JANUARY 1995 • $4.00

LANDSCAPE MANAGEMENT

"WE KNOW YOUR TURF"

State of the LANDSCAPE INDUSTRY

Also:

Vander Kooi on hiring Trailers & accessories
Penn Pals Profile:
A portfolio of creeping bentgrasses perfect for your plans... from the world’s foremost marketer

<table>
<thead>
<tr>
<th>Scientific name:</th>
<th>Growth habit:</th>
<th>Shade tolerance:</th>
<th>Heat tolerance:</th>
<th>Cold tolerance:</th>
<th>Traffic and wear tolerance:</th>
<th>Seeding rate, greens:</th>
<th>Seeding rate, fairways:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agrostis stolonifera</td>
<td>Spread by aggressive stolons</td>
<td>Fair</td>
<td>Good</td>
<td>Excellent</td>
<td>Very good</td>
<td>1 to 1 1/2 lbs. per 1000 sq. ft.</td>
<td>Up to 50 lbs. per acre</td>
</tr>
</tbody>
</table>

**Penncross**
For tees and greens

The standard for creeping bentgrasses since 1955 and still the most specified bentgrass for golf courses. Recovers quickly from injury and divots. Good heat and wear tolerance. First choice of golf course architects and superintendents.

A few fine courses with Penncross greens:
- PGA West Stadium Course
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- Troon North Golf Club
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- Eagle Crest Golf Course
- Kananaskis Country Golf course

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- Butler National Golf Club
- Pumpkin Ridge Golf Club
- The Merit Club
- Inverness Club (Toledo)
- DesMoines Country Club

**PennLinks**
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A few fine courses with PennLinks greens:
- Wilmington Country Club
- Inverness Club (Toledo)
- SandPines Resort
- Prairie Dunes Golf Club
- Baltimore Country Club
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Economical fairway and winter overseeding blend of Penncross, Penneagle and 50% quality creeping bentgrass. Certified PennWay contains Penncross, PennLinks and 70% Penneagle for genetically diversity meeting certification standards.

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- Carlton Oaks Country Club
- Riverwood Golf Club
  (winter overseeded greens)

**PennTrio Blend**
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Certified creeping bentgrass blend with 1/3 each Penncross, Penneagle and PennLinks. All the attributes of a blend with ready-to-seed convenience.

The increasingly popular blend for all around the course, from the world leader and foremost marketer of creeping bentgrasses.

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Circle No. 134 on Reader Inquiry Card
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 Swami 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 stimpmeter 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.

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.”
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Jerry Roche

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Terry Mclver

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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

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Jerry Roche

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26 Controlling fire ants
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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 Mclver
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.
Experienced pros know. Mother Nature is a formidable adversary. Pros who have mastered the turf & ornamentals game know a strong opening won't be enough to beat back the competition. They know when to apply a strong offense or strong defense... when to strike quickly... when to play the waiting game. Grounds management is complex. Climate, geography, weeds, disease and the environment can affect your game plan.

When it comes time to make a move, experienced, grounds managers rely on AgrEvo for a complete product line of herbicides, insecticides, fungicides and fertilizers — all designed to provide you with a strategic edge.

It's your move. Checkmate turf & ornamental problems with knowledge, experience and AgrEvo.
move

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

Circle No. 101 on Reader Inquiry Card
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-
You just won't cut grass. You'll make it disappear.

Time is money. And nobody knows it better than a turf care professional. You need to squeeze maximum productivity out of every hour.

Toro responds with our new Guardian® Recycler®, a patented cutting deck that makes your Toro Groundsmaster® 200 or 300 Series more productive than ever before.

It cuts and recuts clippings into fine particles, forcing them vertically into the turf. Now you see them, now you don't. No windrows, collecting, hauling or landfill fees. Just a superb quality of cut.

And, with no side or rear discharge, it's safer and trims equally well from either side. It's also ruggedly durable.

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Circle No. 137 on Reader Inquiry Card
LOOK OUT, AMERICA:

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

- Mowing/Maintenance (35.7%)
- Landscape Construction (28.1%)
- Nursery Sales (6.5%)
- Other* (7.8%)

*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 continues on page 12.
The climate is right for a fertilizer revolution

The introduction of ESN precision controlled nitrogen represents the latest in scientific advancements that now allow you a vastly improved method of maintaining healthy, vibrant turf.

Developed in the laboratories of Exxon Chemical, ESN represents a major advancement in nitrogen management made possible by the most sophisticated scientific resources available.

Much more than a slow release fertilizer, ESN's patented polymer coating allows the release of nitrogen based entirely on temperature. The same temperature pattern that regulates a plant's demands for nutrients.

**ESN's Temperature Sensitive Polymer Membrane - the Secret for High Performance**

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.
You Control the Duration of Nitrogen Release

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.

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1-800-847-6417

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

—Jerry Roche
Once again, studies at major universities have proven that Thalonil™ stands up strong to the competition.

In fact, one-on-one studies, comparing rates, timing and disease control, did a lot more than dampen the competition's spirits. The results convinced a lot of professionals to switch to Thalonil.

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Summary of trial results available on written request.

RESULTS DON'T LIE.
Trailers of the trade

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

- Mowers...aerators...sprayers...chippers...mulch...ornamental plantings. Lots of equipment and material that has to be trucked from job to job.

And since you don’t skimp on motorized equipment, if you shop for a new trailer or dumping accessory, get the best that money can buy.

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

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

American Pride’s golf car trailer has a steel floor and a mesh loading ramp. Circle No. 311
The Tiltster, from Tiger Line Equipment, has optional steel racks, from 12 to 36 inches high. Circle No. 315

The Trailevator, also from Tiger Line Equipment, lowers to ground level hydraulically. 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

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

### TRAILER SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Payload cap.</th>
<th>Axes</th>
<th>Brakes</th>
<th>Other</th>
<th>Circle No.</th>
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<tr>
<td>American Pride⁠¹</td>
<td>1560 lbs.</td>
<td>single</td>
<td>n/a</td>
<td>safety chains</td>
<td>311</td>
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<tr>
<td>E-Z Dumper 610</td>
<td>7000 lbs.</td>
<td>tandem</td>
<td>surge (optional)</td>
<td>adjustable coupler</td>
<td>312</td>
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<tr>
<td>Maxi Trailer 58</td>
<td>5000 lbs.</td>
<td>tandem</td>
<td>hydraulic surge</td>
<td>12-volt battery</td>
<td>313</td>
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<tr>
<td>Redi Haul &quot;Lawn Care&quot;</td>
<td>2600 lbs.</td>
<td>single</td>
<td>electric brakes</td>
<td>wood floor (fir)</td>
<td>314</td>
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<tr>
<td>Tiger Line Tiltster</td>
<td>3-7000 lbs.</td>
<td>single/tandem</td>
<td>12&quot;x2&quot;/10&quot;x3.25&quot;</td>
<td>custom colors extra</td>
<td>315</td>
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<tr>
<td>Wells Cargo CW162</td>
<td>5630 lbs.</td>
<td>tandem</td>
<td>4-wheel, electric</td>
<td>plywood interior</td>
<td>316</td>
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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—Ideas 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 escargot. 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, drywallers, 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 everyday 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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FROM NOW UNTIL MAY 31, 1995, AMERICAN CYANAMID IS OFFERING TREMENDOUS CASH REBATES ON PENDULUM®, AMDRO®, IMAGE® AND PENDIMETHALIN. JUST THINK OF IT AS OUR WAY OF HAVING CUSTOMER APPRECIATION DAY—FOR THE NEXT 5 MONTHS!

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The premier fire ant bait that kills the queen and the mound in one easy step.

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The most widely-used pre-emergent turf herbicide—a proven winner!

Purchase the same amount in 1995 as was purchased in 1994 and get a 10% rebate on 1995 purchases. Purchase 10% more this year than last and get a 15% rebate on 1995 purchases!

*Apendimethalin Great Rebate Program dates August 1, 1994, to July 31, 1995.

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Send back as many coupons as you have purchases over the minimum required—there’s no maximum limit on your rebate for the number of pounds or gallons purchased!

Purchase PENDULUM, AMDRO and IMAGE from your authorized distributor between January 1, 1995, and May 31, 1995. Pendimethalin Great Rebate Program dates August 1, 1994, to July 31, 1995. Complete the entire rebate coupon, including all information on the back (incomplete information will delay or nullify rebate.) Make sure to attach a copy of distributor invoice(s) for each purchase. All PENDULUM, AMDRO and IMAGE rebate coupons must be postmarked by June 15, 1995. Pendimethalin Great Rebate coupons must be postmarked by August 15, 1995.

Mail completed coupons and appropriate distributor invoices to:
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c/o M&B Associates Group, Inc.
PO Box 8575, Trenton, NJ 08650-9871

Cyanamid Payback Offer is available to professional product end-users only. Distributors and other companies or individuals reselling products are not eligible. American Cyanamid reserves the right to verify all purchases. Rebate check will be mailed directly to qualifying end-users. Please allow 6-8 weeks.
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PENDULUM® WDG or 3.3 EC Herbicide

The easiest way to control over 45 annual grassy and broadleaf weeds. Gentle over-the-top control in over 260 labeled ornamentals lasts up to 8 months, and minimizes expensive, labor-intensive hand weeding. WDG formulation available in 1.2 oz premeasured water-soluble bags and 10 lb jugs. PENDULUM 3.3 EC is available in 2½ gallon containers.

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America's number one fire ant bait kills the queen and the mound in one easy step. AMDRO is a unique bait that fire ant workers take back to the other workers and the queen deep in the mound. When the queen eats the bait, she dies—and so does the colony, usually in about a week.

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Controls a broad spectrum of previously uncontrollable weeds in warm-season turfgrasses. The only herbicide available for complete control of the most problematic summer and winter weeds in turf—like purple and yellow nutsedge, field sandbur, wild onion and garlic. IMAGE attacks the roots of weeds, inhibiting plant protein production and growth, so weeds starve and die.

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The most widely-used pre-emergent turf herbicide, thanks to its excellent performance and turf tolerance. No other pre-emergent can match the cost-effective season-long control of Pendimethalin. For control of annual grassy weeds including crabgrass and goosegrass, and nine annual broadleaf weeds, including tough-to-control oxalis and spurge.
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 technology, 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 sheep 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 broadleafs.

“The long grass carpets some of the irregular slopes, and the 18-inch mature height and texture contrasts dramatically with the closely-moved creeping bent-grass 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 Traverse Bay.”

Varied mowing heights—The short roughs are maintained at two inches and the fairways are mowed at ¾ 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

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We improved it by changing the part that goes in the trash. Not the part that goes on your course.
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 broadcast a light application of a granular, selective broadleaf control product—a liquid formulation caused a slight discoloration of the fescue leaves—and over-

—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

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<th>RELEASE YEAR</th>
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<tr>
<td>1923</td>
<td>Seaside</td>
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<td>Source: Dr. Rich Hurley</td>
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In 1992, Hurley collected more than 60 selections during a visit to Atlanta Athletic
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The bad news is they’ll have plenty of time to work on everything else.

Primo works by redirecting the growth of your grass. It gives you a thicker, more compact stand, more root mass, and ultimately, better-looking grass.

So if your crew’s time could be better spent on something 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.

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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 dwarfer 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

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 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 undertcurrent 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.
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.

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

"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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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 management.

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 272-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 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 avenienus and the Japanese beetle grub are treated as needed via rotating insecticides. Fungicides are used on all greens, tees and fairways, and aerification 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
THE BEAUTY OF UNSURPASSED GRUB CONTROL IS BEST SEEN FROM YOUR GOLFER'S POINT OF VIEW.

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Whether the adversary is summer patch, dollar spot, anthracnose or any number of other major turf diseases, BAYLETON consistently delivers unsurpassed control. And it’s systemic for long residual. So after the initial application, BAYLETON has just begun to fight.

It’s a good tactic to apply BAYLETON over your entire course. By applying it on your fairways,
you'll keep golfers from tracking disease up on to your greens and tees. And you'll get excellent control of powdery mildew and rust on ornamentals. What's more, BAYLETON comes in water soluble packets for easy mixing and less applicator exposure.

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What makes Triiform 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 types and weather conditions, with more predictable controlled release, more total available nitrogen, and more consistent response.

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Triiform's homogeneous chemical composition provides a more consistent nitrogen release than you can get with physically blended fertilizers. With Triiform, 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 Triiform 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.

For more information about the complete line of Triaform fertilizers, contact your Scott Tech Rep. Or call 1-800-543-0006.
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 earlier and faster. 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.

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 Turfco.

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 ¼-1 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 1/2 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—playoff 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.
planting beds, balcony plantings, cost estimation, natural and electric lighting, irrigation and more. Particularly useful to those in the field are five case studies which demonstrate design and construction processes for an interior landscape project. 288 pages, hardcover.

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Minimizing your time for diesel engine maintenance

by Tom Kane

Although a tractor is built 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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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.

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.

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.

<table>
<thead>
<tr>
<th>Fungicide</th>
<th>Rating</th>
<th>%LAD</th>
<th>Rating</th>
<th>%LAD</th>
</tr>
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<tbody>
<tr>
<td>June 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Banner</td>
<td>1.8</td>
<td>6.4</td>
<td>1.6</td>
<td>5.1</td>
</tr>
<tr>
<td>Bayleton</td>
<td>2.3</td>
<td>9.3</td>
<td>3.3</td>
<td>33.2</td>
</tr>
<tr>
<td>Copper hydroxide</td>
<td>1.6</td>
<td>14.7</td>
<td>2.7</td>
<td>24.4</td>
</tr>
<tr>
<td>Daconil</td>
<td>2.5</td>
<td>20.3</td>
<td>3.4</td>
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<tr>
<td>July 25</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Source: Standberg, 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 managed 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...
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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).

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

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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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** 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 fail 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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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 1 lb. per 1000 sq. ft. of turf.

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 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 weedeating 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."
Think of it as guaranteed birth control for weeds.

Every day, every hour, every minute, seeds germinate and weeds sprout in landscapes everywhere. Biobarrier II has never met a weed it couldn’t control. For the professional landscaper, it provides a combination of our patented controlled-release trifluralin and our time-tested geotextile fabric, guaranteeing you the ultimate in weed control — and guaranteeing it for 10 years. It’s easy to install and easy to maintain, and it means no dealing with harmful liquid chemicals or sprays. Plus, the fabric allows water, air and nutrients to pass through so desired plants can flourish.

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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 use 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 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 formulations 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

N.A.A. mini-survey on IPM programs, page 45  
Two turfmen pass away, page 45  
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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?
Yes ..................................... 77%
No ........................................ 13%

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?
Yes ..................................... 68%
No ........................................ 32%

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 safety ................. 2.0
Environment .................. 2.0
More effective ................. 2.0
Regulations ................. 2.0
Public demand ....... 0.3
Cost .............................. 0.3

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

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.

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.
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 use of 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, Wis. 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.
Zero-radius Maneuverability
Outfront Reachability
Square-corner Turnability
Durability...plus ROPS

... and Now Combo Mulching Deck!

Snowthrower...plus Cab Enclosure
Angle Dozer Blade
Rotary Brooms
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New Dethatcher...plus Sunshade

One Deck Does it All!

SELECTABILITY
WILL CHANGE YOUR MIND ABOUT WHAT A MOWER CAN DO.

When it comes to mowing, Grasshopper zero-radius outfront mowers make all the moves you need for unparalleled maneuverability, reachability and timesaving trimability. But now, unequalled selectability lets your mower handle more grounds maintenance jobs with the same machine.

The new Quik-D-Tatch® Combo Mulching Deck lets you convert in minutes from mulching to side discharge or vacuum collection using the same 44", 48", 52" and 61" deck. A 72" Combo Deck also converts from mulching to side discharge.

Choose your power from nine engine models, 12.5 to 28 hp, gas or diesel, air-cooled or liquid-cooled. Add a Quik-D-Tatch Vac® grasscatching system or other Quik-A-Tatchments™ you need for year-round grounds maintenance jobs, including the new dethatcher and bed shaper. A new Quik-D-Tatch® mounting system lets you remove decks and add attachments in minutes without tools.

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Circle No. 109 on Reader Inquiry Card
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 2 gallon containers.

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.

New Daconil Ultrex fungicide, from ISK Biosciences, is an advanced “spray-dry” formulation that mixes faster and remains suspended longer than conventional 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. Daxonil 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.

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 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.

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
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 7½-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 frame.

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 repell 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-release nutrients for use on fairways. This product provides 50 percent controlled-release potassium and 32 percent controlled-release nitrogen from polymer-coated potassium nitrate. K-Power fertilizers are the first potassium nitrate-based fertilizers in coated, controlled-release forms, according to Vickburg.

Circle No. 201 on Reader Inquiry Card
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FOR SALE


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(PLEASE MARK ONLY ONE IN EITHER A, B OR C)

A. Landscaping/Ground Care at one of the following types of facilities:

1. Golf courses
2. Sports Complexes
3. Parks
4. Schools, colleges, & universities
5. Other type of facility (please specify)

B. Contractors/Service Companies/Consultants:

6. Landscape contractors (installation & maintenance)
7. Lawn care service companies
8. Custom chemical applicators
9. Extension agents/consultants for horticulture
10. Other contractor or service (please specify)

C. Suppliers:

11. Sod growers
12. Other supplier (specify)

Which of the following best describes your title:

(mark only one)

13. EXECUTIVE/ADMINISTRATOR
14. MANAGER/SUPERINTENDENT
15. GOVERNMENT OFFICIAL
16. SPECIALIST
17. OTHER TITLED AND NON-TITLED PERSONNEL (specify)

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   A. Landscaping/Ground Care at one of the following types of facilities:
      01 • 0005 Golf courses
      02 • 0010 Sports Complexes
      03 • 0015 Parks
      04 • 0025 Schools, colleges, & universities
      05 □ Other type of facility (please specify)

   B. Contractors/Service Companies/Consultants:
      06 • 0105 Landscape contractors (installation & maintenance)
      07 • 0110 Lawn care service companies
      08 • 0112 Custom chemical applicators
      09 • 0135 Extension agents/consultants for horticulture
      10 □ Other contractor or service (please specify)

   C. Suppliers:
      11 • 0205 Sod growers
      12 □ Other supplier (specify)

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

      13 □ EXECUTIVE/ADMINISTRATOR
      14 □ MANAGER/SUPERINTENDENT
      15 □ GOVERNMENT OFFICIAL
      16 □ SPECIALIST
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Circle No. 135 on Reader Inquiry Card
When Joe Hamilton, Owner of Lake Spivey Golf Club near Atlanta decided to renovate all 27 greens, he wanted to do nine holes at a time. After lots of research and many discussions, he took the suggestion of Dr. Milt Engelke of Texas A&M and tried Crenshaw Creeping Bentgrass. The first nine holes were done in September 1991.

"We're a high-volume, middle-maintenance operation with about 60,000 rounds a year. This past summer was the hottest, driest summer Atlanta has experienced. But those nine holes that were renovated with Crenshaw two years ago did so well, they were the healthiest, best greens in Atlanta.

"We monitored those nine against the older Penncross greens and there simply was no comparison. Crenshaw is so much more dense and upright than any other bent we know of. There's so little problem with disease or wilt. Its color and putting characteristics are so superior and it wards off bermuda encroachment.

"Doing the second nine holes in September of '93 was an easy decision. And we'll do the last nine with Crenshaw next fall without question.

"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
Owner
Lake Spivey Golf Club
Atlanta, GA

Limited amounts of Crenshaw will be available for Fall '94.

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These greens at Lake Spivey were renovated and seeded with Crenshaw Creeping Bentgrass in September 1993. These photos were taken 56 days later.