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Scientific name:	Growth habit:	Shade tolerance:	Heat tolerance:	Cold tolerance:	Traffic and wear tolerance:	Seeding rate, greens:	Seeding rate, fairways:
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 - Riverwood Golf Club
- (winter overseeded greens)



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LANDSCAPE MANAGEMENT

is a proud member of these
green industry professional
organizations:



Associated Landscape Contractors of America,
12200 Sunrise Valley Dr., Suite 150, Reston,
VA; (703) 620-6363.

American Association of Nurserymen (National
Landscape Association), 1250 I St. NW, Suite
500, Washington, DC 20005; (202) 789-2900.

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

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

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



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

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

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



Professional Grounds Management Society, 120
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Professional Lawn Care Association of America,
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Responsible Industry for a Sound Environment,
1155 15th St. NW, Suite 900, Washington, D.C.
20005; (202) 872-3860.



Sports Turf Managers Association, 401 N.
Michigan Ave., Chicago, IL 60611-4267; (312)
644-6610.

Turf and Ornamental Communicators Associa-
tion, 421 West Travelers Trail, Burnsville, MN
55337; (612) 894-2414.

AS WE SEE IT

JERRY ROCHE, EDITOR-IN-CHIEF



The Great Swami speaks...

It's January, a time of renewed hope and optimism for golf and landscape professionals, and a time when the Great Swami of Strongsville briefly emerges from his long winter hibernation to make his long-awaited prognostications for the coming year.

Opening a recent conversation in a lighter vein, the Great Swam predicts that Chicago Cubs fans will have to wait another year for a National League pennant (though it's probably not so light a vein to Cubbie fans), and all of those Redskin fans in Congress will have to wait at least another year for a winner, too.

So much for The Swam's rock-solid predictions. Here are some others:

- If the Federal Reserve Board doesn't monkey around with interest rates too much this year, Swam says, lawn care companies and landscape contractors will break all sales records.

The Swami sees construction burgeoning from coast to coast in 1995. "But it won't last forever," he hastens to add.

- The USGA will outlaw use of the reviled stimp meter on golf course greens before the end of the year.

The Swami, an inveterate golfer, doesn't enjoy fast greens, and he doesn't know anybody who does, especially when \$75,000 isn't riding on every putt. Greens that stimp at 300 or 400 take all the fun out of the game, he says, and the USGA will finally recognize this.

- At least one National Football League team and at least two major universities with respected football programs will renovate their stadiums, replacing synthetic turf with natural surfaces.

The players don't like plastic grass, the coaches don't like it—even the fans don't like it anymore, administrators will reason, the Swam believes. So why use it?

- Continuing a recent trend, public outcry for more annuals, flowering shrubs and ornamental grasses will leave the nation's nurseries bereft of material for the first time in history.

Landscape managers, golf course superintendents and park managers will react to public demand by purchasing and installing more colorful plant material than ever—if they're smart, the Swami says.

- Mother Nature will play havoc with weather in all parts of the country. The Northeast and Upper Midwest will be snowed under much of the winter; spring tornadoes will pepper the Midwest; at least one major earthquake will hit the West Coast; the Pacific Northwest will be wet; and at least one major hurricane will riddle coastal areas of the Southeast. (The Great Swam really went out on a limb with those predictions, didn't he?)

- LANDSCAPE MANAGEMENT magazine will continue to be the best value in the green industry, the Swami says. He's been a big LM fan for many years now, and continues to read it from cover to cover each month. He says he likes it even better than his subscriptions to *Playthings* and *News of the Occult*, partly because it's free, but mostly because it's got so many great articles.

Swami tells us that even a drastic increase in second-class postage rates and the cost of paper won't affect the magazine's superior performance in 1995. (Thanks, Swami...we needed that.)

Now, before turning the page, please, dear readers, accept our wishes for a bright, prosperous and profitable 1995. "Hang tough," the Swam says, packing his turban away for another year. "It's gonna be a great one."

LANDSCAPE MANAGEMENT

'WE KNOW YOUR TURF'

JANUARY 1995 VOL. 34, NO. 1

COVER FEATURE

8 Landscaping grows 12.7%

Diversification seems to be a key, but the economy picked up sufficiently before the onset of summer to ensure success last year.

Jerry Roche

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A pick-up truck is often not complete until you add a trailer or other transport accessory.

Terry McIver

16 Hiring on personality

Before you start hiring new people, the first thing you have to do is to define your own personality.

Charles Vander Kooi

22 Diesel engine maintenance

To ensure minimal downtime repairs, maintenance checks are particularly important in the hot weather and during the peak season.

Tom Kane

24 Treating oak leaf spot

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GOLF & ATHLETIC TURF

1G It's fine fescue

Fine fescues adapt to virtually any cool-season golf course setting and provide a 'traditional' look.

Larry Kassell



4G New bentgrasses

You can expect new varieties of bentgrasses offering better disease resistance, say breeders.

Ron Hall

8G Renaissance man

Pondering the future, 16-year veteran superintendent Jim Nicol sees electric mowing, improved turf cultivars and money cartels meeting head-on.

Jerry Roche

12G Past and present

Colliers Reserve, an Audubon Signature Course, achieves a balance between a man's playground and an animal's refuge.

Terry McIver

13G Planning for guests

At the Greenbrier resort, Bob Mitchell says guests don't want to look at course construction.

Jim Guyette

20G Forcing grass to grow

That's what's going on at Soldier Field and the Bears' practice fields over the course of 12 months—even today when the team is long gone from the playoffs.

Ken Mrock

TECH CENTER

26 Controlling fire ants

The cost of controlling this pest can be decreased by using a program similar to the one at the Colonnade in Birmingham, Ala.

Bill Cobb & Dr. Pat Cobb

32 Selecting grasses

Climate is still a big turfgrass survival factor, but research has expanded the areas of adaptability for some species. Here are some of the most popular varieties of turfgrass.

Terry McIver



HOT TOPICS

44 Bio pesticides grow

The market for biological pesticides in the U.S. is scheduled to hit \$150 million by 1997, according to a study conducted by the Freedonia Group, Cleveland. That's a growth of 4.5% per year.

45 Interest in IPM, too

Seventy-seven percent of respondents to a National Arborist Association Mini-Survey said they follow Plant Health Care or Integrated Pest Management techniques. Such programs have been available to customers for an average of 6.8 years.

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ON THE COVER: *The Price Residence won the Ben Slade Award from the California Landscape Contractors Association for overall maintenance. Maintained by Mike's Landscape & Maintenance, Torrance. Photo courtesy of CLCA.*

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

ASK THE EXPERT

DR. BALAKRISHNA RAO



Information on the green industry

Problem: I am in the process of opening a lawn and landscape management company. I plan to offer irrigation installation and repair and herbicide and fertilizer applications, but am a novice in that part of the field. Do you know where I can find any literature on these subjects or any courses I could take at home? (Florida)

Solution: Regarding the pertinent literature and/or courses in your field, contact the University of Florida in Gainesville or other universities in your area. Your local county cooperative extension service can give you a listing of local schools that offer courses in agricultural sciences. You may be interested in a four-year degree or a two-year associates degree in turfgrass and ornamental management areas.

Once you obtain enough background and confidence, the technical part of your business will be easier. These schools should provide you with the basic knowledge of programs related to your interest.

Developing a service on a program basis will require some scientific background and technical expertise. Therefore, if you are unable to obtain it through schooling, consider the following alternatives:

- 1) Work for another company as an intern or employee.
- 2) Hire a technical expert (advisor) knowledgeable about program development.
- 3) Hire a private technical consultant/contractor.

In addition to the technical aspect of the programs, you also need expertise in equipment, business management, and so on. Contact the appropriate experts to help you in this regard.

You also need to become familiar with federal and state laws pertaining to your interests. A pesticide applicator/operator license may be required in order to purchase and apply pesticides. This information may be obtained through your local Department of Agriculture and/or EPA office.

Attend seminars and/or conferences related to your interest in services. Also, become a member of local, state or national organizations such as Professional Lawn Care Association of America or International Society of Arboriculture. Subscribe to trade magazines, such as *LANDSCAPE MANAGEMENT*, *Arbor Age*, and/or *Tree Care Industry* and cooperative extension publications and/or newsletters.

(ED. NOTE: See Page 1 for a list of some of the best trade organizations in the green industry. Additionally, the PLCAA has a home study course in turf management it conducts in cooperation with the University of Georgia. To find out more about this course, call the PLCAA at (404) 977-5222.)

Will horticultural oil harm flowers?

Problem: Will horticultural oil harm annuals or perennials growing beneath trees? Normally, we would have used oil before these annual flowering plants are planted. We are thinking of using oil at other times during the growing season when flower-

ing plants will be in bloom. (New York)

Solution: Based on the information that I have, and in checking with other researchers, I found no evidence of any phytotoxicity concern with horticultural oil on annual flowers (when applied according to label specifications).

According to University of California publication "Managing Insects and Mites with Spray Oils," narrow-range oils (Sunspray 6E) can be used in greenhouses on bedding plants, vegetable transplants and house plants such as azaleas, begonias, camellias, chrysanthemums, crown of thorn, dieffenbachia, ferns (excluding maidenhair fern), gardenias, geraniums, jade plant, most palms, philodendrons, poinsettias, portulacas, and on house plants (excluding ficus plants). Ficus plants show water-soaked spots from 1 percent oil application and necrosis from 2 percent oil application.

However, reports do suggest that under certain adverse environmental conditions, such as high temperature, high humidity and/or low soil moisture, some plants may be sensitive to pesticides in general. Other studies suggest that oils should not be applied to geraniums and mums in bloom, or to poinsettias during the bract expansion stage. Applications should be avoided when relative humidity remains above 90 percent for more than 48 hours or temperatures are above 90° F. Most of this information is from greenhouse and/or indoor plant set-up where relative humidity could be high.

Information on the effect of oils on understory plants, such as annuals in landscapes, is lacking.

Sometimes the problem may be related to not recirculating the hot mix from the hose into the tank prior to treating. On a very warm day, mixture in the hose can get very hot when the sprayer is not being used. In this case, the best thing to do is to recirculate the mix before treating.

Another way to minimize the spray drift/drip on non-target plants is to use proper applications, disc size and technique. Generally it is sufficient to wet the foliage instead of the past practice of spray to the point of drip.

Field experience has demonstrated that spraying the flowers with water after the application minimizes the potential for injury.

If you are thinking of using horticultural oil throughout the growing season for the first time, it is better to try it in a small area and learn more about the safe handling and potential phytotoxicity of the product before using it on a wide scale.

Read and follow label specifications for better results.

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

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

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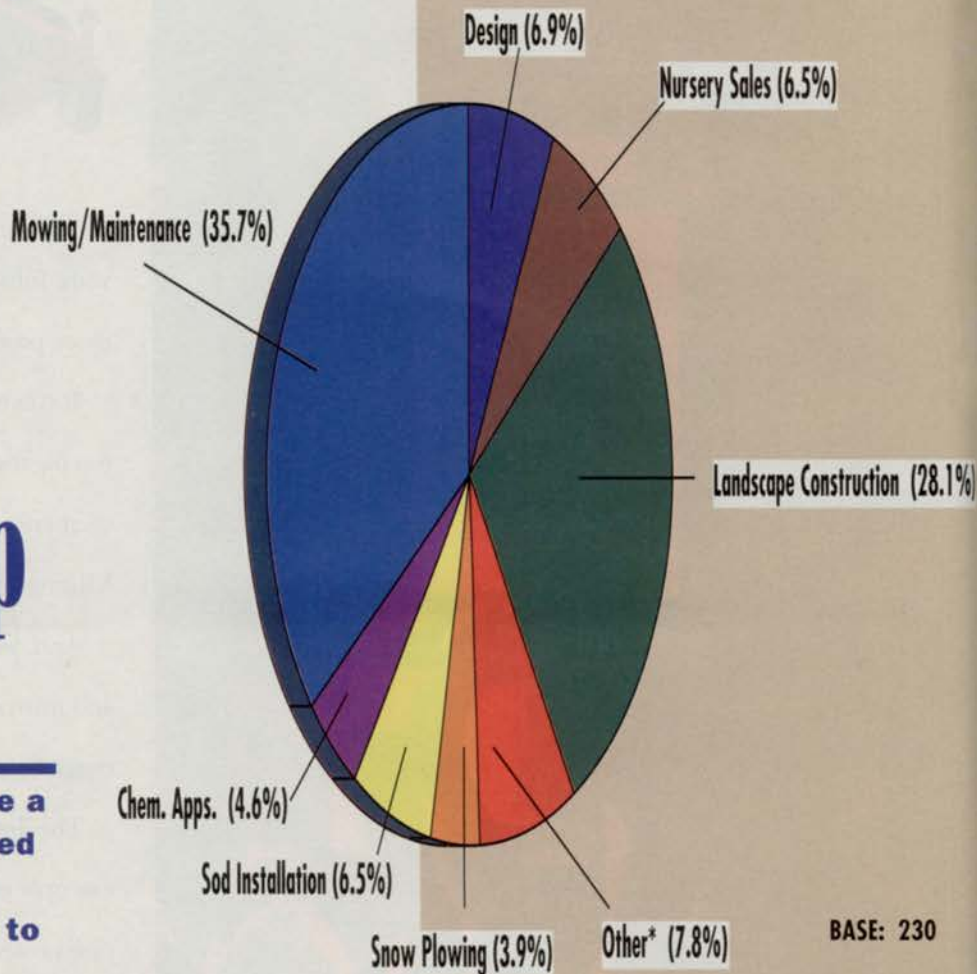
landscaping
industry
grows
at 12.7%
annual clip

Diversification seems to be a key, but the economy picked up sufficiently before the onset of summer last year to ensure success.

■ The landscape industry grew at an excellent clip in 1994, and appears to show no signs of slowing down, according to *LANDSCAPE MANAGEMENT*'s first "State of the Landscaping Industry".

Landscapers across the U.S. said they grew an average of 12.7 percent from 1993 to 1994, and predict they will grow an additional 13.6 percent in 1995. Interestingly enough, even the big companies—those with revenues of \$1

REVENUES DERIVED FROM SERVICES PERFORMED



*OTHER REVENUES

irrigation 1.4%
aeration 1.4%
dethatching/renovation 1.3%
interior plant maintenance 0.7%
erosion control 0.6%
unspecified 0.9%

million or more—reported an average growth of 12.5 percent.

Total receipts of LM's 16,566 landscape readers in 1994 were \$8.0 billion, according to the survey: \$4.05 billion in design/build accounts and \$3.95 billion in mowing/maintenance accounts.

Survey questionnaires (994) were mailed in November to LM subscribers. A total of 233 were returned, for a response rate of 23.4 percent.

Of the 191 companies claiming to have grown in 1994, 158 said at least part of the increase came from adding new customers. But almost one company in five added services in 1994, the most popular among them:

- walks, decks and patio construction;
- irrigation installation and repair;
- snow plowing;
- retaining wall construction;
- mulch supply and installation;
- aeration; and
- tree fertilization and pruning.

Diversification appears to be the key, then, to maintaining a successful landscape business. The average company gets 35.7 percent of its receipts from mowing/maintenance, 28.1 percent from construction, 6.9 percent from design. But it also depends heavily on other functions—sod installation, nursery sales and chemical applications—for more than 20% of its receipts. A small percentage of the receipts come from such diverse tasks as renovation, interior plant maintenance, golf course maintenance and erosion control.

Other ways landscapers are diversifying: flower installation and maintenance, hydroseeding, pressure washing, consulting, shrub care, excavation, integrated pest management (IPM), overseeding, trash removal, parking lot cleaning.

Finding good employees
continued on page 12

PURCHASING POWER OF LM'S LANDSCAPE READERS

PRODUCT CATEGORY	% OF SAMPLE	MEDIAN DOLLARS	MEAN DOLLARS	PROJECTED TO CIRC.
Soil aerators	22%	\$1,550	\$2,080	\$7,580,500
Fert./herb. combos	59.7%	\$3,000	\$18,770	\$185,633,500
Domestic pick-ups	53.9%	\$16,000	\$22,000	\$196,439,500
Dry-app. fertilizer	71.2%	\$2,000	\$8,830	\$104,150,000
Ornamental fert.	56.5%	\$950	\$3,700	\$34,631,000
Liquid-app. fertilizer	13.6%	\$1,750	\$6,070	\$13,675,500
Post-emerg. herbicides	63.4%	\$1,000	\$2,340	\$20,700,000
Pre-emerg. herbicides	50.3%	\$900	\$4,060	\$33,830,500
Small mowers	42.4%	\$2,000	\$4,040	\$28,377,000
Mid-size mowers	30.9%	\$5,000	\$10,400	\$53,236,500
Large mowers	18.8%	\$12,700	\$26,620	\$82,905,500
Turfgrass sod	64.9%	\$15,250	\$14,900	\$160,195,000
Irrigation/sprinklers	42.9%	\$9,000	\$18,000	\$127,922,500
Compact tractors	25.7%	\$15,000	\$22,010	\$93,706,500
Turf fungicides	31.9%	\$500	\$2,180	\$11,520,500
Turf insecticides	37.7%	\$1,000	\$4,290	\$26,792,500
Turf-seed	75.9%	\$1,000	\$5,240	\$65,885,500
TOTAL		\$88,600	\$175,520	\$1.25 BILLION

The logo for ESN (Exxon Smart Nitrogen) features the letters 'ESN' in a large, bold, green, 3D-style font. The letters are set against a blue background that has a subtle gradient and is decorated with several purple, glossy spheres of varying sizes, some of which are arranged in a curved path above and below the text. A small 'TM' trademark symbol is located at the bottom right of the 'N'.

Precision Controlled Nitrogen

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temperature. The same temperature pattern that regulates a plant's demands for nutrients.

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The secret to ESN's innovative technology is the polymer membrane surrounding a high quality urea granule. Once exposed to moisture, the inner nitrogen remains encapsulated and will only be released when the surrounding temperature is sufficient for plant growth.

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To allow you complete control of your fertilizer program, you may choose different ESN longevity formulations. For example, in some applications a two month material may be appropriate, while in others a 4 - 6 month material is more suitable.

ESN comes blended with other essential nutrients vital for a well rounded fertilizer program.

Controlled Release for Maximum Results

Since temperature is the only environmental factor determining nitrogen release, the ESN technology greatly reduces the potential of wasted nitrogen associated with other traditional fertilizer products.

With the precision of ESN's controlled release of nitrogen the volume of clippings is greatly reduced while overall turf color and vigor improves.

Turf trials and university research across the U.S. have demonstrated ESN's ability to

outperform all other fertilizer technologies on the market today.

ESN represents a quantum leap in fertilizer technology and is setting new standards for fertilizer performance.

For more information on ESN and the complete line of UHS products, please contact United Horticultural Supply, toll free at:

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THE LANDSCAPE INDUSTRY: Where are the revenues?

BASE 229

MOWING/MAINTENANCE

Company revenues	Total companies	Total industry revenues
\$0	3396	\$0
\$1-\$49,999	3910	\$97.7M
\$50,000-\$99,999	1590	\$119.3M
\$100,000-\$199,999	3114	\$467.1M
\$200,000-\$499,999	2170	\$759.5M
\$500,000-\$999,999	795	\$596.2M
\$1,000,000 or more	1590	\$1,908.0M
TOTAL		

DESIGN/BUILD

Company revenues	Total companies	Total industry revenues
\$0	1375	\$0
\$1-\$49,999	4688	\$117.2M
\$50,000-\$99,999	2319	\$173.9M
\$100,000-\$199,999	2506	\$390.1M
\$200,000-\$499,999	3114	\$1089.9M
\$500,000-\$999,999	1524	\$1143.0M
\$1,000,000 or more	944	\$1132.8M
TOTAL		\$4.05 BILLION

continued from page 9

continues to be a thorn in the side of the landscape industry. Because of low unemployment rates—as little as two percent or so in some areas—landscapers are having to pay higher wages (and offer more benefits) to attract quality employees. As a matter of fact, labor was listed by one-third of the survey respondents as being the fastest-rising cost of doing business. Other fast-rising costs were insurance, equipment, and taxes, including workmen's compensation.

With these increasing costs, landscapers are not hesitating to raise their prices. Fifty-five-and-a-half percent did in 1994, and 52.2 percent are already committed to raising them in 1995. If even half of those undecided landscapers come through, about two of three landscape companies will raise prices next year.

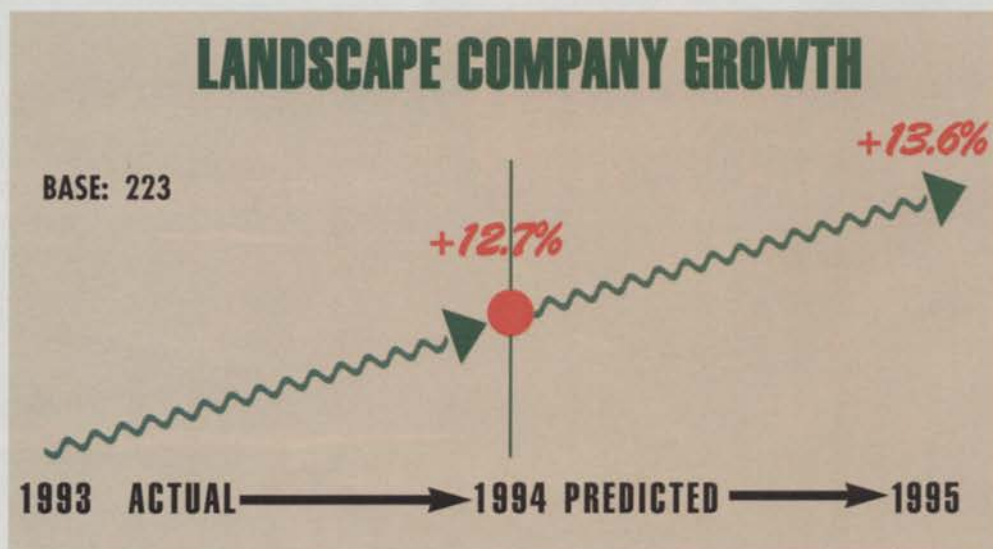
Overall, LM's landscape readers spent \$1.25 billion—or about 15.6 percent—of

their \$8 billion revenues on supplies ranging from pick-ups to turf fungicides to turfseed.

According to the survey results, landscapers purchased almost \$200 million worth of domestic pick-up trucks in 1994, and spent an additional \$185 million on fertilizer/herbicide combinations. Other big-ticket items in the landscape industry: turf sod (\$160 mil-

lion), irrigation and sprinkler equipment (\$127 million), and dry-applied fertilizer (\$104 million).

—Jerry Roche



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Consider size before you consider cost. A smaller unit will be under-used if it can't haul all the equipment you need it to haul. And the larger the trailer, the more versatile it will be.

Then consider style. Do you want the equipment covered? If so, there are a wide variety of enclosed trailers to choose from. Many models of this type are made by Wells Cargo (see photo). These include a door that swings down to double as a loading ramp.

Some open flatbed trailers, such as the Redi Haul RH8UT, are enclosed on all four sides, with an open top.

Flatbed trailers are made by a number of companies, such as Tiger Line, Redi Haul and Femco/American Pride. The primary features to consider are type of hitch required, materials used in construction—is the floor made of wood or metal?—and once again, size.

Easy access—Redi Haul's tiltbed and ramp trailers include a "Lawn Care Trailer" with 12-inch-high sides and electric brakes.

Trailers vary in widths and lengths, usually 4 to 8 feet wide to 16 feet long. Floors are generally made of metal or wood (usually oak or fir).

Options—Next, look into options. Ramps can be full width or standard—that is, there are two ramps the width of the wheels on each side. Some trailers offer spare tires and hubcaps or ball coupler to increase capacity.

About capacity: don't go lower than 3000 lbs. Maximum capacity offered by some trailers can reach up to 20,000 lbs.

Dump trailers might be what you seek if you haul lots of mulch or fill dirt. These hydraulic units, like the E-Z Dumper, are battery operated, and come with a full transportation light package. They hold up to 5 cubic yards, depending on construction.

Axles are either single or double (tandem), depending on load



American Pride's golf car trailer has a steel floor and a mesh loading ramp. Circle No. 311



The E-Z Dumper, with breakaway switch, adjustable coupler and swing jack. Circle No. 312

capacity. Brakes are an option for some, and are hydraulic or electric.

With accessories, a new trailer represents a minimum investment of \$3000-\$5000.

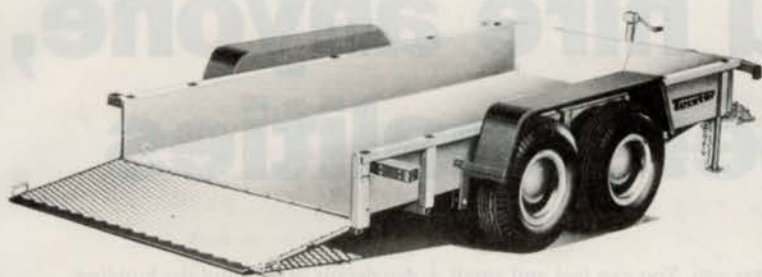
—Terry McIver



The Maxi-Dump tilts to a 45-degree angle. Circle No. 313



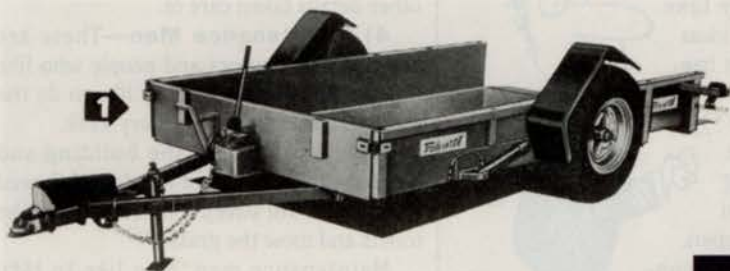
The deck of Redi Haul's lawn care trailer is 76 inches wide x 12 feet long. Circle No. 314



The Tiltster, from Tiger Line Equipment, has optional steel racks, from 12 to 36 inches high. Circle No. 315



The elevated design of the Spacemaker adds even more room to conventional trailers. Circle No. 317



Wells Cargo trailers (below) come in more than 100 models. Circle No. 316

The Trailevator, also from Tiger Line Equipment, lowers to ground level hydraulically. Circle No. 315



Chippers are more popular than ever. If you have one, consider a chipper hitch from West Side Machine. Circle No. 318



TRAILER SPECIFICATIONS

Model	Payload cap.	Axles	Brakes	Other	Circle No.
American Pride ¹	1560 lbs.	single	n/a	safety chains	311
E-Z Dumper 610	7000 lbs.	tandem	surge (optional)	adjustable coupler	312
Maxi Trailer 58	5000 lbs.	tandem	hydraulic surge	12-volt battery	313
Redi Haul "Lawn Care"	2600 lbs.	single	electric brakes	wood floor (fir)	314
Tiger Line Tiltster	3-7000 lbs.	single/tandem	12"x2"/10"x3.25"	custom colors extra	315
Wells Cargo CW162	5630 lbs.	tandem	4-wheel, electric	plywood interior	316

¹golf car trailer

Note: Chart and article are not meant to be all-inclusive.

Before you hire anyone, consider personalities

The first step is defining your personality, the second is hiring different ones.

by Charles Vander Kooi

■ There are four kinds of personalities in this business. In order to grow a company [or department] and a good management team, you need all four personalities.

When people do things that fit their personality, they love to work. When they are forced to do things that don't fit their personality, they become frustrated. As you grow, you can eliminate this frustration by hiring the right person for the job.

I will equate these personalities to the building of a project, using "man" in the general form, a member of the human race.

Let's say I have 40 acres upon which I want a new office building. Here are the people I'd need:

1) An Idea Man—Idea men are the architects, interior designers, arts people, computer programmers. They always have ideas (most of which are impractical). They are constantly saying, "What if...?"

If I'm putting up this building, who's the first person I call?

An architect. He comes to the site and says, "I have an idea, let's design a building that looks like an escarrot. The roads leading to the building can look like his slime trail."

Every project needs an idea man, as does every company. I've seen companies that are doing things the way they did it

20 or 30 years ago. You can feel and smell the stagnation.

Every company needs an idea man to keep it on the cutting edge.

2) A Happening Man

Happening men are contractors. They take other people's ideas and make them happen.

So I have my idea for the office building and now I need to make it happen. Who do I get? A contractor. He takes the plans and tells the architect to "get out of my face."

He calls in the excavator, the concrete people, framers, masons, glass people, dry-wallers, electricians and plumbers.

Every company needs someone who makes things happen. Have you ever been in a meeting where everyone has all kinds of ideas? However, after you leave the meeting, nothing comes of those ideas.

That's because there was no "happening man." A happening man stays behind and collects an idea or two that he likes and makes them happen.

3) Managing

Men—Managing men are coaches of teams and people who can take care of the details on an everyday basis.

When the contractor—who made it happen—gives me the keys to the office building, who do I need? A property manager. Someone who will rent the building, have janitors and people to mow the lawn. Someone who will take care of the every-

day details of running the building.

Every company needs a "managing man:" someone who will see that the payroll is done, bills are sent out and collected, materials ordered, job costing, financial statements produced and a myriad of other details taken care of.

4) Maintenance Men—These are accountants, janitors and people who like a regimented lifestyle. They like to do the same things every day or every week.

Now that I've got the building and someone to take care of the details, I need people who will sweep the floors, clean the toilets and mow the grass.

Maintenance men, who like to take directions, are the lion's share of workers in the workplace. Every company needs lots of regimented maintenance people.

Which are you?—You personally probably dominate in two of the four traits I've described. Whichever you are will indicate why you are frustrated when you have to do things that run counter to your personality type. It will also indicate the type of personalities you should hire—people diametrically different in personality than you.

Before hiring anyone, then, consider these concepts.



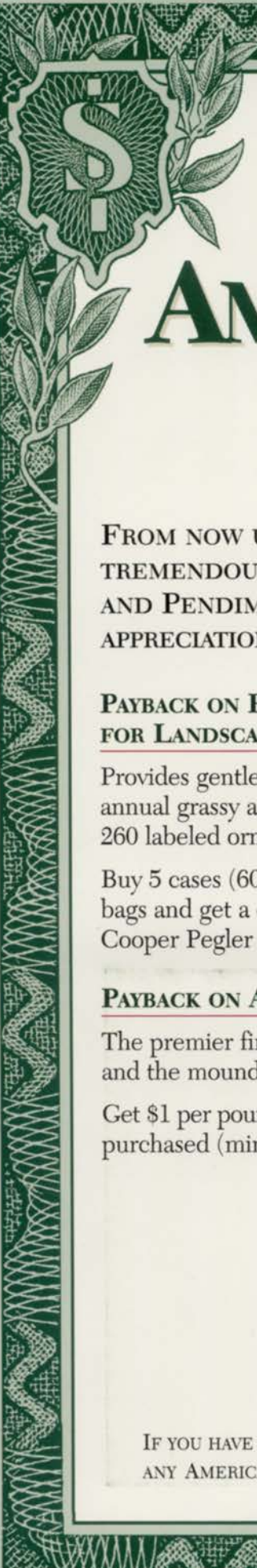
—The author is a landscape consultant headquartered in Littleton, Colo. This article is excerpted from an article which appeared in "The Landsculptor," the magazine of the Metro Detroit Landscaper's Association. It is reprinted with the permission of the author.



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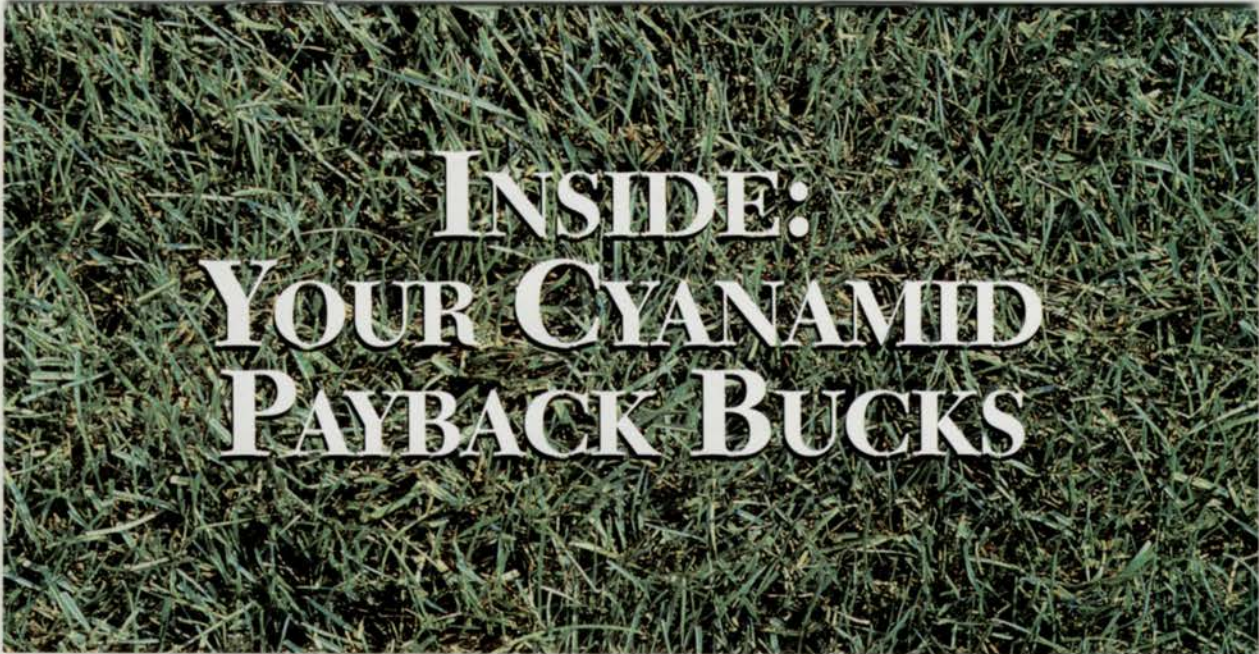
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GOLF & ATHLETIC

TURF

Stretch it, squish it, mound it, pound it...it's fine fescue

Used alone or in a mixture, fine fescues adapt to virtually any cool-season golf course setting.

by Larry Kassell

■ The game of golf began 600 years ago on wind-sculpted land connecting the Scottish seashore with fertile farmland. This area was called "the links," and was covered with native, fine fescue grasses.

Today's course designers and architects stretch, squish, sand, pound, mound, lake, creek, tree and otherwise rearrange many of the features found on the first course in attempts to challenge golfers and help Mother Nature develop land in ways which may never have occurred to her otherwise. With today's dramatic changes in technol-

ogy, techniques and turfgrasses, one facet of modern golf course design remains virtually unchanged—the low maintenance, shade- and drought-tolerant fine fescue turfgrasses.

Once again, chewings, creeping red, hard and sheeps fescue are an important part of golf course design.

A classic look—Architect Steve Smyers includes fine fescue mixtures in the extreme roughs of his course designs for the traditional windswept Scottish look on his first links-type course, Wolf Run Golf Club, in Zionsville, Ind.

His recent Chart Hills Golf Club, in Kent, England was designed with golfer Nick Faldo.

Wolf Run superintendent Joe Kosoglov, who has been at the course since its beginning phases in 1987, seeded the roughs at 6 lbs. per 1000 sq.ft. with a blend of

sheeps, hard and creeping red fescue. Kosoglov says the tight growth habit of the established turf chokes out weeds, and shade screens crabgrass and broadleaves.

"The long grass carpets some of the irregular slopes, and the 18-inch mature height and texture contrasts dramatically with the closely-mowed creeping bentgrass tees, fairways and greens," Kosoglov says. "The waving golden seedheads throughout the summer are a simply gorgeous sight."

Kosoglov uses from one-third to one-quarter less fertilizer on the fescues than he does on other cool-season turf, and he mows it every other year.

"The tall roughs come within 20 feet of the fairways for a target golf effect. We use Kentucky bluegrass and fine fescue mowed at two inches for the short rough, offering a more forgiving lie for the slightly errant golf shot."

High Point Golf Club in Williamsburg, Mich., was Tom Doak's first golf course design. The course is entirely fine fescue except for the creeping bentgrass tees and greens. Design considerations were an orchard on the relatively flat front nine, and a tree plantation and old growth hardwoods on the hilly back nine. Shade was thus very much a factor in grass specification.

"Much of the back side is on extremely contoured land, and water can be a problem," says Doug Sarto, superintendent at High Point.

"The fine fescue performs admirably under the heat, cold, drought, shade and humidity extremes we experience near Lake Michigan and Grand Travers Bay."

Varied mowing heights—The short roughs are maintained at two inches and the fairways are mowed at $\frac{1}{8}$ inch. Sarto enjoys the luxury of being able to vary the cutting height so dramatically.

"It's a pleasure to work with, compared to some more demanding species," he notes.



Illinois superintendent David Harper: Fescues are very disease resistant.

ELSEWHERE

Bentgrass use on the rise, page 4G

Super predicts golf 'Renaissance,' page 8G

Audubon course blends Nature, page 12G

Growing grass at Soldier Field, page 20G



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Fine fescue performs admirably under a variety of temperature extremes at High Point Country Club, even when mowed at $\frac{1}{8}$ inch.

Photos by Larry Kassell

Superintendent David Harper at Effingham Country Club, Effingham, Ill., maintains perennial ryegrass, Kentucky bluegrass, creeping bentgrass and fine fescue. He developed and implemented a three-year plan to reduce maintenance and labor costs by planting the wooded areas on his course with fine fescues.

An added benefit is the fescue's attractive appearance compared to the prior *Poa annua* and nutsedge.

He lightly scores the earth with a hay rake, then verticuts, and broadcasts a blend of one-third each of chewings,

creeping and hard fescues at 5 lbs./1000 sq. ft.

"I blend my own because the commercial mixture available used some unimproved, imported seed for economy," says Harper. "I felt the real economy was in quality Oregon-grown seed from the start."

Harper lets the seed establish over the first year. In the second year, he broadcasts a light application of a granular, selective broadleaf control product—a liquid formulation caused a slight discoloration of the fescue leaves—and over-

seeds with the fine fescue blend.

"By the third year, the woods are nearly all fine fescue, and overseeding was a finishing touch," says Harper. "The established roots go about a foot deep and do not require additional water. I used to mow what was in the dense wooded areas every 30 days. Now, it's once or twice a year, and the established fescue pretty much keeps the weeds out. Golfers lose fewer balls in the trees, and play has speeded up to where we can add a few new members.

Disease tolerant—Even with 98 percent humidity, Harper has not had to rely on fungicides for the fescues, and the species doesn't compete with the nearby trees for nourishment.

"Fine fescues also mix well with other species of cool-season grasses," says Dave Nelson of the Oregon Fine Fescue Commission.

"We recommend about a third chewings and creeping red fescue and a third Kentucky bluegrass and a third perennial ryegrass for most northern turfgrass applications like golf clubhouse grounds, fairways, home lawns and parks."

Nelson says the fescues add strength in shady, dry and low-fertilized areas, thereby complementing the strengths of rye and bluegrass.

—The author is president of Kassell Concepts, a commercial photography and publication design company in Silverton, Ore. His photography has appeared often in this magazine.

Big jump in bentgrass is predicted

■ Golf course superintendents can expect new varieties of bentgrasses offering better disease resistance, denser and dwarfer growth, and also less grain, says turfgrass breeders at two of America's top turf seed companies.

Dr. Richard Hurley, Lofts, Inc., spoke at the New Jersey Turfgrass Expo and Dr. Meyer, Turf Seed Inc., spoke at the North Central Turfgrass Expo this fall. Their comments gave golf course superintendents everywhere reason to smile.


"Bents have a tremendous amount of diversity within the species," said Hurley. Citing the history of bentgrass, he added, "Penncross in 1955 was the real breakthrough." But, he added, the new bents offer advantages which the older bents—Penncross included—don't.

In 1992, Hurley collected more than 60 selections during a visit to Atlanta Athletic

Bentgrass development

RELEASE YEAR	VARIETY	DEVELOPER
1923	Seaside	--
1955	Penncross	Penn State Univ.
1978	Penneagle	Penn State Univ.
1986	Pennlinks	Penn State Univ.
1987	Cobra	Rutgers Univ.
1987	SR1020	Univ. of Arizona
1987	Putter	Washington St. Univ.
1988	Providence	Univ. of Arizona
1990	Lopez	Fine Lawn Research
1990	Southshore	Lofts; Rutgers Univ.
1993	Crenshaw	Texas A&M Univ.

Source: Dr. Rich Hurley



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So if your crew's time could be better spent on some-

thing other than mowing, start using Primo.

We can't promise them more time at the beach, but at least they'll still get plenty of sun.



Club. In all, he has collected literally hundreds of samples from all over the U.S.—a “wealth of material that we can include in our breeding program.”

Dr. Meyer of Turf Seed Inc. pointed to continuing work by Dr. Joe Duich at Penn State as promising exciting new bentgrasses.

“The new varieties are dwarf and denser than the old varieties like Penncross and Pennlinks,” said Meyer. “Dr. Duich says the new bents will have to be mowed closely. It completely turns around a lot of the thinking on grass management. We’re recommending

that you cut these new varieties at a short cutting height.”

The new varieties also show significantly improved disease resistance, particularly brown patch, over today’s bentgrasses, claimed Meyer. He described it as “one of the biggest improvements” he’s seen in cool-season grass development.

Meyer and Hurley both predict a growing interest in bentgrass fairways, but Meyer said he won’t recommend any of the new varieties for fairways until he’s tested them. “They’re so dense and dwarf that I’m not sure they can

be used on a fairway,” he explained.

How soon will some of these varieties hit the market? No later than two or three years, said Hurley.

“In the 1990s, what you’re going to see is regrassing old greens with improved bentgrass varieties,” Hurley predicted, “especially with some of the PGRs and herbicides now being used to control *Poa annua*.”

“We really have a new era in bentgrasses,” he continued. “We have the tools and a wealth of materials to look at.”

—Ron Hall



Nicol: ‘Our goal every year is to make one improvement.’

Pondering the future, this 16-year veteran superintendent sees electric mowing, improved turf cultivars and money cartels meeting head-on.

■ Jim Nicol sees the future, and he’s not too sure he likes what he sees.

“There are a lot of people—money cartels—getting into the business who don’t know the business,” he says. “It’s my concern that there will be too many choices for a golfer—and they’ll all be expensive choices. There has to be a balance of every type of course so that everyone has the opportunity to play.”

“Golf is cyclical. I’m worried about the cost of golf for the average golfer. Will it get up to \$50 per round?”

“Even now, the public’s demanding that you hand-mow greens. But how long will they be willing to pay for it? We have to make sure, as an industry, that we don’t out-price ourselves.”

Nicol, who’s been superintendent at prestigious Bunker Hills Golf Course in

Jim Nicol, Renaissance man

Coon Rapids, Minn., for 16 years, is not your typical superintendent. He thinks superintending will become a “Renaissance” occupation in the next 15 years, and he wants to help lead the way. “Electric mowing,”

he predicts, “drought-resistant and disease-resistant turf cultivars will make it a Renaissance in golf course maintenance.”

Nicol’s dry wit and ready smile belie a subtle undercurrent of seriousness about the golf maintenance industry. And a good bit of not so subtly hidden confidence.

“I’ve got a pretty good life here...” Nicol admits. “...a fair amount of notoriety and opportunities. Security, too—(because he’s a government employee) I’ve got to commit a felony to get fired.”

“If you’re worried about losing a job, you may as well get out anyway. I’ve enjoyed working here. I’ve had some guys here 10 years. They’re not making any money, but they love to work here.”

Nicol, an active member of the Minnesota Golf Course Superintendents Association and the Golf Course Superintendents Association of America, proudly says that Bunker Hills, a public course situated in the front corner of a popular state park, is always among *Golf Digest* magazine’s Top 50 courses.

“Our draw is that we’ve got a nice course, a great design, at a good price,” he says. “People use every club in their bag when the play Bunker Hills.”

“We grow grass—vigorously—here.

Fairways are mowed with lightweight mowers, at lower heights. Greens and fairways are mowed every day, tees every two days. We don’t use any short cuts. We put down three pounds per 1,000 sq. ft. of slow-release fertilizer per year.”

Nicol is not typical in another way: his duties. “I’m a working superintendent. I’m not an administrator.”

“My boss is the director of golf and he does the budgets. I do about 1/10th of the budget work of my colleagues at other courses. Other people do my billing, purchasing, hiring and payroll, too.”

All Nicol and his crews do are create a beautiful course for much less money than most country clubs spend.

“Our goal every year is to make one improvement: updating irrigation, lightweight mowing, whatever,” he says. “Our core golfers like playing here so much, they think it’s their course. If my crews aren’t doing what they’re supposed to do, I hear about it from the players. And they’re right—if we’re doing something wrong, we should change.”

He started mowing greens in St. Cloud, Minn. at the age of 14. “My summers were at the golf course for as long as I can remember,” he says.

Bunker Hills, a David Gill design, has a three-year contract (1993-1995) to play host to the Burnet Senior Classic. It’s been site of the Minnesota Open for the last 14 years. Golfers typically log 100,000 rounds from April 1 to Nov. 1. “You can’t get any more on it,” Nicol observes.

“It’s a prestigious course,” Nicol says. “When I meet people, I have no qualms telling them where I work and what I do.”

It’s hard to believe Jim Nicol would ever have any qualms telling anybody anything.

—Jerry Roche

The most economical way to eliminate *Poa annua*!



Michael F. Walton, C.G.C.S.
Barrington Golf Course
Aurora, OH (shown above)

There are plenty of products that provide preemergent control of crabgrass, goosegrass, and other unwanted grass weeds. But if your problem is *Poa annua* on putting greens, your choice is limited.

As bad as *Poa annua* is, you can't risk your bentgrass greens to "a cure that may be worse than the disease." Bensumec 4LF is the most widely trusted preemergent herbicide for greens and other highly maintained turf areas.

And compared to some of the newer *Poa* control programs, Bensumec 4LF is very economical.

Always read and follow instructions on the product container.

Consider these advantages:

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- high turfgrass tolerance
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- can be tank mixed with most turf care products including liquid fertilizer



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"Ours is a new Nicholas-designed course, growing in for the past two years and in play one season. Our Penncross greens and tees have received Bensumec 4LF both seasons and are *Poa annua* free. We plan to continue with three Bensumec preemergent applications per season."

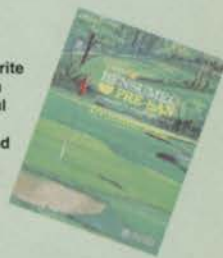


Stuart Cagle, C.G.C.S.
Old Oakland Golf Course
Indianapolis, IN

"We've used Bensumec 4LF for four years making split applications in the spring, and sometimes a fall application, too. I am more comfortable with this preemerge than with PGRs for our greens and tees. And we've had excellent control of *Poa* as well as crabgrass and other weeds."

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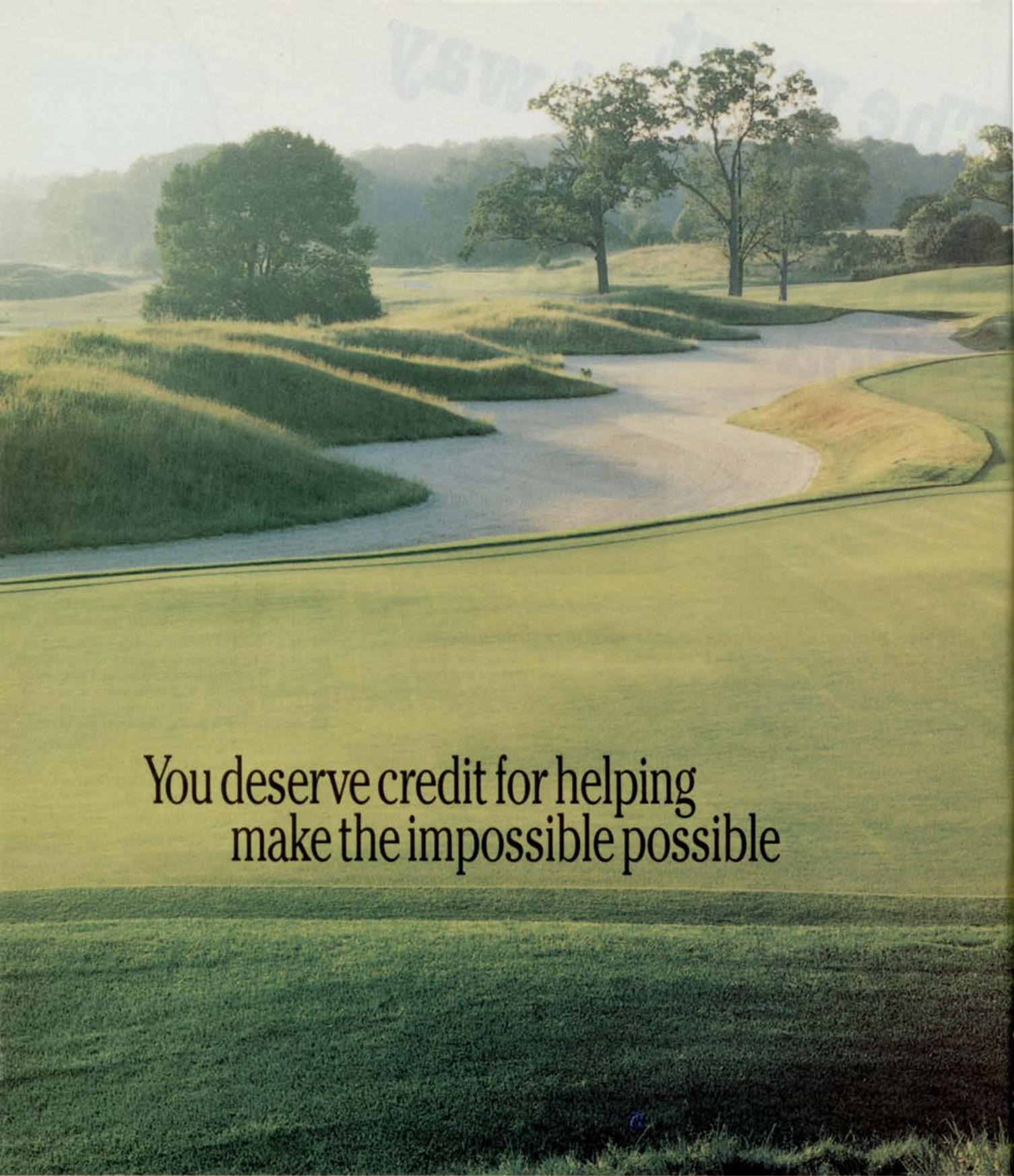
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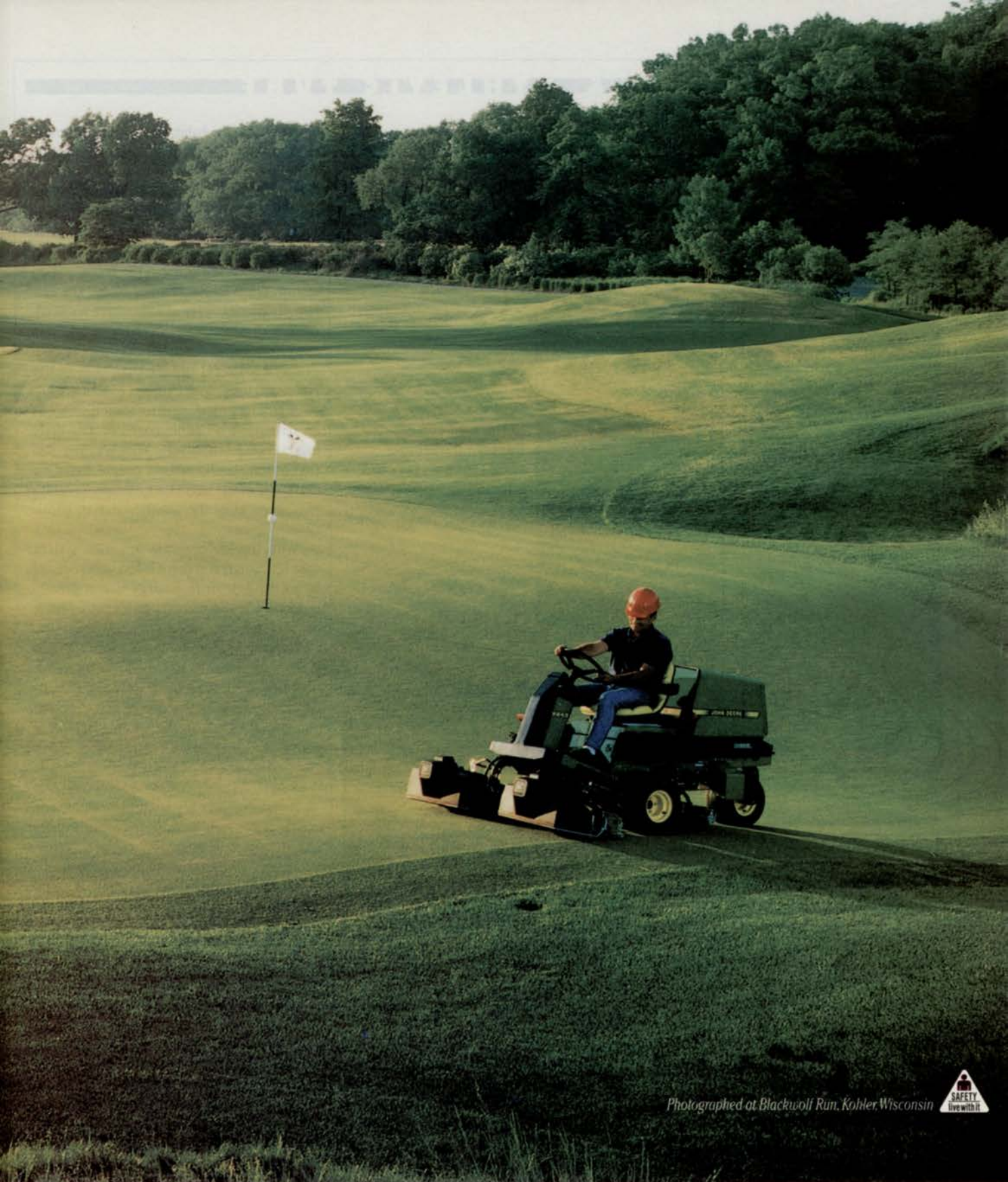
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Photographed at Blackwolf Run, Kohler, Wisconsin



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Past merges with modern day at Collier's Reserve



Find the fairway: much of the Collier's Reserve landscape consists of waterways and native vegetation.

This Audubon Signature Course achieves a balance between a man's playground and an animal's refuge, thanks to good planning.

■ Play a round at the Collier's Reserve golf course and you might feel like you're at play in both the past and the present.

Man's handiwork is evident all around the course: concrete and asphalt, golf cars and gas pumps. But thanks to a successful program of habitat protection, most of the course remains as it was in centuries past: lush, wild, and untouched by man.

In 1994, Collier's Reserve in Naples, Fla.—designed by Arthur Hills and managed by superintendent Tim Hiers—became the first Audubon Cooperative Sanctuary Signature Golf Course in the U.S.

The distinction signifies that a golf course designer and superintendent have succeeded in reaching five main objectives: water conservation; wildlife conservation; habitat enhancement; energy efficiency; waste man-



Superintendent Tim Hiers: Predicts more wildlife population Collier's.

agement.

It starts off the course—Energy and water conservation begin in the clubhouse, maintenance shop and offices. Water in restrooms is on automatic shut-off; hand dryers are used instead of paper towels; toilets have one-and-a-half gallon capacity bowls; office windows are tinted for better insulation.

Recycled plastic is used for parking bumpers, benches and birdhouses, and double-vaulted tanks store gasoline and oil at the maintenance shop.

"Everything that could leak out here has containment," Hiers explains. "And even if containment weren't mandatory, it would at least be plain common sense. We want to set a standard here."

As part of the habitat enhancement, more than 500,000 native plants were placed by hand in areas that could have been planted with turf. "We don't use any (extraordinary) resources or labor to maintain them," Hiers says.

Irrigation innovations—Each irrigation head is placed according to the configuration of turf, down to the last leaf blade. The system distributes water exactly where it's needed, and all runoff water from turf areas flows away from native vegetation, as the bermudagrass needs a pH higher than that of the pines, and thus more frequent watering.

A computerized weather station suggests an irrigation schedule based on the daily evapo-transpiration rate. "The weather station automatically adjusts output based on current rainfall," says Hiers. "Proper program management of the weather station eliminates overwatering."

With the low pressure irrigation system uses less water, and there is less water wasted by misting or drift. Energy use is greatly reduced, and there are fewer pressure breaks in the system.

Control products—Weed control, which Hiers says is minimal, is done by hand. Chemical control products are used to control turf disease—the bane of the southern golf course. The bacterial product *Bacillus thuringiensis* is used for insect control. Nematodes are used to help control mole crickets.

Bio-stimulants are used to improve the health of the soil, increase microbial activity and improve cation exchange capacity.

Slow-release fertilizers reduce large flushes of growth, extend the feeding cycle and reduce the frequency and cost of fertilizer application.

The wildlife at Collier's Reserve includes eagles, woodpeckers, ospreys, snakes, otters, owls, bobcats and crocodiles.

"I believe—and I think I can prove it—that there will be more wildlife activity created when this project is completed than before the first spade hit the ground, just because of the diversity out here," says Hiers.

"What's important is that, even if you don't play golf or care about golf, golf is good for your community," says Hiers, "not only because it provides oxygen and a habitat for animals, but because it's a safe space."

Hiers has been selected to receive the 1995 President's Award for Environmental Leadership from the Golf Course Superintendents Association of America.

—Terry McIver

Planning around playing guests

Maintenance is up-to-date, and crews can do it all, as time is of the essence for Robert Mitchell and Greenbrier resort.

by James E. Guyette

■ At the Greenbrier resort hotel in White Sulphur Springs, W.Va., the guests pay plenty to play, and this presents a rigorous challenge for grounds superintendent Robert V. Mitchell. "We don't want to inconvenience our guests, so we have to work around them," he says.

The Greenbrier lies surrounded by 6,500 acres of lush gardens, three golf courses and a 212-unit residential housing development.

Each year, the 60 groundskeepers and gardeners use two tons of grass seed, 200 tons of fertilizer, 100,000 tulip bulbs (including forced bulbs for indoor use), 70,000 summer annual flowers, 10,000 chrysanthemums (with an



The Greenbrier's shrubs are grown along with a 5,000 square-foot Penncross nursery and a two-acre bluegrass nursery featuring five varieties.

added 2,600 shipped in from Kentucky for the recent Solheim Cup Golf Tournament), 7,000 poinsettias, and 350 tons of sand to replenish golf course bunkers.

They came to play—Some 60,000 golfers annually hit the links, and when they step up to the tee they have no desire to view a work-in-progress.

"Our guests by and large are here three or four days, and when they want to play golf, they don't want to be inconvenienced by bad conditions," says Mitchell. "They don't want to see the same conditions that they see at their home country club."

The maintained areas within the three golf courses consist of 200 acres of bluegrass/ryegrass roughs, 65 acres of bent/poa fairways, 568,000 sq.ft. of bent/poa tees and putting greens.

There are also two 11,750-sq.ft. regulation croquet courts with a special mix. And unlike a golf green, a championship croquet court (where the players wear white and keep silent during shots) must be perfectly flat with no lumps or bumps.

The resort's biggest months for guests are May, June, September and October, which means maintenance is tough. Each golf course is renovated once a year. One at a time, they are closed and renovated for a week in August.

"It's hard to grow grass in August," Mitchell reports. "I'd like to do it in September, but that's impossible." No work in the spring, either. "I'd like to renovate in the spring, but we can't because of the guest traffic."

So August it is, although even that month is gaining popularity as a vacation stayover. "I don't know how long they'll give us a week per course," Mitchell laments. "We try to do everything we can not to inconvenience our guests."

Greens speeds are maintained at eight and a-half to nine on the stimpmeter—faster for

special events.

Greens on The Old White and Greenbrier are walk-mowed; a triplex is used on the Lakeside greens. All three courses use lightweight mowers on the fairways.

All-round turf care—Embark is used for seed suppression in early spring. Primo is used throughout the summer to help promote an increase in bentgrass population on the fairways. TGR is applied to the croquet courts to deter *Poa annua*. Split applications of pre-emergence herbicides (pendimethalin on roughs and Dimension on fairways) are used. The black turfgrass atenioides and the Japanese beetle grub are treated as needed via rotating insecticides. Fungicides are used on all greens, tees and fairways, and aeration of roughs and fairways begins in November.

The Greenbrier is in the upper limits of the transition zone because of its 1921-foot elevation, and it tilts toward the cool-season.

Much of the resort's grounds are covered with a "condo mix" that tolerates sun and shade. "We change that mix from time to time as better grasses become available," Mitchell explains. The current lineup consists of red fescue with Baron, Midnight, and America, plus Manhattan II ryegrass.

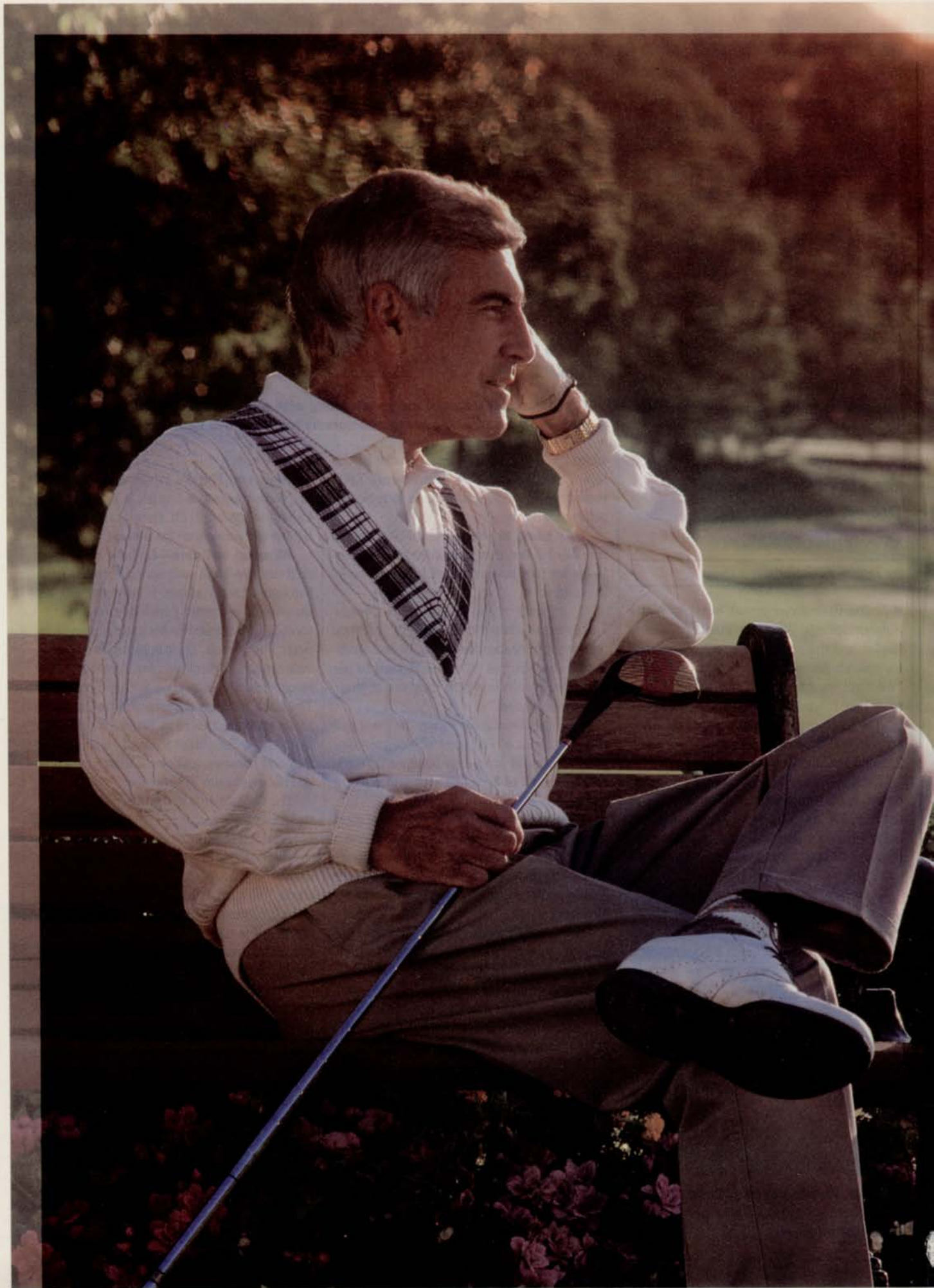
Tree time—Much of The Greenbrier property is wooded. "We have a lot of trees to take care of here." The consulting arborist is the Davey Tree Expert Co., and one full-time trimmer and a helper is on-staff.

There are about 20 Dutch elms to be cared for. "We climb them at least twice a year," Mitchell reports. "We try to keep ours as disease-free as possible both mechanically (removing sick branches) and by injection with fungicides and spraying with dormant oil."

—James E. Guyette, former editor of *Lawn*



Mitchell: Guests are here three or four days, and they want to play golf, not view construction.





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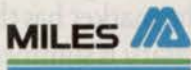
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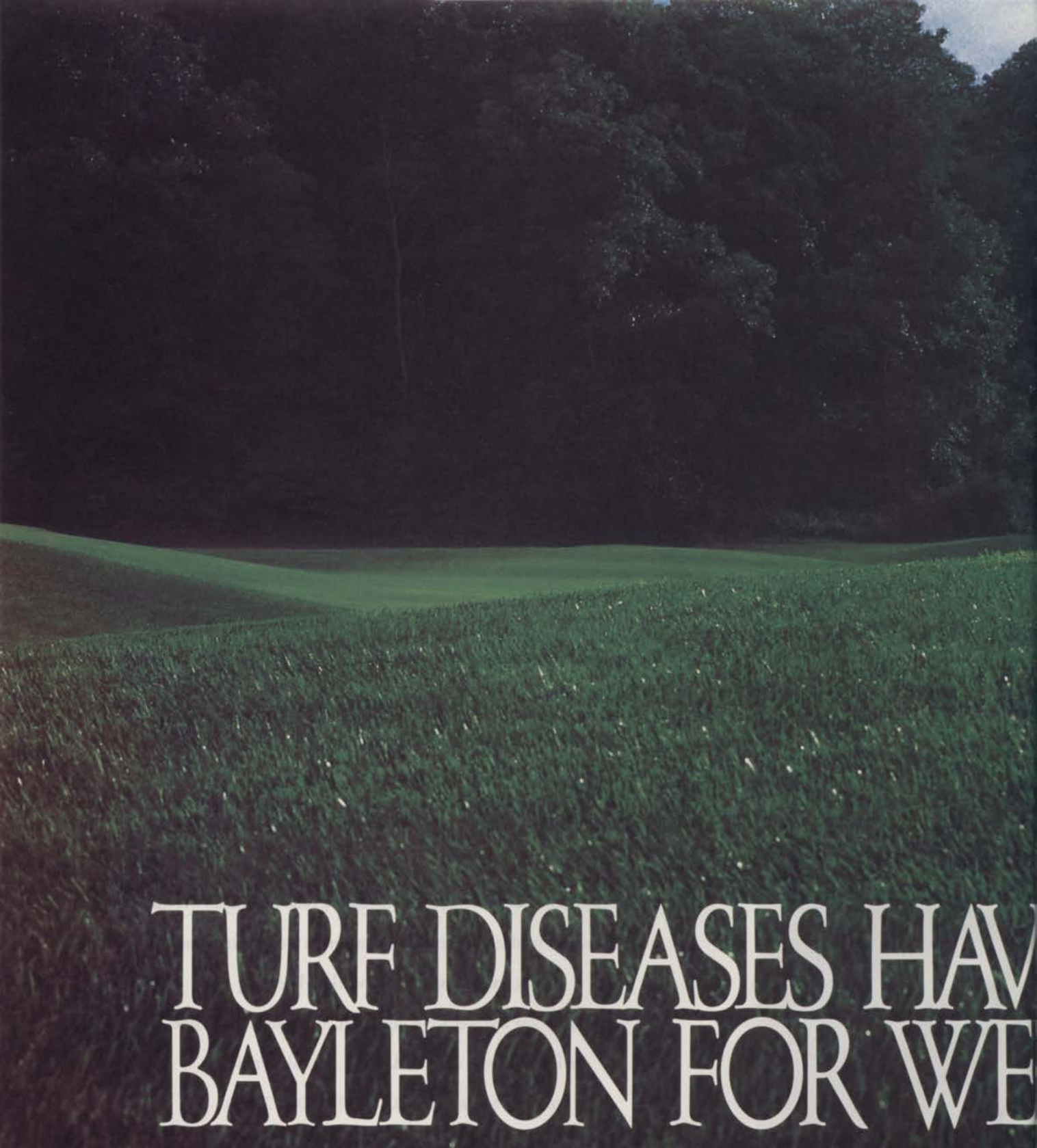
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What makes Triaform technology different is the patented process that replaces highly water-insoluble nitrogen with the shorter-chain, controlled-release methylenediurea (MDU) and dimethylenetriurea (DMTU).

These compounds allow more efficient use of nitrogen and provide faster particle breakdown on application to the turf. Nutrients release steadily and safely over a wide variety of soil

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Triaform's homogeneous chemical composition provides a more consistent nitrogen release than you can get with physically blended fertilizers. With Triaform, you'll see immediate and residual improvement in the quality, color and density of the turf, with quick greening and uniform color response for 8 to 12 weeks of feeding.

And Triaform granules disperse readily on contact with water, without the material "gumminess" that causes particles to stick to spreaders, mowers, golf balls and golfers' shoes. So plant-available nitrogen is not removed from the turf.

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Because of its slow-release properties, Triaform technology offers significantly lower potential for leaching and volatilization. And the environmental benefits of Triaform technology extend to reduced emissions in the manufacturing process, which is part of Scott's largest capital investment ever.

Of course, with Triaform technology, you also get something no other brand of fertilizer can offer — a Scott Tech Rep, agronomically trained to help you develop a total turfgrass program with proper application and maintenance scheduling.

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Growing grass when it doesn't want to

That's what's going on at Soldier Field and the Bears' practice fields over the course of 12 months.

by Ken Mrock

■ As groundskeeper for the Chicago Bears, I have to manage turf that takes the hardest beating in sports turf. Over the past nine years, I've seen the demands on our turf increase dramatically. The players have become bigger and faster, and training is almost year-round. This is tough because the Midwest has such a short growing season.

If that weren't enough, consider aesthetics too. The Bears have about 10 television media outlets along with huge radio and print coverage. The integrity of the playing surface is always critical.

This past season we had five mini-camps, several twice-a-day practices in addition to our normal four practices per week. On top of this, the Bears share their training field with the Lake Forest College football team for five home games.

With this schedule, the field doesn't have as much time to grow grass. So what do we do? Punt? Kneel down with the ball? No way.

Assistant groundskeeper John Berta and I have put together an aggressive mix of seeding and fertilization together with a tight maintenance program to ensure Bears' ballplayers have the best possible playing fields.

It begins in March—Starting at the end of March, we pre-germinate seed—a mixture of Kentucky bluegrass, perennial ryegrass and *Poa supina*. As soon as the field is workable, we aerify with a Ryan GA-30 or Toro Greensaire. We bring up as many plugs per square foot as possible. This speeds germination and establishes the plant a little lower in the turf surface, somewhat protecting the plant from the cleats of the players.

We allow the plugs to completely dry. Then we broadcast the pre-germinated seed mix over the entire practice field and add another 7-8 lbs./1,000 sq. ft. of dry seed broadcast mainly between the numbers. This area is the most worn due to the short passing game of our "West Coast Offense"

where three or four receivers line up between the hash marks and numbers, cutting and spinning their way up the field. With the receivers, of course, come the defensive backs and linebackers. This puts six to eight players in a small area.

Since we have no internal drainage and the practice field was constructed with Turface calcined clay, we have continued to apply Turface and our topdressing soil to the practice field with a Turfco Metermatic top dresser. We apply this mix across the entire field then lightly drag all the material in with a draft mat. Then we fertilize with a starter fertilizer, usually Vicksburg Chemical's K-Power 13-34-12. It offers potassium nitrate for the established turf, quick release nitrogen that works well in cool soil, and phosphorous for seed germination and root establishment. Then we apply pythium control and cover the entire field with a frost blanket.

Spring mini-camp—Mini-camp hits in late April—three days of twice-a-day practices with about 80 players. I call this our opening day. Daily maintenance on the field is quite aggressive. Divots must be replaced after every practice. The ones that can't be "found" are replaced with a mixture of seed, topsoil and Turface.

In early May, we fertilize with K-Power 12-0-42 along with spot treatments for broadleaf weeds. A Kiffco B-140 water reel irrigates the field before dawn so that the plants are dry by evening. Under normal conditions, we irrigate about twice weekly, putting down ½-1 inch of water per application. By mid-June, we're putting down a half-rate of K-Power 12-0-42. This strengthens the field for the last two mini-camps.

Around mid-July, we take a break in practice scheduling and the team moves to the University of Wisconsin at Platteville for four weeks. Although it's a tough time for seed development, it's our only window. We aerify the turf in two directions, overseed, topdress and make another application of 12-0-42. Fungicides and insecticides can be used, but sparingly. We also do another spot spraying for broadleaf control, usually dicamba for knotweed and clover control.



Going gets tough—August is the toughest stretch of our turf management program. Our team is in training camp, two-a-day practices with 80 players. We mow daily after every practice, sometimes twice a day, to allow a light rolling. We maintain the turf at about 1½ inches with a Jacobsen Tri-King 84 inch reel-type. This is a lightweight mower and allows us to pattern the turf five yards in one direction and the next five in the opposite direction. The ballplayers like close-cut turf.

With cooler weather in September, we shift our fertility program to 18-3-18 with both quick and slow-release nitrogen. When the nights begin to drop to 35 F., we pull out the frost blankets to raise the soil temperatures. This really kicks in the fertilizer.

We also use our rain/snow tarps as needed, covering 140 x 65 yards in seven sections that zipper together to form one solid tarp. Other than during a Bears practice or a college game, no rain or snow is allowed to accumulate on the practice field.

As the season progresses, we pump 4 million BTUs of heat via kerosene-fired heaters under the tarps to keep the field from freezing. The only time the field is uncovered is for practice during November and December and hopefully January—play-off time. The increased levels of potassium allow us to literally beat up this field, but it keeps getting up. In mid-November, we apply a full rate of 12-0-42 to take us through until the spring.

—The author is grounds superintendent for the Chicago Bears professional football team.

TECHNICAL REFERENCES

for Landscape Professionals



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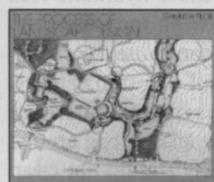
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everything from new methodologies for cataloging existing trees to selecting the right species for your climate and site to running a high-power, cost-saving maintenance program and much more. Landscape architects, urban foresters, municipal administrators and students will learn how to develop effective municipal street tree master plans, take street tree inventory, choose the best trees for a community, care for trees and promote public awareness. 273 pages, hardcover.



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Five completed projects

illustrate the general principles followed by landscape architects in developing designs from concept to implementation. Each case includes a summary of the principles which generated the design; a study of the architect's response to special conditions; a description of the stages of development; and an assessment of performance since completion. The five projects cover: landscape planning, urban regeneration, new town development, university campus and recreational development. 160 pages, hardcover.



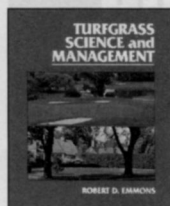
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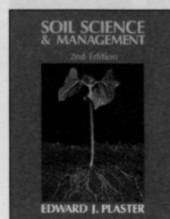


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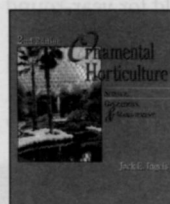
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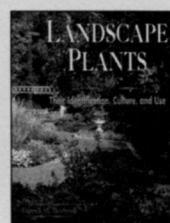


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Minimizing your time for diesel engine maintenance

by Tom Kane

■ Although a tractor is build for year-round performance, mid-season maintenance checks are needed to ensure minimal downtime repairs.

Maintenance checks are particularly

important in the hot weather, which taxes an engine. Checks are also important during the peak season, when engines are running 8 to 12 hours a day.

Air system—Diesel engines use 8,000 gallons of air to every gallon of fuel. In contrast to a gas engine, no throttle plate or

choke plate restricts air flow into the combustion chamber of a diesel engine. The three most basic and important steps to maintain the air system are:

- 1) Check the air cleaner element every 100 hours.
- 2) Periodically check for leaks and cracks.
- 3) Examine the hoses for hardness, cracking and loose connections.

It is also important to use care when replacing a filter. Improper replacement can cause an engine to ingest dirt and dust which can lead to wearing out pistons and rings, and cause valves and rings to stick.

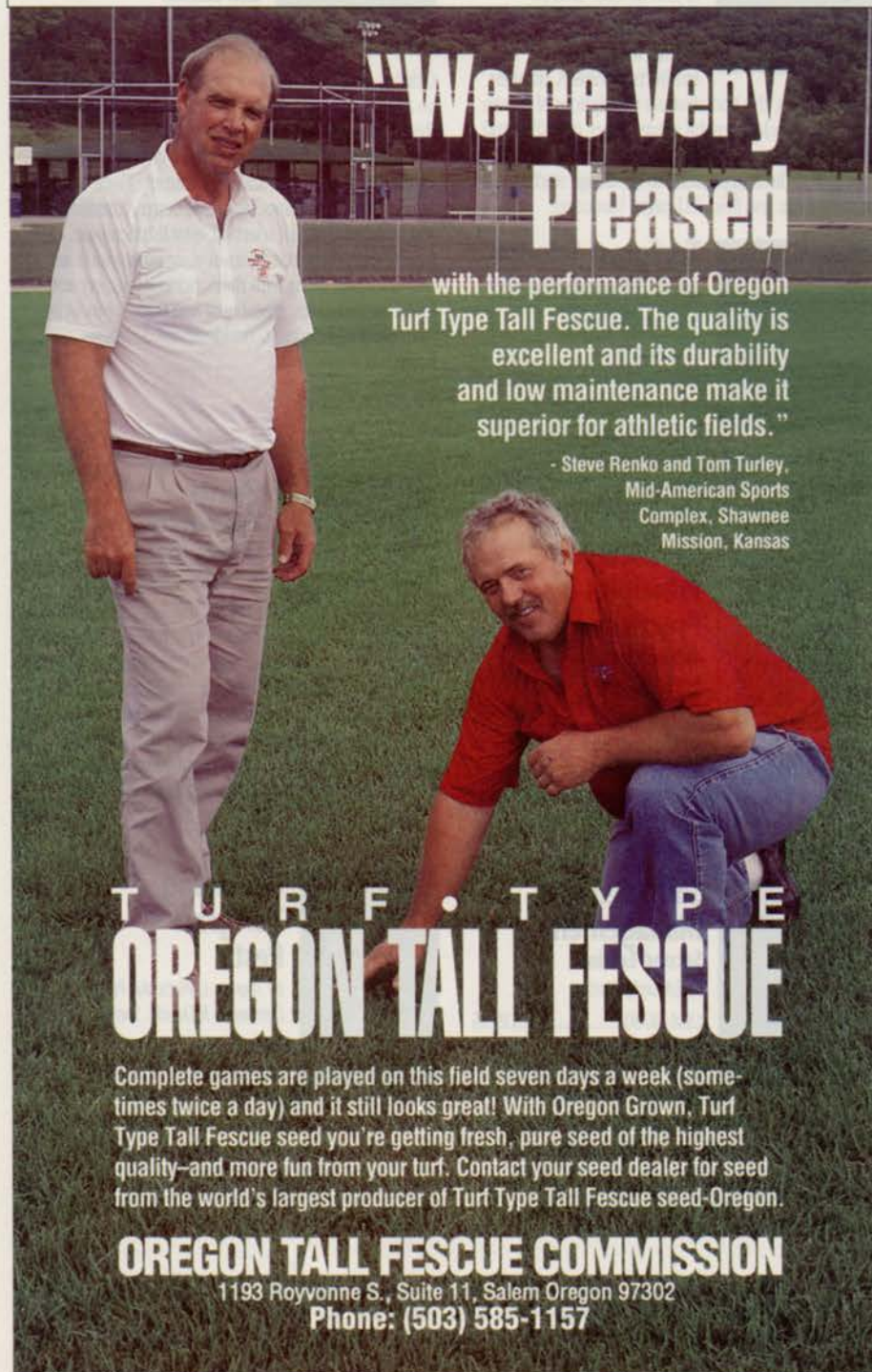
Be certain the caked dirt that builds up on the filter does not fall into the hose as the filter is removed. When replacing the filter, the sealing gaskets on both ends must be in proper position to direct the air through the filter. Check that it is securely fastened and free from any cuts, nicks or distortions.

Before your filter is in place, look in the downstream host to be certain no appreciable accumulation of dust or dirt can be found. If so, check for defective clamps or hoses.

In determining when to clean and/or replace a filter, keep in mind that a somewhat dirty filter actually operates more efficiently than a brand new one, as the dirt already trapped in the filter prevents the smaller particles from entering the system. Therefore, establish cleaning and replacement schedules according to your equipment's operating manual.

And remember, cleaning the engine itself with a high-pressure washer or hose must be done carefully. If water enters the intake system, it can cause hydraulic lock by filling the space between the piston and the head. This in turn can cause a connecting rod to bend or result in piston damage. To assure the engine remains water-free while cleaning, fasten a plastic bag around the entire filter assembly and do not clean with water while the engine is running.

Fuel system—Cleanliness and quality are the two most important fuel factors. Dirt and water are the chief contaminants of diesel fuel. Diesel fuel actually lubricates the injection pump and nozzles, which is one reason a diesel engine will outlive a gas engine. Water, even the slightest amount, can cause bacterial growth on the fuel filter element. Rusting problems are also created by water, beginning with corrosion of valves and plungers. Operation of injection nozzles and injection pumps can be disturbed—again by only the smallest amount



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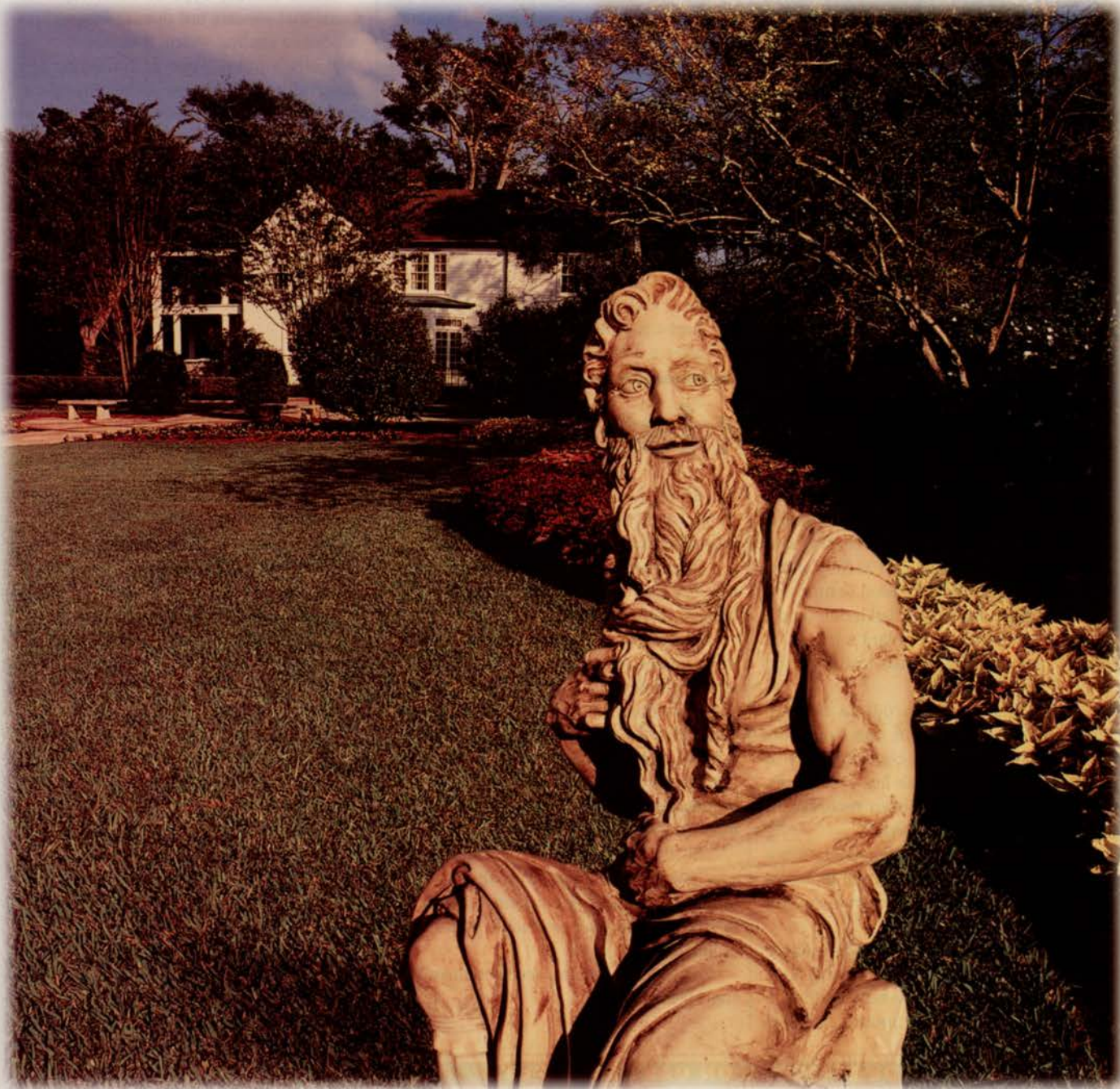
- Steve Renko and Tom Turley,
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of water.

To prevent condensation from forming in the fuel tank, keep it full at all times when not in use. In addition, condensation and other types of contamination can enter the system from the fuel storage tank.

Quality is another key for diesel fuel users as fuel contamination is a major concern. The following fuel factors must be considered to keep on top of this potential problem:

- Cetane number: reduces lag time. A longer lag time means a harder start engine, especially in cold weather. It is also more likely to smoke and knock.
- Flash point: the temperature at which fuel ignites. If too low, white smoke will appear.
- Cloud point: approximately 10-15° F.

when wax fuel appears. As long as fuel system components do not plug, the fuel is usable.

● Sulfur content: should not exceed 0.5 percent. Levels above that may contribute to acid build-up on the lubrication system.

Proper storage of diesel fuel is imperative. The following guidelines should be followed:

- 1) Be certain fuel is stored with as little moisture as possible.
- 2) Be certain fuel is stored where there are no dramatic temperature changes.
- 3) Only store what can be used in a reasonable amount of time. Storage tanks should be kept full, too.

Diesel fuel engines will smoke at the initial start-up. However, smoke that continues after a complete warm-up may be an

indicator of potential problems. A diesel engine's condition can often be read by the color of its smoke, as such:

White smoke, Type 1: water vapor or steam that appears but doesn't linger. This indicates a cooling system leak.

White smoke, Type 2: caused by low temperature. If it is a low ambient temperature, the smoke will disappear. If it is a low combustion chamber temperature, the puffs of white smoke will continue and may indicate low pressure, ring or piston problems, or leaky valves.

Black smoke: caused by unburned fuel. This may indicate nozzle problems of injecting more fuel than can be properly burned with the given horsepower and time.

Gray smoke: caused by excessive amount of oil in the combustion chamber. It indicates worn rings or valve guide wear.

Refer to your operator manual for specific tractor or equipment models. In general, the fuel filter should be checked and cleaned every 100 hours, and changed every 400 hours.

—The author is national training manager for Kubota Tractor Corp.

Treating oak leaf spot

■ During the past two years, leaf spot (*Tubakia dryina*) has increased in container-grown oaks, according to Dr. Jim Strandberg, plant pathologist at the Central Florida Research and Extension Center.

The fungus produces small lesions and a blight that deforms the plant's leaves. It affects many species of oak, including the popular laurel oak.

Tubakia spores reproduce best in humid, damp weather. At one time, this devastating disease was common only in Eastern states. Severe oak leaf spot losses, however, recently have been recorded in several Southeastern nurseries.

Strandberg has studied the fungus since 1989. In addition to investigating its biology, he has so done a comparison of control products.

"Traditional control methods include copper fungicides," says Strandberg. "But these aren't always effective because they're non-systemic. Oaks may produce several

growth flushes a season, so there's a constant chance that young, susceptible foliage may need protectant sprays.

"Ornamental nurseries are at particular risk because sprinkler irrigation spreads tubakia spores," he adds.

Strandberg tested seven fungicides in three classes: systemic, copper and non-systemic. Efficacy was determined by measuring the percentage of leaf area damage (indicated by "LAD") on new foliage of infected one-year-old laurel oaks. Overhead irrigation was performed nightly for two months, and fungicide applications were made bi-weekly.

"All the fungicides reduced leaf damage," Strandberg notes. "Only the systemic fungicides reduced the damage enough to satisfy the strict requirements of nursery production."

For his test results, see accompanying chart below.

FUNGICIDE EFFICACY ON OAK LEAF SPOT

Percentage of leaf area damaged (LAD) on new growth of one-year-old *Tubakia*-infected trees.

Fungicide	June 14		July 25	
	Rating	%LAD	Rating	%LAD
Banner	1.8	6.4	1.6	5.1
Bayleton	2.3	9.3	3.3	33.2
Copper hydroxide	1.6	14.7	2.7	24.4
Daconil	2.5	20.3	3.4	31.8
Control	3.5	17.6	4.3	51.4

Source: Strandberg, 1991

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A cost-saving way to control fire ants in your landscapes

by Bill Cobb
and Pat Cobb, Ph.D.

■ The cost of controlling red imported fire ants (RIFAs) can be decreased by using a program similar to the one used at the Colonnade in Birmingham, Ala.

RIFAs are among the most expensive landscape pests to control in the South. Although damage to turf is minimal, fire ants usually build mounds that detract from a landscape's appearance. Mounds are also a reminder that their occupants can inflict painful stings on visitors who disturb them.

Usually, a whole property is scouted regularly and visible mounds are treated with a contact insecticide. This takes time that could be spent on other jobs. Also, colonies that are still small and do not project above the turf are usually overlooked. This results in additional mound treatment throughout the season.

The following study represents an attempt to minimize costs (including labor) while maximizing RIFA control in a commercial landscape.

It is based on the fact that RIFA winged reproductive females and males fly, mate and new colonies are established during warmer months, primarily in the spring. Mated queens can fly several miles if assisted by a tail wind. However, they do not always move that far.

Background—The Colonnade is a 106-acre business complex encompassing 54 landscaped acres. The landscape is man-

Fire ant mounds can be found in secluded areas.



aged by professional horticulturists. Red imported fire ant control before 1992 consisted of mound treatment only, with acephate (Orthene TT&O). One person needed at least one working day weekly to treat mounds.

The Colonnade grounds and adjacent unmanaged land was scouted in June 1992 to map areas most heavily infested with RIFA. Six highly visible acres that were the most infested were chosen for the study.

It was also an area that, based on previous records, labor and insecticide costs for RIFA control could be calculated.

Three perimeter plots were selected for treatment and three were left untreated. Plots ranged from 2,000 to 6,000 sq. ft. Strips 30 feet wide were treated only in 1992 in adjacent unmanaged areas from which RIFA were believed to migrate into the landscape.

The process—In 1992, Affirm fire ant bait (avermectin) was applied to treatment plots and strips with a Solo backpack mist blower equipped with a converter for applying granules. In 1993, Award fire ant bait (fenoxycarb) was applied similarly.

Both baits were applied at 1 lb./acre. Ants were observed picking up bait particles in the treated plots and moving from outside areas into treated areas to collect bait.

Both baits disrupt colony reproductive potential. Worker ants depend on immature stages to digest solids into liquids, the only form of food on which they can feed. Once "immatures" become adults, they can no longer digest solids into liquids and are thereafter themselves dependent on other immatures for digesting solid food. Immature "digesters" feed liquids into workers; workers subsequently feed liquid into each other and into the queen.

Visible mounds in bait-treated areas were treated with a contact insecticide (acephate as Orthene TT&O) within five days after bait applications. This was done to eliminate stinging worker ants quickly rather than waiting six to eight weeks for them to die. Applications were made in June 1992 and August 1993.

Treated plots with the six-acre area totaled 16,000 sq. ft. Not all RIFAs were eliminated, but they were removed from critical locations (treated test plots and surrounding areas). In fact, six acres of control was achieved by treating perimeter areas only. Control costs for the six acres are summarized in Table 1.

What we learned—We learned three important lessons about RIFA control from this experiment:

1) RIFAs could be mapped. The maps

TABLE 1

Year	Insecticide \$\$	Labor \$\$	TOTAL
1991	\$129.50 (10 lb.)	\$85.00	\$214.50
1992	\$77.70	\$51.00	\$128.70
1993	\$12.95 (2 lb.)	\$8.50	\$21.45

—Source: Dr. Cobb

continued on page 28

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Ants were observed picking up bait particles in the treated plots and moving from outside areas into treated areas to collect bait.

represented areas of highest concentration, which included surrounding unmanaged sites from which migration probably occurred. In this case, the landscaped areas were also among the most highly visible parts of the property.

2) Perimeter treatments were adequate. Total property treatment, or even treating the six-acre area, was not necessary for acceptable control (based on number of visible mounds).

Baits controlled colonies, including young, not-yet-visible colonies. This eliminated the need for continuous mound treatments throughout the season.

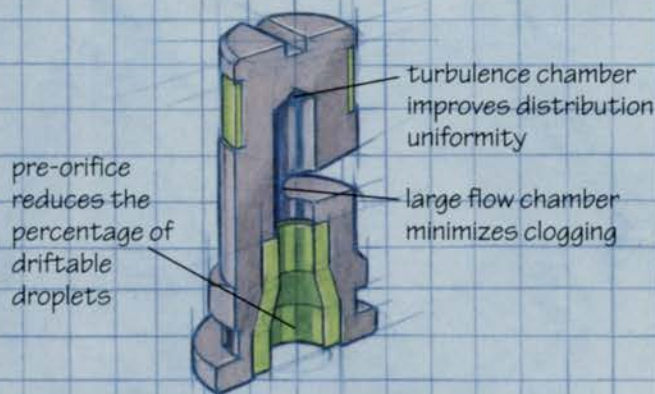
The contact insecticide applied to visible mounds after bait application controlled workers quickly. RIFA workers already present are excellent predators on new queens that fly into an area. Perhaps by leaving a few colonies in less visible areas, new queens were controlled.

3) Monitoring, mapping and perimeter treatment reduces control costs.

RIFA control is insecticide-dependent because of the lack of naturally-occurring predators and pathogens. Amounts of insecticide applied were reduced even more with perimeter treatments. Labor costs were reduced because—even though weekly scouting continued—the need for weekly mound treatments was eliminated.

The future—Excessive rainfall in 1994 resulted in RIFAs getting a slow start. Fire ant colonies increased dramatically in many areas of the South during late summer and fall. However, only minimum treatment was done at the Colonnade because of the few colonies throughout the season. The 1995 program will be determined after the property is again monitored, mapped and “acceptable” (threshold) levels of RIFA colonies are determined.

—Bill Cobb is operations manager for Environmental Design Group, Birmingham, Ala. Dr. Cobb is professor and extension entomologist at Auburn University, Ala.




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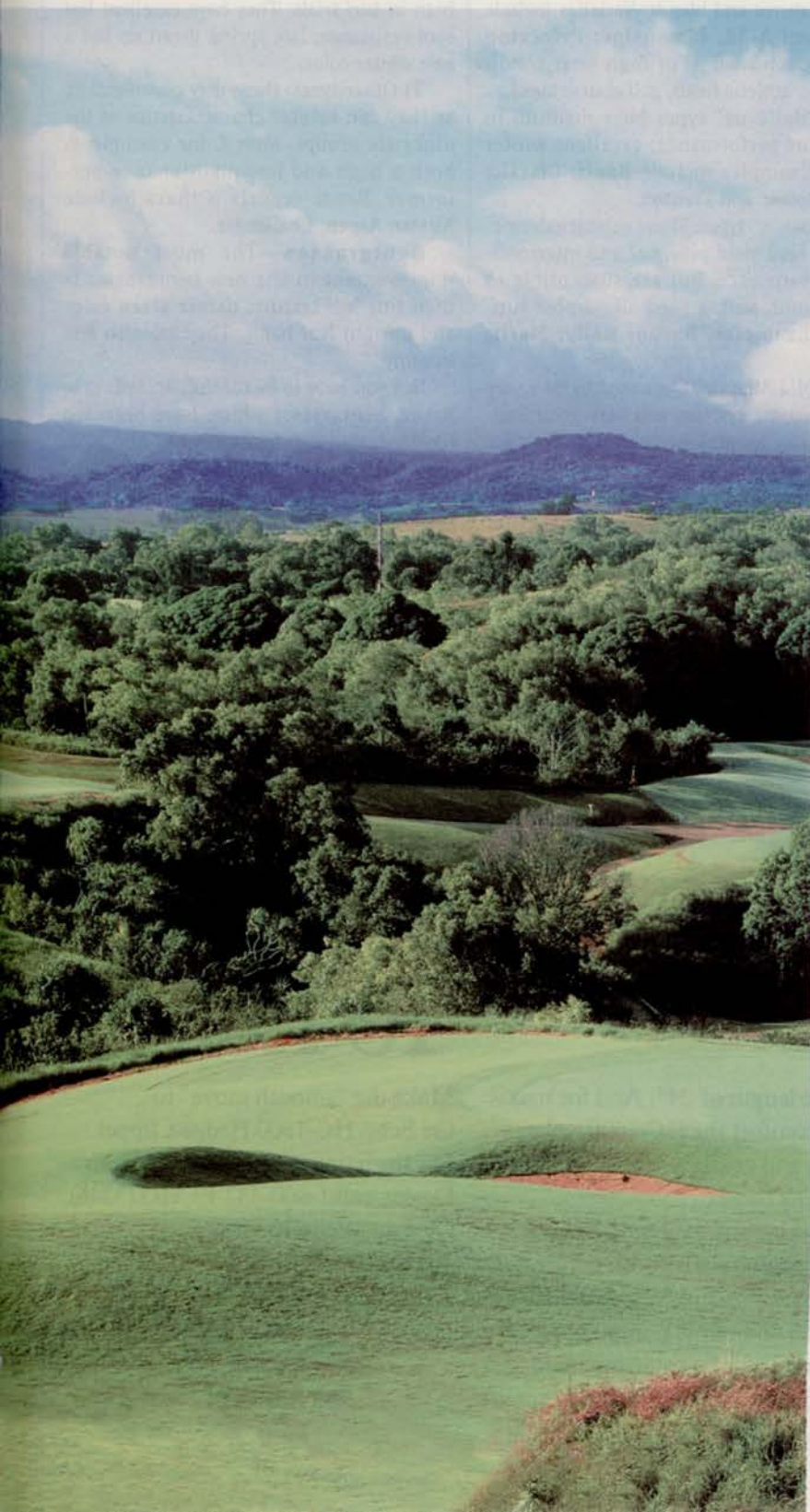
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Helps to selecting turfgrass come from research farms

■ Here's a rundown of some of the recent developments in turfgrass research, from Dr. Doug Brede, research director for the Jacklin Seed Company.

Tall fescues—"Dwarf" tall fescues are losing popularity due to shallow root systems, which make them susceptible to brown patch or other diseases, says Brede.

New, "low growing/high density" tall fescues show improved shoot density, uniform growth and good stress tolerance. But these are not good choices for athletic turf, Brede warns.

The older tall fescues, such as **Rebel II**, **Wrangler**, **Mesa**, and **Arid** still have applications for high-wear, low-water use and do very well under those conditions.

Kentucky bluegrass—The "elite" varieties will be available to turf managers everywhere in about two years. Brede says it's been a low seed yielder until recently.

Here are Dr. Reed Funk's "Seven Bluegrass Classifications," as explained by Brede at the Ohio Turf Conference:

1) "Aggressive" types: have high shoot density, and tend to spread into neighboring plants; dominate when you put them into mixtures and blends. Varieties include **Ben-Sun**; **A-34**; **Limousine**; **Princeton 104**; **Touchdown**. (For high wear conditions, i.e. athletic fields, golf course tees.)

2) "Bellevue" types have medium to good turf performance; excellent winter color; Examples include **Banff**; **Classic**; **Georgetown**; and **Trenton**.

3) "Baron" types: These exhibit extremely high seed yield potential and intermediate performance, but are susceptible to stripe smut; still, a good all-purpose turfgrass. Examples: **Baron**; **Kelly**; **Merit**; **Gnome**.

4) "Mid-Atlantic" types tend to have very deep rhizome systems and very good knitting quality for athletic field uses. They are tolerant of summer stress, but fall prey to leaf spot, so use in a mix with another bluegrass. Examples include **Huntsville**, **Preakness**, **Wabash**; and **SR 2000**.

5) "Midwest" types have an upright, narrow growth habit; they mature early and are low maintenance, especially low water use; susceptible to leaf spot. Examples include **Kenblue**; **Ginger**; **AS-21**; **South Dakota Certified**.

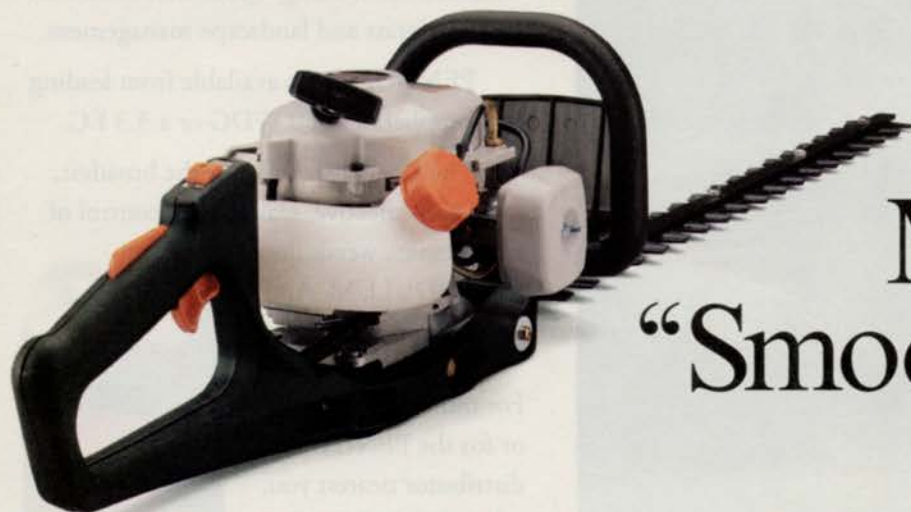
6) "North latitude, compact" types are low, compact growers that always place high in turf trials. They have excellent leaf spot resistance; late spring green up but a pale winter color.

7) Other types: these defy classification, as they can exhibit characteristics of the other six groups. *Ram I*, for example, is both a high and low-maintenance performer, Brede reports. Others include **Nustar**; **Aspen**; **Challenger**.

Bentgrasses—The most notable improvement in the new bentgrasses is their fine leaf texture, darker green color and upright leaf habit. They are also less stemmy.

But you have to be careful. According to Brede, bentgrasses which have been too hastily tested can form patches and have different growth habits, which will affect color and ball roll. *Poa annua* resistance also varies in these, says Brede.

—Terry McIver



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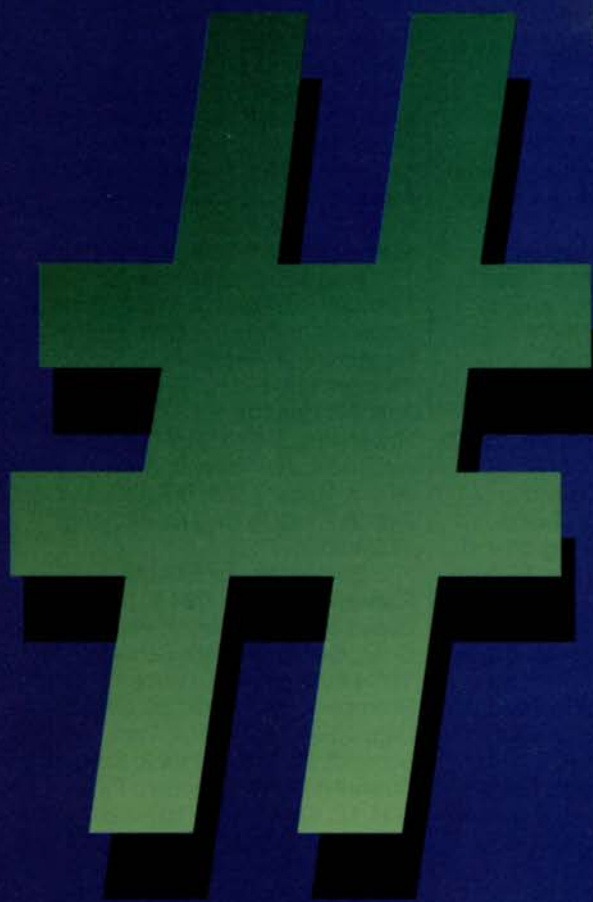
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- ◆ State of the Lawn Care Industry
- ◆ What's New in Two-Cycle Equipment

DECEMBER

- ◆ Buyer's Guide and Desk Companion

JOB TALK

Retirement community landscaping a challenge

■ Coordinating the landscape management of a facility as large as John Knox Village in Lee's Summit, Mo., is a task similar to being responsible for a small city—and the lawn care of each residence. As America's largest retirement community, John Knox Village is home to more than 2,000 retirees. The 400-acre complex includes houses, duplexes, garden-type cottages, and large continuing-care facilities and recreational facilities.

There's even a bowling alley, three restaurants and a nine hole golf course.

When planning for year-round maintenance, Warren Brown, vehicles and grounds manager, must consider many variables.

"John Knox Village is a beautiful environment for retirees," says Brown. "It has more than a thousand trees, hundreds of acres of grass and dozens of flower gardens and shrubbery areas."

In addition to the golf course, Brown and his crew manage the landscape at Lee's Summit Hospital and several private soccer fields adjacent to John Knox Village.

Residents who live in the cottages and duplexes individualize their fenced-in outdoor areas with bird feeders and bird baths, for example.

This not only makes the tenants live more comfortably; it also prevents a maintenance challenge to Brown and his crew.

"By the nature of the facility's philosophy and design," says Brown, "we must mow in a lot of very tight areas with numerous obstacles. And with the number of trees and intricate flower beds and shrubbery we have, open areas are equally challenging."

"Northern Missouri has four very specific seasons," says Brown. Our maintenance program—by necessity—must be prepared for all seasons and all weather conditions. In fact, it affects the equipment we choose as well as the timing of our fertilizer and weed program."

The first fertilizer and pre-emergent weed control application takes place in late March. This preliminary application utilizes a combination product that both fertilizes and fights crabgrass at once. The second application of fertilizer and weed control takes place seven weeks later, and includes an herbicide that is designed for late summer weeds. Both applications use a measuring standard of $\frac{3}{4}$ lb. per 1000 sq. ft. of turf. Broadleaf weed control products are applied in April, May and late July.

Fertilizer is also applied in September and early November. These late-season applications use a combination of nitrogen, phosphorus and potassium in a ratio of 10-3-6 at a rate of 1 lb. per 1000 sq. ft. of turf.

"We used to have different equipment for every season," says



Many obstacles in the landscape at John Knox Village require zero-radius maneuverability from mowers.

Brown. "Today, we use nine, 21-hp diesel Grasshopper zero-radius front mowers that allow us to mix and match cutting decks and attachments for year-round versatility.

According to Brown, zero-radius maneuverability has reduced the hours required for virtually all maintenance operations—from mowing, trimming and weeding to leaf pick-up and snow removal.

To collect clippings, five of the nine Grasshopper mowers carry a Quick-D-Tatch Vac grasscatching system and 25-cubic foot Trail Hopper collectors. The large collection systems make it more convenient to catch clippings, according to Brown, because clippings are not emptied as often.

The grasscatching systems are also used often in the fall, to collect leaves from the facility's thousand-plus trees. Crews also use the grasscatching system's powerful vacuum action for fall dethatching. The Wand Vac, a hand-held vacuum device that attaches to the Grasshopper Quic-D-Tatch Vac is used to pick up the shrub clippings during the three-week long job of trimming the shrubbery around the complex.

In the winter, cab enclosures are attached, along with the snow blades and snowthrowers.

"We use the dozer blades for light snows and when we get more than three inches, says Brown. "The snowthrowers can clear up to 12 inches of snow very efficiently."

Randy Wright is the lead mechanic. With so much equipment, repair and service time must be kept to a minimum.

"A side benefit of year-round versatility has been to simplify our equipment maintenance by eliminating the need for a lot of different machines for different jobs," says Wright. "That means our parts inventory is reduced significantly, too."

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HOT TOPICS

Biological pesticide market to hit \$150 million by 1997

CLEVELAND—The biological pesticide market is expected to reach \$150 million by 1997, according to a business research group here.

Demand for pesticide active ingredients is expected to increase 4.7 percent per year until 1997, when it will total nearly \$4 billion, the study says.

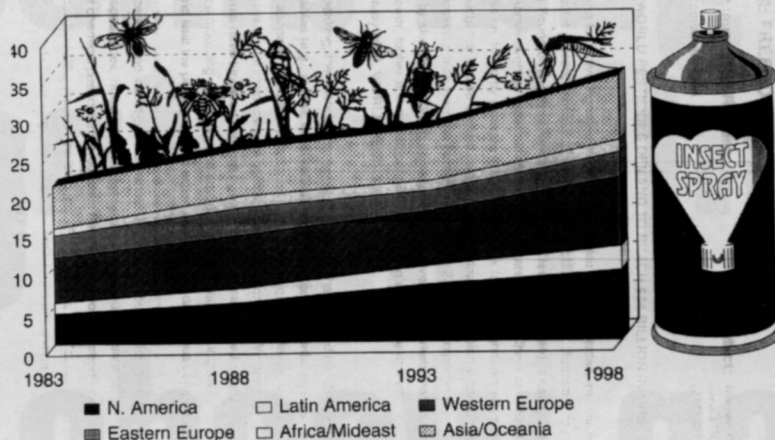
The Freedonia Group, Inc. says the increase in demand will be balanced against more specialized formulation used in lower quantities. The volume will be slightly higher than 1992 levels of nearly 1.1 billion pounds.

The Freedonia Group's study, "Pesticides in the U.S. to 1997," says consumption of conventional pesticides is expected to expand 4.5 percent per year through 1997. These products depend a lot on the agricultural sector, and demand hinges on specific factors such as climate and insect population, among other causes.

Herbicides, insecticides and fungicides account for more than 90 percent of all pesticide use.

Biological pesticides currently account for a very small portion of the pesticide market. Rapid growth is expected as new products are developed and marketed, says industry analyst Luci Young. Adding to the increase is the growing interest and research by conventional pesticide manufacturers in alternatives to chemical-based

World Pesticide Consumption
(billion US dollars)



Source: Study #636, The Freedonia Group, Inc. (Cleveland, Ohio).

control products.

Agriculture use accounts for more than 70 percent of all pesticides. Demand in agriculture is influenced by climate, number of acres planted, number of acres harvested and the crop mix. Young says corn, soybeans and cotton require the most pesticide care.

The study says commercial pesticide applications by professional pest control and lawn care companies will see growth based on stimulation from the penetration of biopesticide products—which the study call “safer” than chemical controls—and by a stronger economy which will allow consumers and businesses to purchase these services.

Growth in consumer pesticide demand will be based on improved, higher cost for-

mulations and increased usage fostered by the popularity of do-it-yourself lawn and garden care.

Biological pest control products have been received with both support and skepticism.

The major drawback to biological products has been their high cost and low efficacy relative to synthetic pesticides, making repeat applications necessary. Products degrade quickly, are sensitive to adverse soil pH factors, and are easily affected by moisture and temperature.

From an environmental point of view, genetically engineered products have yet to be declared completely safe. To overcome these misperceptions, some companies are creating products based upon genetically-engineered bacteria which are killed before inclusion into the finished product. Although dead, the microorganisms retain internally-generated poisons that are fatal to target pests.

Safety questions still prevent widespread use of biopesticides. The Freedonia report says live bacterial, viral and fungal-based pesticides will not be cleared for widespread use until the late 1990s. Products which use dead microorganisms will continue to be marketed.

—Terry McIver

ELSEWHERE

N.A.A. mini-survey on IPM programs, page 45

Two turfmen pass away, page 45

Environmental relations kits, page 46

NAA mini-survey shows interest in IPM programs

AMHERST, N.H.—Seventy-seven percent of respondents to a National Arborist Association Mini-Survey said they follow Plant Health Care or Integrated Pest Management techniques.

Those programs have been available to customers for an average of 6.8 years.

Horticultural oils were ranked the control product of choice, with Tempo larvicide ranked second and insecticidal soaps ranked third.

Sixty-one percent of those who said they have PHC/IPM programs said their customers are more concerned with products used on their properties than before.

But despite the shift in control programs, 61 percent said they have seen a decline in the number of effective pesticide products labeled for control of pests on ornamental plants.

Survey results

Do you have a PHC/IPM program?

Yes77%
No13%

How long has it been available? 6.8 years

Rate the success of your current program from 1.0 to 5.0, with 1.0 being very successful.2.4

Did you have a pest management program in place prior to the current program?

Yes68%
No32%

Why did you change to Plant Health Care? Rank responses from 1.0 to 5.0, with 1.0 being the most important reason:

Greater safety2.0
Environment2.0
More effective2.0
Regulations2.0
Public demand0.3
Cost0.3

List the five most commonly used pesticide products in your current program:

#1:Horticultural/dormant oils
#2:Tempo (Temephos) larvicide
#3:Insecticidal soaps
#4:Orthene (acephate) insecticide
#5:Sevin (carbaryl) insecticide

Is posting required in your community?

At time of application43%
Not required44%
Required before application9%
Don't know8%

Source: National Arborist Association

Base: 56

HOT STUFF

GIE elects new officers

MARIETTA, Ga.—David Luse of Arteka Natural Green in Eden Prairie, Minn. is new president of the Green Industry Expo, taking over from Davey Tree Expert's George Gaumer. Lou Wierichs Jr. of Pro-X Systems in Appleton, Wis. is new vice president of the GIE and E. Earl Wilson of Thornton-Wilson in Loveland, Ohio, is new secretary/treasurer. New board member Gary Trinetti of Garick Corp., Cleveland, replaces Gaumer. Trinetti represents the Professional Grounds Management Society.

EPA studying three herbicides

WASHINGTON—The Environmental Protection Agency will study the effects of atrazine, simazine and cyanazine on drinking water. Ciba, which supplies pesticides to the turf-grass market, makes atrazine and simazine, both Class C carcinogens, the third most dangerous of five classes. A spokesperson for Ciba says that the company welcomes the study.

RISE defines IPM

WASHINGTON—Integrated Pest Management should "manage pests and the environment to balance benefits of control, costs, public health and environmental quality," according to Responsible Industry for a Sound Environment (RISE). The organization—which represents manufacturers, formulators and distributors of specialty pesticides—defined IPM as a recent meeting of its Governing Board.

"Our members felt that their association should go on record with a definition of IPM based on the growing use of such systems, and to help eliminate confusion as to what IPM really means," says RISE executive director Allen James.

Metasystox-R to remain on market

YUMA, Ariz.—Metasystox-R, a systemic insecticide used on aphids, mites, leafhoppers and other sucking pests in fruit and field crops, is remaining on the market. Gowan Company signed agreements with Miles and the Environmental Protection Agency allowing it to distribute the product, which was first registered in the U.S. in 1961.

Power equipment sells

ALEXANDRIA, Va.—All categories of outdoor power equipment, except rear engine riders and tillers, are expected to show increased shipments in 1995, according to the Outdoor Power Equipment Institute (OPEI).

The organization, however, revised its predicted growth rate down to 2.3 percent for 1995 "due to recent increases in mortgage interest rates which are expected to lead to a decline in sales of new and existing homes." Growth of 1.9 percent is expected in 1996.

Super offers video training

WEST BEND, Wis.—Eight training videos are available from renowned golf course superintendent Paul Latshaw for \$69.95 each. Titles are: "The Knowledgeable Operator" (riding equipment); "Turf Etiquette" (for golfers and crews); "Bringing Out the Best in the People You Manage;" "Turf Restoration and Renovation;" "Training the Trainer;" "Golf Car Fleet Management;" and "Greens Mowing Tips and Orientation."

For more information, phone Epic of Wisconsin at (800) 938-4330.

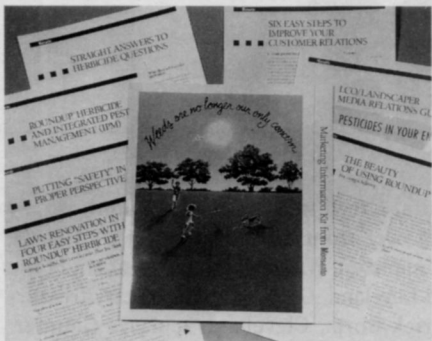
Obituaries...

SALEM, Ore.—R.H. "Dick" Bailey, owner of Bailey Seeds, died of cancer at his home here Nov. 29, 1994. He was 64. Earlier in his career, Bailey worked for Dickinson Seed, co-founded Turf-Seed with Bill Rose and managed Jacklin Seed Co. He is survived by his wife Shirley, son Rich Jr., two brothers, a sister and two step-daughters.

PHOENIX—Golf course architect Milt Coggins died Nov. 4, 1994 at the age of 92. Coggins designed 29 courses in Arizona, California, Texas and Florida, including Prescott (Ariz.) Country Club. He is survived by his wife Tate D., sons Milt Jr. and Lewis, three grandchildren and one great-grandchild.

GREEN INDUSTRY EVENTS

What's going on in the industry



Environmental relations kit sells and informs

ST. LOUIS—Monsanto Company now offers a free environmental relations primer to help lawn care operators and landscapers describe the environmental aspect of pesticides.

"Weeds Are No Longer Your Only Concern" contains information on Roundup herbicide, including the new Roundup Dry Pak, plus non-commercial information to help managers portray the industry to the public more accurately.

The kit includes pass-along information to be given to customers and information for management and employees. A "Q&A" sheet covers the environmental aspects of herbicide use, lawn renovations, environmental and public safety data sheets, information on integrated pest management and tips on selling services which include the use of Roundup.

Corrections

✍ A four-wheel-drive Swinger articulated loader was incorrectly identified as a Thomas skid steer loader in our November issue. We apologize for the error.

The Swinger line is actually manufactured by Northwestern Motor of Eau Claire, Wisc. It includes three loaders with SAE lift capacities from 2,400 to 1,200 lbs. Lift height at the pin is up to 10 feet.

Swingers feature easy operating hydrostatic drive to the drop box and easy-to-maintain mechanical drivelines and axles.

For more information on Swinger loaders, contact Larry Blanshan, Swinger Division, Northwestern Motor, 1125 Starr Ave., Eau Claire, WI 54703; phone (715) 835-3151.

✍ Also, 1993 PLCAA President Lou Wierichs of Pro-X Systems, Appleton, Wis., claims he was the first person to complete the Certified Turfgrass Professional program and earn the CTP designation early this past summer. By summer's end more than a dozen turf pros had passed the course.

FEBRUARY

1-2: New York Turf and Grounds Expo II, Holiday Inn, Suffern, N.Y. Phone: (518) 783-1229.

2: NorCal Spring Trade Show, San Mateo County (Calif.) Expo Center. Phone: Margo Jonsson, (916) 961-6814.

2-4: Landscape Design Short Course, Sheraton Inn, Pittsburgh North. Phone: Michael Masiuk, (412) 392-8540.

3-5: The Management Clinic, Galt House East, Louisville, Ky. Phone: American Association of Nurserymen, (202) 789-2900.

4-8: Sports Turf Managers Assn. National Conference & Exhibition, Pirate City, Bradenton, Fla. Phone: STMA, (312) 644-6610.

5-7: Fertilizer Institute Annual Meeting, Marriott's Orlando (Fla.) World Center. Phone: TFI, (202) 675-8250.

6-7: International Society of Arboriculture Shade Tree Symposium, Lancaster (Pa.) Host Resort. Phone: Elizabeth Wertz, (215) 795-2096.

6-8: Landscape Design Short Course, Warrendale, Pa. Phone: Michael Masiuk, (412) 392-8540.

7: Target Specialty Products Annual Seminar and Exhibit, Mesa, Ariz. Phone: Target, (310) 802-2238.

7: Michigan Arborist Association Insect Practical Applicator Training, Southfield (Mich.) Civic Center. Phone: MAA, (810) 391-0030.

7-8: Southern Illinois Grounds Maintenance School, Gateway Convention Center, Collinsville, Ill. Phone: Ronald E. Cornwell, (618) 692-9434.

7-9: Pro Green Expo, Colorado Convention Center, Denver. Phone: (303) 756-7282.

8-9: Landscape Industry Show, Long Beach (Calif.) Convention Center. Phone: (916) 448-2522.

8-9: Garden State Nursery & Landscape Conference, Somerset, N.J. Phone: New Jersey Nursery & Landscape Assn., (609) 291-7070.

8-10: Turfgrass Producers International Midwinter Conference, Walt Disney World Village, Orlando. Phone: TPI, (708) 705-9898.

9: Northeastern Pennsylvania Turfgrass and Grounds Maintenance School,

Mountain Laurel Resort, White Haven, Pa. Phone: Andrew McNitt, (814) 863-1368.

9-10: Target Specialty Products Annual Seminar and Exhibit, Anaheim, Calif. Phone: Target, (310) 802-2238.

9-10: Inland Northwest Turf, Tree & Landscape Conference, Spokane, Wash. Phone: (509) 335-3530.

13-15: Pennsylvania Nurserymen & Allied Industries Conference, Hershey (Pa.) Lodge. Phone: (717) 238-1673.

14-15: Target Specialty Products Annual Seminar and Exhibit, San Ramon, Calif. Phone: Target, (310) 802-2238.

14-16: Landscape Contractors Assn. Winter Workshop, Holiday Inn Crowne Plaza, Rockville, Md. Phone: LCA, (301) 948-0810.

14-18: National Arborist Association Annual Meeting, Walt Disney World Village, Orlando, Fla. Phone: NAA, (800) 733-2622.

15-17: Athletic Field Construction and Maintenance, Cook College, Rutgers University. Phone: (908) 932-9271.

17: Environmentally Conscientious Turfgrass Maintenance Seminar, Lakewood (Ohio) City Park. Phone: Jack Kerrigan, (216) 631-1890.

17: Target Specialty Products Annual Seminar and Exhibit, Visalia, Calif. Phone: Target, (310) 802-2238.

17-18: Masters in Landscape Management, Chicago. Phone: Associated Landscape Contractors of America, (703) 620-6363.

20-27: Golf Course Superintendents Association of America's International Conference and Show, San Francisco. Phone: (913) 841-2240.

25: Long Island Tree Conference. Phone: (516) 225-1569.

25-27: Wisconsin Landscape Federation Winter Convention, Paper Valley Hotel, Appleton, Wisc. Phone: Kari Foster, (414) 529-4705.

27-28: Professional Lawn Care Association of America Day on the Hill, Washington, D.C. Phone: PLCAA (404) 977-5222.

28-March 3: International Erosion Control Assn. Conference, Westin Peachtree Plaza Hotel, Atlanta. Phone: IECA, (303) 879-3010.

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Circle No. 109 on Reader Inquiry Card

PRODUCT REVIEW

Control products: expanded labels, new formulations

Pendulum herbicide from American Cyanamid is now available for use on turf.

Pendulum provides broad spectrum pre-emergence control against most grassy and broadleaf weeds, including crabgrass, goosegrass, oxalis and spurge. The product is labeled for use on a wide variety of cool- and warm-season turf.

The active ingredient in Pendulum is pendimethalin, the most widely-used pre-emergence turf herbicide.

Pendulum provides over-the-top control of 45 weeds in more than 260 labeled ornamentals, which the company believes makes it an excellent choice for total turfgrass and landscape management. Pendulum WDG is available in 10 lb. jugs and 1.2 oz. premeasured water-soluble bags. Pendulum 3.3 EC is packaged in 2½ gallon containers.

Circle No. 191 on Reader Inquiry Card

Ciba Turf & Ornamental Products has received EPA registration for Primo WSB, a wettable powder formulation of Primo, packaged in water-soluble bags.

Primo WSB may be used to regulate turf growth in a variety of settings, including golf courses, residential and commercial lawns, sod farms, sports fields, cemeteries and similar areas. The new Primo WSB is labeled for use on golf course greens.

The company believes the new formulation offers the benefits of a "closed system," with reduced potential for exposure to the user and environment during mixing.

Circle No. 192 on Reader Inquiry Card



New Daconil Ultrex fungicide, from ISK Biosciences, is an advanced "spray-dry" formulation that mixes faster and remains suspended for longer than convention dry granular products, according to the company.

ISK Bioscience says Daconil Ultrex also offers a high concentration of chlorothalonil—82.5 percent—to provide improved control of brown patch. The product is guaranteed to stick and stay on foliage. Daconil Ultrex is labeled for control of 14 other diseases of warm- and cool-season turf, including dollar spot, leaf spot, snow mold, and the pathogens that cause algal scum.

Daconil Ultrex controls 55 diseases on 78 species of broadleaf shrubs and trees, foliage plants, flowering plants, bulbs and conifers.

Circle No. 193 on Reader Inquiry Card

Sprayer eliminates rinsate, residuals

The Doscart is a new product applicator which uses direct injection to a spray boom or low pressure pistol-type sprayer. The manufacturer is Canaan Industries, Inc., of Dothan, Ala.

The company says the Doscart eliminates residuals. When a chemical is not requested, you can download it and keep it warehoused until needed.

The Doscart eliminates premixing with water, and there is no need to rinse the container between injections of different control products.

If a leak or spill occurs while transferring a chemical between the individual containers, it stays inside the secondary containment chamber, and will not be released to the outside, the company maintains.

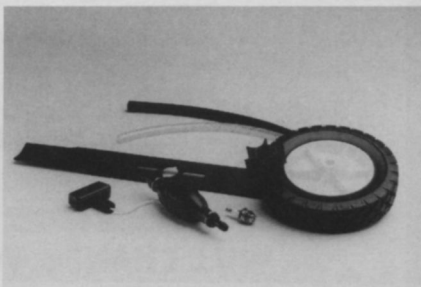


The Doscart has acquired approval from the Environmental Protection Agency.

Circle No. 194 on Reader Inquiry Card

Parts supplier initiates distributor-friendly policy

Prime Line has a new power equipment wholesale distribution program which sells through key distributors to



power equipment servicing dealers, technicians and retail outlets in the U.S.

The program includes comprehensive warranties and a labor claim policy on all Prime Line products.

A total obsolescence protection policy ensures that distributors and their green industry customers are fully protected from outdated or slower-moving inventory costs.

An extensive distributor cost-control policy includes pre-paid freight, stock adjustment programs, generous spring

PRODUCT REVIEW

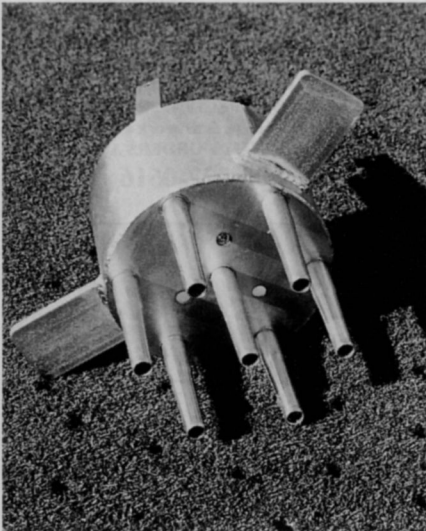
dating terms and early pay discounting.

Special opening order requirements are designed to help distributors keep the fewest possible dollars committed to the Prime Line inventory.

Circle No. 195 on Reader Inquiry Card

Aerifier can be used for variety of turf repairs

The Handi-Aerifier from Miltona can be used to aerify small areas for better water infiltration, lower a sharp crown on a green or eliminate high spots during turf



repairs.

The 7/8-inch hollow tines penetrate turf down to four inches deep.

Plugs are collected in the upper cylinder, saving clean-up time.

When attached to a cup cutter handle, the lever ejection mechanism lifts the tines from turf without pulling or tearing.

Circle No. 196 on Reader Inquiry Card

Clean sand areas of debris, aerate at the same time

Nolte introduces a new way to clean debris from sand. The BC-1000 is powered by a Honda 5.5 hp engine.

It will remove all debris from .3mm to 2-inch size stones, and aerate the sand to increase microbial action which helps to extend the life of the sand.

The product is also available in a tractor tow model. The Nolte units are distributed by Pifer, Inc., Jupiter, Fla.

Circle No. 197 on Reader Inquiry Card

Golf car has extra body protection

The Ultima golf car from Yamaha USA features the new Sentry Body Protection System, which consists of wrap-around bumpers.

The 5-mph bumpers are on the front and back of every car. These bumpers are blow-molded and can withstand impacts of up to 5 mph without damaging the body or fram.

Every Ultima features vinyl-covered side sills, made of a durable heavy-gauge material, to help guard against damage on the sides of the car.

To minimize spike damage to the car's body, Yamaha added a heavy-duty rubber trim on top of the Ultima's front cowl.

The worm gear and pitman pin steering is another advantage of the Ultima. The steering system acts as power steering to make turning easier.

Circle No. 198 on Reader Inquiry Card



Repel birds with non-phytotoxic products

PMC Specialties Group, Inc. has received EPA approval for its Re-JeX-iT products to repel birds from turf and ornamental areas.

The Re-JeX-iT product represents a long-needed, logical alternative to poisons or firearms.

The product is clear blue in color, and is activated by a natural flavor additive which the FDA says is "generally recognized as safe."

Food sources treated with the product are unpalatable to all species of birds and thus control birds around landfills, standing water, parks and golf courses.

Re-JeX-iT is available in the following mixtures:

- as a liquid for use on standing water at locations such as landfills, industrial impoundments and tailing ponds.
- a solid, for use on landfills, often in combination with landfill cover materials;
- as a specially formulated, non-phytotoxic product for use on turf and ornamentals.

Reapplication may be necessary in three to four weeks.

Circle No. 199 on Reader Inquiry Card

Recycled product stops weeds, grass along fences

Weed Stopper is a rubber compound used to prevent weeds and grass from growing along and between fences.

The environmentally safe compound is made from recycled tires and post-consumer plastics, and is guaranteed to last for 20 years, according to the manufacturer, Rubber, Plastic & Specialty Co.

The company says Weed Stopper is easy to install, and is kept in place with steel spikes.

Circle No. 200 on Reader Inquiry Card

Fertilizer now available in 24-4-12 formulation

Vicksburg Chemical Company has developed 24-4-12 K-Power Blend Fertilizer with controlled-released nutrients for use on fairways. This product provides 50 percent controlled-released potassium and 32 percent controlled-released nitrogen from polymer-coated potassium nitrate. K-Power fertilizers are the first potassium nitrate-based fertilizers in coated, controlled-release forms, according to Vicksburg.

Circle No. 201 on Reader Inquiry Card

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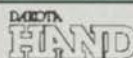
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GROUNDS MANAGEMENT SALES: Career position with established 88 year old quality building services company. NY, NJ, PA areas. Background in sales to corporate clientele. Strong motivation, proven sales experience. Must be articulate, organized, aggressive. Duties: prospecting, estimating, sales. Send resume. **CONTROL SERVICES**, 737 New Durham Rd, Edison, NJ 08817. Fax (908)548-4359. 2/95

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Key positions available with an expanding full-service award winning landscape operation in Cleveland, Ohio. Designer, Salesperson, Supervisor and Branch Manager opportunities. Send resume to: Yardmaster, Inc., Landscape Architects & Contractors, 1447 North Ridge Road, Painesville, Ohio 44077, Phone (216)951-9100, Fax (216)357-1624. 1/95

LANDSCAPE MANAGER-Established firm with reputation for EXCEPTIONAL QUALITY, seeking personable enthusiastic individual to manage multiple crews in full service maintenance of high profile commercial properties; must have organizational and people skills as well as working knowledge of all phases of the landscape business; 4 to 5 years experience with southern turfgrass and college degree preferred, excellent pay and benefits + annual bonus! Environmental Landscape Services, 5190 Crestview Drive, Memphis, TN 38134 (901)382-9000. 1/95

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WANTED: Old SPYDER forklifts and/or forklift frames. Mobile Lift Parts, Inc., 5402 Edgewood Rd., Crystal Lake, IL 60012. (800)397-7509. 12/94

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104	121	138	155	172	189	206	223	240	257	274	291	308	325
105	122	139	156	173	190	207	224	241	258	275	292	309	326
106	123	140	157	174	191	208	225	242	259	276	293	310	327
107	124	141	158	175	192	209	226	243	260	277	294	311	328
108	125	142	159	176	193	210	227	244	261	278	295	312	329
109	126	143	160	177	194	211	228	245	262	279	296	313	330
110	127	144	161	178	195	212	229	246	263	280	297	314	331
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112	129	146	163	180	197	214	231	248	265	282	299	316	333
113	130	147	164	181	198	215	232	249	266	283	300	317	334
114	131	148	165	182	199	216	233	250	267	284	301	318	335
115	132	149	166	183	200	217	234	251	268	285	302	319	336
116	133	150	167	184	201	218	235	252	269	286	303	320	337
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B. Contractors/Service Companies/Consultants:

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07 0110 Lawn care service companies
08 0112 Custom chemical applicators
09 0135 Extension agents/consultants for horticulture
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- 11 0205 Sod growers
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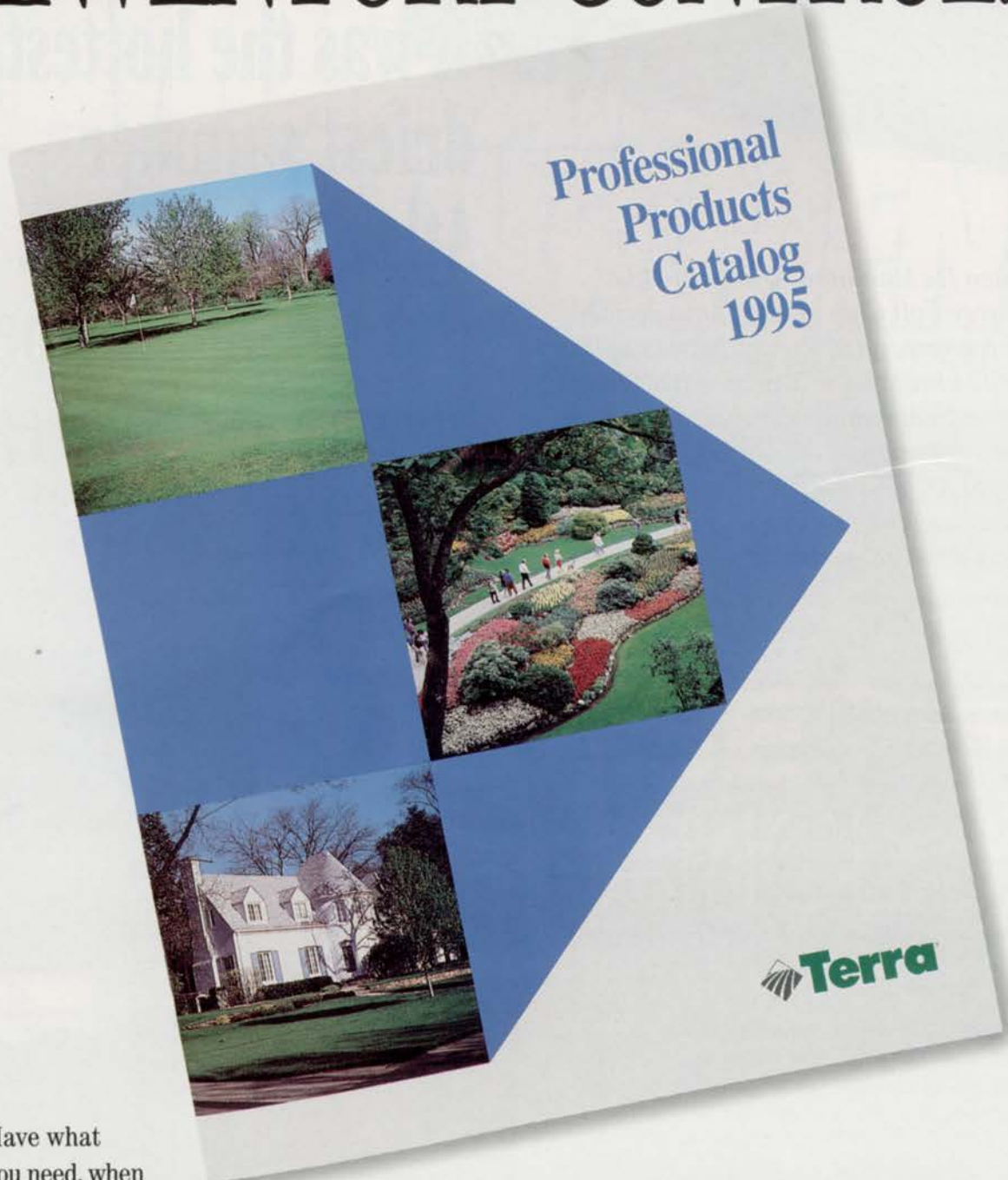
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“I’ll tell you, after seeing the vigor and excellent performance of Crenshaw here at Lake Spivey, it really makes the older bents look like dinosaurs. Crenshaw really moved us into the present, new world of bentgrasses.”

Joe Hamilton.

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Lake Spivey Golf Club
Atlanta, GA*



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