

## LAWN CARE

### Is new protective clothing on the horizon?

Personnel from Dow Chemical Co. will be investigating the possibility of a new protective leg sleeve for liquid pesticide applicators, according to Dow's Dr. Jim Vaccaro.

"The lawn care industry has the greatest exposure to chlorpyrifos (Dursban) than any other industry, mainly on the lower leg," Vaccaro told LCOs who attended the Professional Lawn Care conference in Baltimore. "But a sleeve can be constructed to limit LCOs to practically no exposure. We are going to a clothing manufacturer to see what the possibility is of getting this type of protective clothing made. Then we're coming to the lawn care industry."

Vaccaro said that pants serve as protection. But, he warned, "when they become saturated, they act like a cuff and actually push the material through the skin."

According to Dow research conducted by Dr. Vaccaro and his associates, the average lawn care applicator is exposed to 241 milligrams of material per working day, including about 135 milligrams on the skin. Hand/wrist deposits account for 44.9 per-



**Dr. Jim Vaccaro: "a sleeve can be constructed"**

cent of the exposure and lower leg deposits account for 42.4 percent. However, urinary biomonitoring tests reveal that only two milligrams is absorbed into the body, nearly all of which quickly passes through the

human waste system.

The Threshold Limit Value (TLV) for human exposure to chlorpyrifos is 2,400 milligrams per working day. That is the highest amount of chlorpyrifos a person could be exposed to every working day for a working lifetime without having any adverse effects.

In another development at the PLCAA show, 35 percent of the LCOs responding to a *Lawn Care Industry* magazine survey say that they will copy ChemLawn this season and post signs after applying pesticides to residential lawns.

ChemLawn, the nation's largest lawn care company, said late last year that it would post every home it treats this summer, in the face of continued negative publicity about lawn care services.

The survey also revealed that 28 percent of the LCOs responding to the written questionnaire believe phenoxy herbicide use would decrease in 1987, though 55 thought it would remain the same. The remainder (17 percent) think it will increase.

## PRODUCTS

### Overhead valve new for Briggs & Stratton

Briggs & Stratton will unveil its first overhead valve (OHV) engine, the first in its class, this month at the Phoenix Golf Course Superintendents trade show.

The 12½ hp vertical shaft engine was designed specifically to supply the commercial turf equipment and premium consumer tractor and riding equipment markets, niches that have lacked engine options.

"This new OHV is a result of feedback we got from customers, end product users as well as our original equipment manufacturers," says Douglas W. Anderson, Briggs & Stratton vice president of sales.

The result is that the new engine delivers more power than other engines rated in this power range. "What we are especially pleased with," says Anderson, "are the winning features that our customers told us they wanted—a powerful engine in a compact configuration, quiet, with good sound quality, and just about vibra-



tion-free."

The Briggs & Stratton engine design includes full pressure oil lubrication, a system which can also allow extension of maintenance intervals, and fuel and oil efficiency.

"A major key to this engine, and others planned for the entire line," explains Patrick Reardon, Briggs & Stratton marketing manager, "is in the torque rise. This engine responds

to meet varied cutting conditions without stalling or backing down."

The new engine provides a tapped hole that could be attached to an oil pressure switch, two-quart oil capacity and an optional spin-on oil filter. All user-serviceable parts are accessible from the top to make regular maintenance convenient. A grass-ejecting intake screen prevents the plugging of air cooling passages. The engine's governed idle feature allows blade engagement at idle speeds.

Cooler carburetor temperatures are assured by the ducted intake; the low mounting of the carburetor allows for the use of a larger gravity-fed fuel tank and helps prevent vapor lock.

The engine has an optional fuel pump and can be equipped with either single cable control or separate choke and throttle controls.

The engine, now in field testing and evaluation, will be available on equipment in late 1987.



Kevin Hyland (left) and George Bigham test the Mod Sod practice green at Oakwood Country Club.

#### GOLF

## Artificial surfaces developed as possible alternatives to sand

At least two types of artificial surfaces are available in the golf industry as alternatives to sand greens.

One, Mod Sod, is being used at Oakwood Country Club in Cleveland, Ohio. The other, OmniGreen, is getting good results at Tennis Courts of New Hampshire in Tilton, N.H.

"These (artificial surfaces) are much better than you think," says Rich Labarre, operations manager at Tennis Courts of New Hampshire. "We've installed a dozen or more with complete satisfaction."

George Bigham, club pro at Oakwood, says that Mod Sod greens can be designed for any speed. The practice green at Oakwood stimps at nine. "It's best in high-volume situations when maintaining greens is cost-prohibitive," he notes.

Besides use as a golf green, these artificial surfaces can be used indoors in pro shops, for golf car paths or for driving range tees.

Mod Sod was invented by professional golfer Fred Haas. It consists of 1 $\frac{3}{8}$ -inch polypropylene fiber filled

with sand. The sand, usually dyed green, is then highly compacted to provide whatever speed is desired. The fiber is UV-stabilized and comes with a five-year guarantee.

Mod Sod's base is a patented combination of sand, cork, rubber and other ingredients. Kevin Hyland of Hyland Landscaping in South Euclid, Ohio, says the combination prevents compaction, which is prevalent in sand-only bases.

Mod Sod is sold in the United States by Bigham and Hyland. For more information, call Bigham at (216) 291-0679 or Hyland at (216) 382-4438.

OmniGreen, which is featured at Wee Links Golf Course at Walt Disney World, comes in three sizes and two shapes. It is sold as "a beautiful addition to your backyard." The product is made of a patented Omnifiber surface with a specially formulated sand dressing and is endorsed by the PGA Tour.

OmniGreen is manufactured by Sportec International. For more information, dial (800) 835-0033.

The recent negative attack on chemicals is unfounded, according to Dr. John Kaufmann of the Monsanto Chemical Corp. research and development department.

"We've got to go beyond the idea that we can wow people with statistics as to how safe chemicals are," Kaufmann told the Missouri Lawn and Turf Conference. "All chemicals are toxic. The degree of injury is related to the amount to exposure. All chemicals can be used safely if the exposure is controlled to prevent toxic effects."

Kaufmann says first the applicator needs to be aware of how exposure happens.

Applicator exposure occurs in two ways:

1. Handling and mixing;
2. Application.

Environmental exposure also occurs in two ways:

1. On-site targeting through
  - foliar absorption;
  - thatch absorption;
  - soil absorption.
2. Off-site movement through
  - vaporization;
  - soil penetration;
  - runoff.

Kaufmann gives these helpful hints for avoiding exposure problems:

1. Always read the label.
2. Observe all precautions.
3. Apply the chemical according to label directions.
4. Know the product's benefits and safety features.
5. Share this information with your customers or golf course members.

Kaufmann quotes Bruce Ames, of the University of California at Berkeley, who says that "more than 99 percent of the carcinogens are from naturally occurring substances. Less than one percent are man-made."

"1-2-3," a column describing pesticide safety "by the numbers," is a regular feature of WT&T.

#### HERBICIDES

## Harvard disputes Kansas 2,4-D study

Noted American philosopher and former professional baseball player Yogi Berra once said: "It ain't over 'til it's over." This statement seems to apply well to the 2,4-D controversy.

A recent report in *Agrichemical Briefing* newsletter states that one of four EPA commissioned studies,

this one done by Harvard epidemiologist Brian MacMahon, disputes the conclusions reported in the original Kansas/National Cancer Institute study, which linked the herbicide to cancer. The other three studies have given conflicting

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## 2,4-D from page 7

of the Kansas findings.

Reports by two staff members of the University of Iowa School of Medicine differed somewhat. Dr. Donald P. Morgan opposed the study, and Dr. Leon Burmeister's report was inconclusive. A third report, from Dr. Martha Linet of Johns Hopkins University, was in favor of the Kansas study.

When the Kansas study was released in September, the EPA commented "the study is well thought out and that the conclusions are supported by the data."

Or were they? Since the EPA had no staff epidemiologist, it commissioned the four studies. MacMahon didn't finish his study until September 29, a full week after the EPA warned of the possibility of a special review of 2,4-D. A special review is the first step toward a possible revision of a product's user status.

When MacMahon finally finished his report, the EPA decided not to release it, maybe because MacMahon said in his report: "In my opinion, the weight of evidence does not support the conclusion that there is an association between exposure to 2,4-D and

non-Hodgkin's lymphoma."

MacMahon believes that the weight of the evidence does not support the Kansas study's claims sufficiently, and therefore the 2,4-D-cancer link remains a hypothesis.

## ATHLETIC TURF

### Joe Torre keynoter at STMA conference

Sports broadcaster Joe Torre will be the keynote speaker at the Sports Turf Manager's Association annual meeting to be held Jan. 31 in Phoenix.

The STMA conference, in conjunction with the GCSAA show, will be held at the Hyatt Regency. Kick-off time for the program is 8 a.m.

Torre, the former major league baseball player and manager who is a broadcaster with the California Angels, will speak at the STMA awards dinner beginning at 7:30 p.m. Price



Joe Torre

of the dinner is \$30.

Harry Gill, director of grounds at Milwaukee County Stadium, and Jeff Wishard, who was paralyzed in a football accident, will receive awards at the dinner.

The STMA daytime program runs from 8 a.m. to 5 p.m. Topics on the program include talks by Dr. Fred Grau on the future of athletic turf; attorney Dan Holland on developing a standard for turf surfaces; and Dr. Eliot Roberts on the steps for achieving safer athletic turf.

Afternoon concurrent sessions include detailed seminars on baseball fields, soccer and football fields, specialized sports turf and drainage, equestrian surfaces and athletic turf herbicides.

For more information on attending the conference, contact Dr. Kent Kurtz at (714) 984-4677 or (714) 869-2176.

## CONVENTIONS

### Landscape Expo deadline approaching

The 1987 edition of the Landscape Exposition will feature an expanded *continued on page 14*

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**SPORTS MANIA...**Charlie Racusin of Environmental Landscape Services, Houston, is a sports nut. But he's also a good businessman. The result? A booming landscape company and plenty of tickets to athletic events. Racusin, besides taking in the games themselves, gives out freebie tickets to his best clients. For instance, last fall, he bought 42 tickets to each of the Houston Astros' NL Playoff Series games against the New York Mets. "There's not a week that goes by that we don't give a client something for free," Racusin reports. And it apparently works.

**CHARGE IT...**Landscape managers will soon be able to purchase equipment by whipping a piece of plastic out of their back pocket and saying "charge it." Bob Brophy, new landscape product manager at Cushman Ryan, says the company might be instituting a credit card program for the green industry. The credit cards could be used for any line of Cushman equipment.

**FUTURE SHOCK...**A system being developed by Electrofac Corp., Kansas City, Mo., could add a new dimension to the battle against insects: electrocution. The system, which fries insects without toasting leaves, is possible because most plants can shrug off enough electricity to get rid of the pests. A diesel-powered generator moves through fields, carrying a tunnel of charged metal plates over rows of plants. A current moves through the plant when the leaf touches the metal, killing insects on the plant and in the earth near the roots.

**PESTICIDE PICTURE SHOW...**A video series teaching landscape pesticide safety has been developed by Idea Bank for employees of organizations handling landscape chemicals. The two videos in the series, entitled "Working With Pesticides," deal with in-field safety and meeting OSHA requirements for handling hazardous substances. Cost is \$149.95 postage paid. Contact The Idea Bank (800) 621-1136. In Arizona, call (602) 829-1233. By mail, send payment or purchase order to The Idea Bank, Pesticide Videos, 1000 E. Apache Blvd., Suite 211, Tempe, AZ 85281.

**COLOR CALENDAR...**Brouwer Turf Equipment is offering a free four-color 1987 year-at-a-glance turfgrass industrial calendar that includes turf industry shows and convention dates. Contact Brouwer at Woodbine Ave., Keswick, Ontario L4P 3E9.

**FERTILIZER FRENZY...**There's a movement in the green industry to try to convince fertilizer companies to express pure phosphorous and pure potassium content on the bags. The three numbers on the bag are nitrogen, phosphate and potash. Phosphate and potash are the oxidized forms of phosphorous and potassium, respectively. Dr. Larry Leuthold of Kansas State University says, as things stand now, these conversion formulas must be used: to convert  $P_2O_5$  to P multiply by .44; to convert  $K_2O$  to K multiply by .83.

## CONVENTIONS *from page 11*

show from last year's. In all, 225 exhibitors will show their stuff at the Expo, Tuesday through Thursday, March 3-5 at the O'Hare Exposition Center in Rosemont, Ill.

In addition, a greatly expanded conference program will run the full gamut of topics: from the business side to the legal side to the field side.

Joining last year's standout speakers, industry experts Dr. Rudd McGary and Ed Wandtke of All-Green Management Associates, will be Dr. Marty Petrovic of Cornell, James Leatzow of Leatzow Agency/Financial Guardian, attorney Richard Lehr and Dr. Ray Freeborg of Purdue.

Deadline for attendee pre-registration is Feb. 10. Conference hours run from 8 a.m. to 5 p.m. all three days. The Expo hours are 9:30 a.m. to 4 p.m. Tuesday and Wednesday, and 9:30 a.m. to 3 p.m. Thursday.

If traveling by air to the Expo, call Travel Planners, Inc., the official travel agency of the Landscape Expo. They are guaranteeing up to 45 percent savings on full coach fares on American Airlines, though some restrictions may apply. If your airport is not serviced by American, call anyway. Travel Planners can still provide discounted fares on most carriers. Seats will be going fast, so call (800) 221-3531 or in New York, call (212) 473-4688.

## LEGISLATION

### Restrictive law is passed in California

Commercial pesticide users in California are waiting for the governor to tell them which pesticides they can't use. On Nov. 4, voters approved Proposition 65, the Safe Drinking Water and Toxics Enforcement Act.

Businesses with 10 or more employees will not be allowed to use any chemical defined as carcinogenic or potentially carcinogenic if there is any possibility that it could contaminate groundwater.

Government entities are exempt.

A citizen right-of action clause enables anyone to bring action to enforce the law. It also includes a "bounty hunter" proposition: private citizens who bring enforcement will receive 25 percent of any penalties collected by the state.

Steve Hardyman of ChemLawn said a preliminary list of carcinogenic chemicals supplied by the state included only two chemicals his company uses. And those are not critical to operations.

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## LEGISLATION from page 14

"As we see Proposition 65 right now, we don't anticipate it affecting us," he says.

However, the final list of chemicals had not been released at presstime.

"It's going to wind up in court before anything happens," says Sharon McGuire, executive director of the California Landscape Contractors Association. She said her organization is investigating its legal options.

The initiative was sponsored by a

coalition including the Sierra Club and the National Resources Defense Council.

## PESTICIDES

### Label expected for Acclaim! herbicide

The Environmental Protection Agency will approve a label for Acclaim!, a non-phenoxy, post-emergence herbicide, for use on grassy weeds early this year. Active ingredient in the Hoechst-Roussel product

is fenoxaprop-ethyl.

Carole Gray of the EPA's office of pesticide programs said use will probably be approved soon for sod farms, rights-of-way and commercial and residential turf.

Acclaim! is for control of smooth crabgrass, hairy crabgrass, barnyardgrass, foxtail species, Panicum species, Johnsongrass, goosegrass and silver crabgrass.

## ASSOCIATIONS

### Green Team event a successful venture

The "Green Team" conference and trade show, the first joint venture by the Associated Landscape Contractors of America's Landscape Management Division and the Professional Grounds Management Society, drew more than 800 attendees to Milwaukee's Marc Plaza Hotel.



"The combination, I hope, will set the tone for the whole green industry," notes Jeffrey A. Bourne, new president of the PGMS. "It was very positive. We have to think in terms of industry-wide benefit.

Jeff Bourne

"There's a coming of age going on in our industry," he says. "We have to promote what all the associations are about in terms of benefits. We have to get people into organizations that give them a sense of professional work."

Show chairperson Ron Kujawa of KEI Enterprises is also complimentary.

"For our first attempt, it was outstanding," he says. "We had overflow attendance at almost all the sessions. They wanted more of everything they got."

The trade show had 89 exhibitors at 118 booths. "We were really surprised how much interaction there was between contractors and PGMS people," Kujawa notes.

The joint effort will be repeated in 1987 in Washington, D.C.

## CONFERENCES

### Nassau Coliseum hosts landscapers

Nassau Veterans Memorial Coliseum is the site of this year's Professional Turf and Plant Conference on Wednesday, March 11.

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Some of the speakers are Dr. David Nielsen on IPM, cooperative extension agent Maria Cinque, Dr. Marty Petrovic on groundwater and Dr. Henry Indyk on turf varieties.

The annual event is co-sponsored by the Nassau-Suffolk Landscape Gardeners Association and Cornell's Cooperative Extension of Nassau and Suffolk Counties. For more information, write 59 Orinoco Dr., Brightwaters, NY 11719, or call (516) 665-2250.

## GOLF

### Supers needed for tourneys

The Musser International Turfgrass Foundation is looking for superintendents willing to host fund-raising golf tournaments. Proceeds from the events go toward turf research, including research on safer athletic fields.

Jon Scott, superintendent at Grand Traverse Resort Village in Michigan, held his second tournament for MITF's safer sports turf campaign last September. The tournament raised more than \$5,000 for the foundation.

"We are proud to be working with Dr. Fred Grau of the Musser Foundation in helping to promote safer sports turf," Scott says. "We have exceeded our expectations on the popularity of the event. One thing is for sure, the third annual tournament is already in the planning stages."

Frank Dobie, superintendent at the Sharon Country Club in Sharon, Ohio, pioneered the Musser tournaments 15 years ago.

Money is raised by either a participant's entry fees or a sponsor's donation. Sponsors receive a benefit by having their names posted on a green.

In 1985, the Musser tournaments raised \$17,000. The money is deposited into an investment fund, and the interest is returned to states for promoting safer athletic turf.

Grants have gone to graduate students at Ohio State, Cornell, Penn State and the University of Maryland.

Set-up of the tournaments differ from state to state. In Oregon, a different club hosts a tournament each year. Other states keep it at the same club regularly.

Oregon, Ohio, Maryland, Michigan, Minnesota and Canada currently host tournaments.

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The team of (from left) Wally Stedding, Steve Potter, Wally Whetzell and Bob Stiffler are shown with (seated) Dr. Fred Grau and the Grau Trophy after winning the eighth annual Musser tournament at Manor Country Club, Rockville, Md. The tournament is sponsored by the Mid-Atlantic Association of Golf Course Superintendents and the Maryland Turfgrass Council.



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"My goal is one in every state," says Grau, MITF president. "As our investment fund rises, we will have more interest income for grants and for educational work in safer sports turf through the National Sports Turf Council."

Anyone interested in hosting a tournament in 1987, contact: Dr. Fred Grau, Musser International Turfgrass Foundation, P.O. Box AA, College Park, MD 20740; (301) 864-0090.

### PESTICIDES

## Substitutes for 2,4-D cited by weed manager

The herbicide 2,4-D has been under increasing fire recently for possibly being a causal agent of cancer. More landscape managers are wondering if there are alternatives.



Leon Jones: alternatives to 2,4-D

Leon Jones of the Tennessee Department of Transportation has some possible substitutes. Jones, who spoke at the annual meeting of the National Roadside Vegetation Management Association, says that bromoxynil, buctril and brominal are good substitutes. Jones uses one pint of bromoxynil and 4 oz. of Arsenal, or one pint of bromoxynil and 4 oz. of Fusilade or one pint of surfactant per 100 gallons of water.

Jones has had good results spraying the bromoxynil mixtures on bermudagrass. However, he has found that the Arsenal mixture also kills fescue. Bromoxynil in combination with Fusilade does not prove fatal to fescue, he says.

### PESTICIDES

## Poast is labelled for centipedegrass

Federal regulators have added the control of three additional grasses to the centipedegrass label for Poast herbicide, a selective, broad spectrum post-emergence grass killer from BASF Corp. Poast's label now also allows use on seedling centipedegrass.

Under the new labeling, bahiagrass now can be controlled in centipedegrass with two applications, according to Dr. Reid Evans, a BASF agronomist who has conducted much of the research on

Poast for centipedegrass.

Besides improving the appearance of a centipedegrass lawn by removing annual grasses, Evans adds, Poast reduces the number of necessary mowings, saving on the total maintenance cost. The herbicide will not harm ornamentals, trees or shrubs growing near lawns, Evans says.

The first application will burn down the bahiagrass and suppress seedhead production for 40 days, he says. Due to the plant's extensive rhizome system, however, weak regrowth will occur. A second

application should be made soon after regrowth appears.

A rate of 1/2 fluid ounce of Poast and 3/4 fluid ounce of oil concentrate per 1,000 square feet is recommended.

"(Extension of the label to seedling centipedegrass) should be of interest to centipede sod producers who previously had to rely on pre-emergence herbicides for annual grass control," Evans says. "If a late-season frost occurs, the interaction of cold weather with pre-emergence herbicides can damage centipedegrass seedlings. With Poast, you can delay treatment

until any danger of killing frost has passed without sacrificing control."

## PESTICIDES

### Andersons announces 2,4-D-less herbicide

Amidst the controversy over the safety of 2,4-D herbicide, The Andersons has introduced a herbicide for broadleaf weed control which does not contain 2,4-D.

Hybrid Cide Break-Thru is designed to be used most effectively in conjunction with other herbicides, though it can be used alone on easy-to-kill weeds such as black medic, chickweed, clovers, cudweed and dandelions.

The Andersons made the announcement at November's Professional Lawn Care Association of America convention and trade show.

"We've been working on the product for eight years," says Joe DeLuca of The Andersons. "(The convention) was, we felt, an appropriate time to introduce it."

Response to the new herbicide was overwhelming, DeLuca says. Orders have been pouring in, with some lawn care companies planning to switch entirely to the non-phenoxy Break-Thru, while others will give it a trial run this year.

The company is expecting a large sales increase from the chemical division as a result, though DeLuca says it is too early to speculate on how much.

Dr. Ray Freeborg of Purdue University says, "The three-way combination of Break-Thru plus clorpyralid from Dow plus triclopyr appears to be the best non-phenoxy herbicide combination available."

Cost of the product, which, according to DeLuca, is the only non-phenoxy on the market that kills dandelions, will vary with quantity bought, and how it is purchased, either direct or through a distributor.

## TURF

### Tall fescues win shade tolerance test

Researchers have tried to study turf shade tolerance in controlled laboratory situations, but it can't be done accurately, says Dr. Paul Henderlong of Ohio State University.

"You cannot duplicate the variation in light intensity," Henderlong explained at this year's Ohio Turfgrass Research Field Day. "One minute it's under shadows, the next, there's a burst of light. That burst is more significant than constant light."

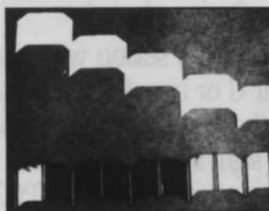
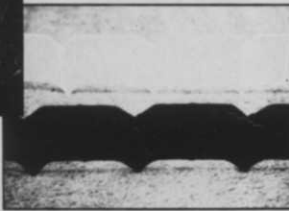
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## Ohio State University's natural shade study results—1986

Cultivars	Turf Density				Turf Quality
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Rebel tall Fescue	8.0	7.7	7.7	6.7	7.7
Falcon tall fescue	8.3	8.0	8.0	7.3	7.3
Olympic tall fescue	8.0	8.3	8.0	7.3	7.7
Pennlawn red fescue	6.7	6.0	6.7	6.0	4.3
Sabre rough bluegrass	8.0	6.0	7.0	4.7	3.0
Bristo Ky. bluegrass	8.0	8.0	7.7	6.7	7.0
Glade Ky. bluegrass	6.3	7.3	7.3	6.7	7.3
Baron Ky. bluegrass	5.7	7.7	7.0	6.7	7.0
Touchdown Ky. bluegrass	6.7	6.7	7.0	7.0	5.7
VA-70-139 Ky. bluegrass	7.3	8.0	7.7	7.0	7.3

Rating scale 1-9, with 9 = best. Average of three replications.

Henderlong implemented a study of turf varieties under naturally shaded conditions in 1983. The study has shown tall fescues to remain the healthiest under shade.

The plots have been maintained at a low fertility and a 2-inch mowing height, with no special treatments. For overall turf quality, Rebel and Olympic tall fescue received a 7.7 rating on a 0-9 scale (9 is highest). Falcon tall fescue, Glade Kentucky bluegrass, and VA-70-139 bluegrass were rated 7.3.

Sabre rough bluegrass and Pennlawn red fescue received the lowest ratings and had considerable fusarium problems.

Despite close ratings among some varieties of bluegrass and tall fescue, the fescues developed no disease problems, making them the best choice for shaded conditions.

### Coming Next Month....

WT&T's annual look at the Top 50 Landscape Companies.

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