranger and Lift-all forestry bucket trucks. Chipmores wood chippers. Mirk, Inc., (216)669-3567, (216)669-3562, 7629 Chippewa Road, Orrville, Ohio 44667. TF

BUCKET TRUCKS, Straight Stick, Corner Mount and Knuckle Boom Cranes. Brush Chippers - New Asplundh (Morbark Disc Type), New Asplundh Drum Type. Best prices anywhere. Used Chippers - Asplundh, Woodchuck, etc. 2 to 8 usually in stock. Sprayers, Dumps, Stakes, Log Loaders, Crew Cab Chip Box Dumps, Railroad Trucks, 50 in stock. Sold as is or reconditioned. Opdyke's, Hatfield (Philadelphia Area) 215-721-4444. TF

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

MISCELLANEOUS

FREE CATALOG of training videotapes including Irrigation, Pesticide Use & Safety, Arboriculture, Equipment Maintenance, Pruning, Plant Selection, Fertilizers, Planting Techniques, Turf Management, Xeriscape, Landscape Design. **\$5.00 Sample Video** includes \$10 Discount Coupon. Satisfaction Guaranteed! Check, Visa, MasterCard. VEP, California Polytechnic State University, San Luis Obispo, CA 93407. 1-800-235-4146. 8/91

SERVICES

TRAINING PROGRAMS: Effectively train your new and experienced employees in the least amount of time with minimal management involvement. Complete weekly lesson packages including handouts, quizzes and documentation forms. Train at your location, at your convenience. Topics include pesticide safety and handling, agronomic and horticultural issues, customer service and sales, driver safety and more. Both lawn and tree and shrub care programs available. Recertification credits often available. Pesticide Control Technology Services. Call Paul Skorupa at 401-294-1384. 8/91

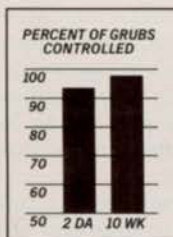
ATHLETIC FIELDS REBUILT: Baseball, Football, Soccer Fields rebuilt and sodded with **BLUEGRASS SOD** - A 160' X 360' Field \$20,000. Plus or minus 20% within 150 miles of Pittsburgh. **CONSULTING** on improving and maintaining existing fields. **VICNOR FARMS, Connoquenessing, PA 16027. 800-842-0461. 10/91**

LET CLASSIFIEDS WORK FOR YOU!

NO. ADVERTISER	PAGE NO.
101 Ciba Geigy Corp. (Reg.)	59
102 John Deere Co.	2-3
103 DowElanco/Surflan	CV3
104 Dow Elanco/Surflan	15
105 GMC Trucks	19
106 Green Care International	40
107 Gustafson, Inc.	43
108 Irrigation Association	13
109 Lofts Seeds, Inc.	CV4
110 Mobay Corp./Bayleton	6-7
111 Mobay Corp./Dylox	16-17
112 Mobay Corp./Dylox	27
113 Mobay Corp./Oftanol (Regional)	36-37
114 Monsanto Co.	21
115 Monsanto Co. (Regional)	30A-30D
116 National Mower	47
117 New Golf Concepts	18
118 Nor Am	55
119 Ohio Turfgrass	49
120 Olathe Manufacturing, Inc.	12
121 Oregon Tall Fescue Commission	20
122 Par ex	35
123 Polaris Industries	25
124 Scotts Proturf, O.M.	44-45
125 Spectrum Products	48
126 Stihl Inc.	57
127 Tee 2 Green Corp.	CV2
128 Toro Co.	28-29
129 Turfco Manufacturing Inc.,	14
130 Turf Seed Co.	5
131 Zajac Performance Seeds	41
New Products	
198 Davenport Seed Corp.	54
201 Farmers Marketing Corp.	54
193 Fine Lawn Research	53
195 Jacklin Seed Co.	54
197 Lebanon Chemical Corp.	54
194 Lofts Seeds, Inc.	53
196 Scotts & Sons Co., O.M.	54
199 Synair Corp.	54
192 Tee 2 Green Corp.	53
200 Turf Seed Co.	54

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

When it comes to grubs, it's not enough just to suppress them.



Compiled from 18 university trials, 1985-86.

You want to squash them. Pulverize them. Grind them into dust. Send the little buggers to the root zone eternal.

And who could blame you?

After all, this one creature has probably baffled more turf professionals, made a mockery of more chemical company claims, than all other turf

insects combined.

Triumph[®] is changing all that.

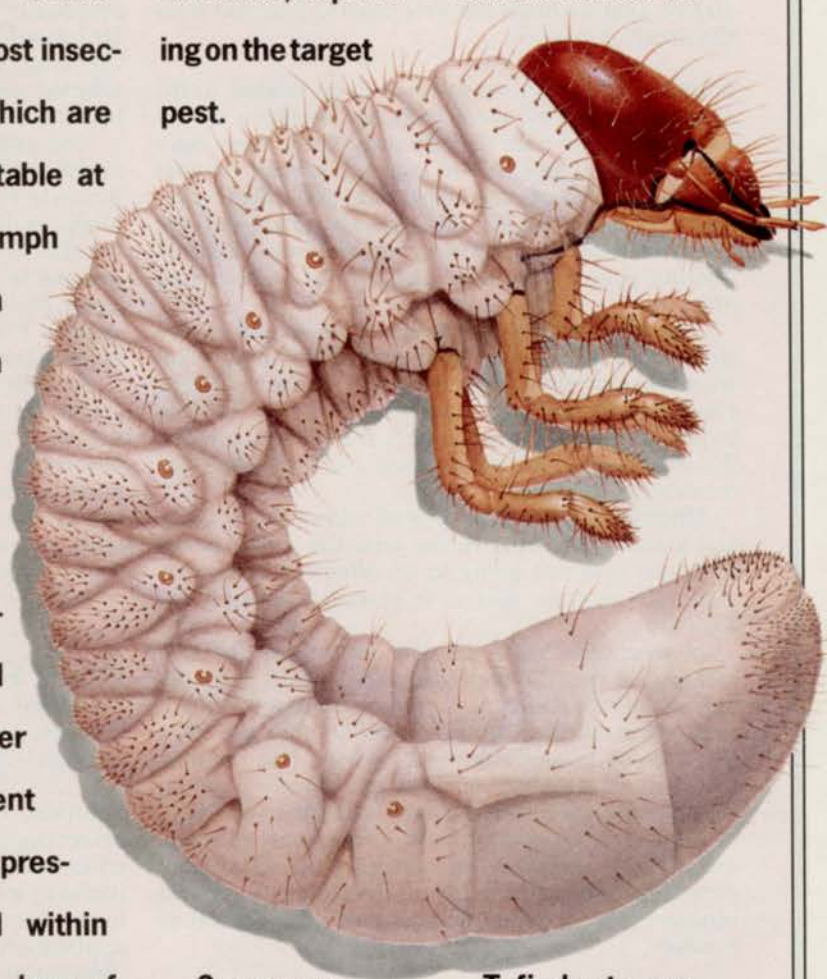
Unlike most insecticides, which are unpredictable at best, Triumph

has been proven in over ten years of testing

to consistently rid turf of over 90 percent of grubs present. And within just 2-3 days of application.

Better yet, once applied to the soil, Triumph keeps on working for up to 10 weeks, depending on the target pest.

grub damage. And protect you from losing what profits you have made to callbacks.



So one preventive application in late summer or early fall is all that's needed to protect turf from costly

To find out more, contact your turf products distributor or Ciba-Geigy representative. **TRIUMPH**

HOW TO SQUASH A GRUB.

© 1990 CIBA-GEIGY Corporation, Turf and Ornamental Products, Box 18300, Greensboro, NC 27419. Always read and follow label directions. For retail sale to and use only by certified applicators or persons under their direct supervision, and only for those uses covered by the applicator certification.

PROBLEM MANAGEMENT

Can wells be too close to trees?

Problem: We have several maple trees showing sparse crown with smaller leaves. There is quite a bit of dead wood. Last year there was some construction, and builders put soils around one side of these trees, about two to three feet high. We believe the problem is related to the stress from the fill. We are interested in removing the excess soil and putting in a well. How far back from the trunk do we need to build the well? The crown diameter is about 20 feet. Can we build the well three to four feet from the trunk? (Ohio)

Solution: The problem appears to be related to fill damage. Generally, most trees are sensitive to any new soil placed over the root area. Some trees can't tolerate even a half-inch of new soil around the root system. The fill causes compaction and affects aeration and water tables. As a result, affected trees begin to show various degrees of symptoms and decline over a period of one to four years. They often die.

The construction of a tree well to minimize the stress from fill is often recommended. The problem we see is that often these wells are constructed very close (one to two feet) from the tree trunk. Ideally, to protect the roots, particularly the absorbing roots, the well should be constructed alongside the foot outside the dripline.

Otherwise, if the fill is placed within the dripline and a small well constructed near the trunk, in my opinion, it is not going to be effective unless an elaborate aeration system is installed beneath the fill soil.

In your case, since the soil was put on the root area a year ago, the damaging effect of fill probably has already started. Try to remove as much fill soil as possible and then aerify. Make sure this operation is not going to hurt any roots growing into the new soil. If large numbers of roots are already growing into the new soil, leave them as is and then aerify.

Deep root fertilization with slow-release nitrogen and proper watering should help stimulate the growth and development of absorbing roots and improve plant health. Consider pest management as needed.

Anthracnose on sycamores

Problem: We have been having severe problems with anthracnose disease on sycamore. Is it true that we can inject Arbotect 20S fungicide to manage sycamore anthracnose? (Pennsylvania)

Solution: The American sycamore is planted extensively in many urban areas throughout the U.S. Anthracnose is a common fungal disease caused by *Gnomonia platani* on sycamore trees during early spring. Because of the monoculture of sycamore in many areas, the disease can spread rapidly from tree to tree and become very unsightly.

Four distinct stages of sycamore anthracnose have been identified; however, all stages may not develop in a single year:

Twig blight: small, one-year-old twigs are killed before the leaves emerge in the spring. Affected twigs may have canker around buds.

Bud blight: symptoms appear when buds expand in the spring. Buds are generally killed by cankers.

Shoot blight: is more visible than bud blight. In this case, shoots and young leaves die suddenly. The symptoms often mimic frost injury and are difficult to diagnose.

Leaf blight: small lesions appear on leaves which eventually become large and produce necrotic angular lesions along the veins. Brown fruiting bodies of the fungus develop in diseased leaf tissue. The affected areas become discolored and the entire leaf becomes defoliated.

The anthracnose disease is favored by cool and moist conditions during spring and fall. Reports indicate that disease severity, particularly shoot blight, is determined by the mean temperatures during the two-week period following budbreak. The disease is usually more severe when the average mean daily temperature for the period is 50 to 55 degrees F. As the temperature increases above that range, disease severity decreases.

Arbotect 20S can be trunk-injected to manage sycamore anthracnose. Reports indicate that one injection of Arbotect 20S in the fall before leaf abscission can help manage the disease for three growing seasons. An alternative approach is to manage the anthracnose disease by treating the foliage with recommended fungicides such as Benomyl or Cleary's 3336.

Follow label specifications for better results.

Does Polycote protect buds?

Problem: A product representative claims that Polycote will protect buds and twigs. What is your opinion? (Illinois)

Solution: We at Davey Tree are researching water-absorbing polymers of liquid gels which are marketed as having the ability to improve soil aeration and increase water holding capacity. I'm not sure if you mean protection of buds and twigs from direct application or from their alleged ability to prevent desiccation by improving soil water retention. It is always a good practice to request research data to support any claims made about a product.

It would be premature to comment on our research, which is in the preliminary stage of a three-year study.



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

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

"I can control weeds three times longer just by adding Surflan to my Roundup."



Surflan® herbicide and Roundup herbicide. Mix them together, and you can knock weeds down and keep them down. Three times longer, in fact, than Roundup alone. Our free brochure has full details.

Find out what landscapers all across the country are now finding. They're getting better weed control and more satisfied customers. And they're saving time and labor costs because they're applying just once.

With a Surflan and Roundup tank-mix, you get complete control of over 50 tough weeds, including crabgrass, barnyardgrass, chickweed, spurge, johnsongrass and foxtail. And Surflan won't harm your nearby landscaped areas, either. It works with little or no lateral movement.

Join the growing list of satisfied users who stretch their weed control three times longer with a Surflan and Roundup tank-mix.

Get your free technical guide on Surflan today. Call toll-free: 1-800-729-3693, ext. 7831.



DowElanco

*Trademark of DowElanco

Wherever You Need A Low-Maintenance Turf Rely On

Reliant

HARD FESCUE



Roadsides, cemeteries, golf course roughs, vacation homes, orchards, reclamation areas. Wherever maintenance is impractical, Reliant Hard Fescue is the one you can rely on. It thrives on low maintenance:

- Good performance without supplemental irrigation
- No fertilization needed (after initial establishment)
- Low growing
- Resistant to crabgrass encroachment
- Adaptable to full sun or moderate shade
- Improved disease resistance
- Tolerant to cold
- Dark green, leafy and fine-textured

Blend Reliant with other fine fescues. It's ideal for poor, infertile soils. Or wherever a fragile ecology doesn't allow fertilization. Reliant can be used on any area that's mowed infrequently or not at all.

Rely on Reliant Hard Fescue — the high performance turf for low-maintenance areas.



Lofts Seed Inc.

World's largest marketer of turfgrass seed

Bound Brook, NJ 08805
(201) 356-8700 • (800) 526-3890 • (800) 624-1474 (NJ)

Lofts/New England
Arlington, MA
(617) 648-7550

Lofts/Maryland
Beltsville, MD
(800) 732-3332
(800) 732-7773 (MD)

Lofts/Great Western
Albany, OR
(503) 928-3100 or
(800) 547-4063

Lofts/Ohio
Wilmington, OH
(800) 328-1127
(513) 382-1127

Sunbelt Seeds, Inc.
Norcross, GA
(404) 448-9932 or
(800) 522-7333

To locate the Lofts' distributor nearest you, call
(800) 526-3890 (Eastern U.S.) • (800) 547-4063 (Western U.S.)