

GOLF COURSE NEWS

An exclusive survey

Well-executed

BY SALLY LEE

The responsibilities of a golf course superintendent are many, but one of the most basic, and important, is turf fertility.

Developing and maintaining a top-notch fertility program has always been an important prerequisite for a superintendent's success in growing and keeping quality golf

course turf.

According to a cross-section of superintendents around the country, while much has changed in the use of fertilizers, much has remained the same. One common denominator of a well-planned and well-executed nutrient program is regular soil testing.

Company	Trade Names	Region	Course Area	Liquid or Granular	Particle Choice	Micro-nutrients?	Homo-genous?	Sulfur coated	Fertilizer with			Contact
									H	I	F	
Aglukon Agri-Products 50 N. Harrison Ave. Congers, NY 10920 800-832-8788 Circle No 201	Wuxal, Viterra Gelscape	Nat'l	All	L	N/A	Yes	N/A	N/A	No	No	No	Rochelle Kalter
Back to Earth Resources 5535 Yale Blvd., Ste. 200A Dallas, TX 75206 214-373-6776 Circle No 203	Greenskeeper	Reg'l	G	Organic	N/A	N/A	SM	No	No	No	No	Donna Malmberg
Distributors Own Turf Sup. PO Box 733 Elm Grove, WI 53122 800-345-DOTS Circle No 206	DOTS	Nat'l	All	G	Yes-2	Yes	Both	N/A	Yes	Yes	No	Support Staff
Doggett Corp. 30 Cherry St. Lebanon, NJ 08833 800-448-1862 Circle No 205	Tree, XL, Injecto Feed, Turf, Total & Turf Special	Int'l	GF	L	N/A	Yes	H	N/A	No	No	No	Roger Mellick
EnP, Inc. PO Box 218 Mendota, IL 61342 800-255-4906 Circle No 207	Fertile Grower	Nat'l	All	L	N/A	Yes	H	N/A	No	No	No	Thomas S. Smith
Garfield Williamson, Inc. 9 Steward Place Fairfield, NJ 07006 800-435-5296 Circle No 208	Proform	Reg'l	TFR	G	No	Yes	Both	Both	No	No	No	David Jackson
Howard Johnson's Ent. PO Box 2990 Milwaukee, WI 53201 800-642-4656 Circle No 211	N/A (customize)	Nat'l	All	G	Yes-2	Yes	Both	No	Yes	Yes	No	Michael Stephens
J.R. Simplot Co. PO Box 198 Lathrop, CA 95330 209-858-2511 Circle No 225	Best Professional Pdts.	Reg'l	All	Both	Yes-4	Yes	Both	Non	Yes	No	No	Brad Baltzer
Lebanon Chemical Corp. 1600 E. Cumberland St. Lebanon, PA 17042 717-273-5554 Circle No 213	Country Club,, Greenskeeper, Lebanon	Nat'l	All	Both	Yes-2	Yes	Both	Both	Yes	Yes	No	Amelia Eisenhauer
Lesco, Inc. 20005 Lake Road Rocky River, OH 44116 800-825-3726 Circle No 214	Elite, Mini, Standard	Nat'l	All	Both	Yes-3	Yes	H	Both	Yes	Yes	Yes	Mark Beliczky
Milorganite Div. of MMSD 735 N. Water St. Milwaukee, WI 53201 414-225-2222 Circle No 215	Milorganite	Int'l	All	G	Yes-2	Yes	H	Non	No	No	No	David Wersland
Moyer Products, Inc. 1540 E. Shaw, #101 Fresno, CA 93710 714-549-2871 Circle No 216	Lawn of Golf, Verisol, Four Seasons, Superblend	Reg'l	All	Both	Yes-2	Yes	Both	N/A	Yes	No	Yes	Gill Oloresisimo

plan for nutrients critical

The dominant trend in the past several years has been a dramatic reduction in the amount of applied nitrogen and an increased importance of phosphorus and potassium, according to professionals in the field.

Explaining why, Dr. John Street, associate professor of agronomy at The Ohio State University, said, "The industry became more

aware of the detrimental effects that high nitrogen levels can have. For example, more disease problems—like pythium and brown patch — especially in the summer and the fact that very lush, succulent turf is less tolerant to stress factors like heat and drought. Another negative was that the heavy nitrogen was doing nothing to create

deep root systems."

Steve Gipson, superintendent at Fairlawn Country Club near Akron, Ohio, reiterated the reduced emphasis on nitrogen and growing importance of the other major nutrients.

"We now fertilize for the health of the grass rather than just color," Gipson said. "We're using substantially higher rates of

potash — approaching the nitrogen levels used in the past. I would hope that the industry is getting away from the real high-analysis products that put down so much nitrogen."

Gipson also said lightweight fairway mowing has influenced fertilization.

Continued on page 22

Company	Trade Names	Region	Course Area	Liquid or Granular	Particle Choice	Micro-nutrients?	Homo-genous?	Sulfur coated	Fertilizer with			Contact
									H	I	F	
O.M. Scott 14111 Scottslawn Rd. Marysville, OH 43041 513-644-0011 Circle No 227	Scotts ProTurf	Int'l	All	Both	Yes-2	Yes	Both	Both	Yes	Yes	Yes	Susie Calhoun
Old Fox, Inc. 38 No. Court St. Providence, RI 02903 401-421-6160 Circle No 217	Old Fox	Reg'l	All	Both	No	Yes	SM	Both	Yes	Yes	No	Bob Griffin
Par Ex Div. of Vigoro Ind. PO Box 512 Winter Haven, FL 33882 813-294-2567 Circle No 229	Par Ex, IBOU	Int'l	All	G	Yes-2		Both	No	Yes	Yes	Yes	Dotty Frazzari
Parkway Research Corp. PO Box 5441 Kingwood, TX 77325 800-442-9821 Circle No 218	Micro-Mix, Viron, Green Up, Turf-Feed Plus	Nat'l	All	L	N/A	Yes	H	Both	No	No	No	Ray Kimmel
RGB Laboratories 1531 Charlotte St. Kansas City, MO 64108 800-879-4766 Circle No 220	Agri-Plex, For-X, Lawn-Plex	Int'l	All	L	N/A	Yes	H	N/A	No	No	No	Kurt Winkler
Ringer Corp. 9959 Valley View Rd. Minneapolis, MN 55344 612-941-4180 Circle No 221	Restore	Nat'l	GT	G	Yes-2	No	H	Non	No	No	No	John Doyle
Shemin Nurseries 1081 King St. Greenwich, CT 06831 203-531-7352 Circle No 230	Shemin	Reg'l	TFR	G	No	Yes	Both	Both	Yes	No	No	Jim Hesse
Sierra Crop Protection 1001 Yosemite Dr. Milpitas, CA 95035 800-492-8255 Circle No 224	Custom Blen, Peter's	Int'l	TFR	Both	No	Yes	H	Non	No	No	No	Mark Broxon
Sustane Corp. 1107 Hazeltine Blvd. Chaska, MN 55318 612-448-8828 Circle No 228	Sustane	Int'l	All	G	Yes-3	Yes	H	No	No	No	No	Tom Hunter
The Andersons PO Box 119 Maumee, OH 43537 800-225-2639 Circle No 202	Tee Time	Nat'l	All	Both	Yes-4	Yes	Both	Both	Yes	Yes	Yes	Doug Masters
W.A. Cleary Chemical 1049 Somerset St. Somerset, NJ 08873 800-524-1662 Circle No 204	Cleary's, Fluf	Nat'l	GTF	L	N/A	Yes	SM	Non	No	No	No	Bron Zienkiewicz

Because turf fertility is so vital, Golf Course News surveyed the companies manufacturing fertilizers for golf course use. Response to the more than 25 surveys mailed was excellent and much of the information is highlighted here. This chart tells each company's 1) trade names; 2) the region it serves; 3) the areas of the course its fertilizers are used on: T (tees), F (fairways), G (greens) and R (roughs); 4) if it makes liquid or granular fertilizers, or both (L, G, or Both); 5) if it makes more than one size particle in its granular fertilizers, and how many sizes; 6) if it offers fertilizers with micronutrients; 7) if it produces homogeneous or simple mix fertilizers, or both; 8) if its products are sulfur-coated, non-sulfur-coated, or both; 9) if it makes combinations of fertilizers with herbicides (H), insecticides (I) or fungicides (F); and 10) the contact person at the company whom a buyer should contact.

Fertilizers

Continued from page 21

"Because we are now maintaining lower cut, denser fairways, we need smaller particle fertilizers that can readily filter down into the turf. This has broadened the product selection because more companies are now offering products in a wider variety of particle sizes," he said.

Return to moderation

Overall, the trend toward reduced nitrogen has been well received within the golf industry, and Street believes the industry is see-

ing a return to more moderate levels — "somewhere between the high levels of several years ago and the very low levels seen recently."

"Superintendents over the last five years or so have significantly reduced nitrogen rates and they have been pretty successful," Street said. "A few years ago it wasn't unusual to find annual rates of 10 to 12 pounds of nitrogen per 1,000 square feet on greens and now it's not unusual to find a superintendent putting down as few as one to two pounds and still doing a

good job of maintaining quality putting surfaces.

"The programs of today are based more on the density, recuperative potential and growth of the turf. Color isn't as critical."

But despite the success of maintaining quality turf with less nitrogen, Street also pointed out that after a period of three years or so, the turf often begins to exhibit signs of stress.

"Eventually, growth, density and the recuperative potential begin to suffer and when the superintendent assesses the problem, it may

not even be immediately linked to nitrogen," Street said. "But basically, low nitrogen disease problems, like dollar spot, become more common and eventually the fungicides won't even do a good job because the nitrogen levels are so low. Although it will vary from course to course, I am beginning to see an upward adjustment to a more moderate level of three to six pounds of nitrogen per 1,000 square feet on greens."

Street said the increasing popularity of lightweight fairway mowing may hasten the return to more

moderate fertilization levels.

"Problems associated with low nitrogen levels are magnified by lightweight fairway mowing, especially when clippings are removed," he said.

As for the importance of phosphorus and potassium, Street agrees that changes are taking place there, too.

"In general, ratios of 3-1-2 to 5-1-2 have typically been considered acceptable," Street said. "But recent research from the University of Nebraska has started a trend toward high-potassium fertilizers with N-K ratios approaching 1-to-1 or even 1-to-2. Research has shown these ratios increase the tolerance of cool-season grasses to summer stress and the tolerance of warm-season grasses to winter stress."

No rules

Although reduced nitrogen use may be the trend for many courses, it is not a concrete rule. Courses built on sandy soils characteristically have a low cation exchange capacity (CEC) and high percolation rate which means nutrients leach very quickly. On courses like these, high rates of applied nitrogen are still necessary.

At Moreno Valley (Calif.) Ranch, a 27-hole course owned by Landmark Land Corp., superintendent Murray Nonhof puts up to 16 pounds of nitrogen per year on his Penncross bentgrass greens. The course, open just a little more than a year, is located in a semi-arid area 45 miles from Disneyland and 60 miles from Palm Springs.

"We have greens built on four inches of pea gravel and 16 inches of sand," Nonhof explained. "Because of our low CEC and all the leaching, we have to put down a lot of nitrogen."

Nonhof tests the soil twice a year and bases his fertility program on the results.

"I'm a firm believer that a good superintendent should base his fertilizer buying on what the soil tests show," he said. "It's not a monetary decision, but a decision based on soil chemistry. A 'by gosh or by golly' approach isn't going to work anymore."

Nonhof feeds the turf on his course with a slow-release granular, but is planning to install an injector system to supplement his fairway nutrition program.

"We'll put iron, ammonium sulfate and straight nitrogen through the system, but it will be purely supplemental to our granular program," he said.

Southern sand

Although thousands of miles away from Nonhof's southern California tract, Dick Gray, superintendent at Loblolly Pines Golf Club in South Florida, faces much the same situation. Located in the town of Hobe Sound, in what Gray likes to term "Olde Florida," the course opened for play in December 1988. It was built almost entirely on sand.

"We have less than 2 percent silt

Mitsubishi Covers New Ground

Introducing the Mighty Mits. Rugged, dependable multi-purpose vehicles that cover a variety of your general work needs.

They're efficient. Quiet. And loaded with features:

- A low-maintenance, 3-cylinder water-cooled engine with balance shaft for reduced vibration and noise.
- A payload capacity of up to 1750 pounds.
- Quick and precise rack and pinion steering.
- A compact 12½' turning radius—for easy maneuverability.

- A raised cab roof with generous headroom for increased roominess and comfort.

Choose from Flo-Thru, Full-Door and Tilt Bed models. With 2- and 4-wheel drive options.

The Mighty Mits. They're high. They're mighty. And best of all, they're Mitsubishi.



Industrial Vehicle Division,
6400 W. Katella Ave., Cypress, CA 90630-0064
(714) 372-6000 (800) FON-MITS



Builders

Continued from page 1

standing job of building stadium courses throughout the country," said builders association Executive Director Donald Rossi.

Opened 10 years ago, the TPC at Sawgrass, located just outside Jacksonville,

Fertilizers

Continued from page 22

and clay," Gray said. "The rest is sand. Our CEC is one or less, which is extremely low. Basically, what that means is that anything the plant gets, we have to give it. Consequently, the fertility requirements of this course are much greater than a course with a higher CEC."

The fairways at Loblolly Pines are 419 bermudagrass, while the tees, aprons and collars are 328. Gray applies approximately 10 pounds of nitrogen and 10 to 12 pounds of potash per 1,000 square feet per year to these areas. He puts down phosphorus at a four- to five-pound rate.

On greens, the amount of nitrogen Gray applies in a year's time is less because the dwarf bermuda is overseeded to Penncross in November.

"We use close to eight pounds of nitrogen per year on our greens," Gray said. "The bentgrass requires less and since we are only growing bermuda six months out of the year we don't fertilize the two months prior to overseeding because we don't want the competition."

To meet the nutrient demands at Loblolly Pines, Gray depends on a fertilizer with a urea formaldehyde nitrogen source and supplements with a natural organic sludge material. Although his applications are primarily granular, Gray fertigates with a custom-formulated 8-2-8 liquid.

Gray also is a strong proponent of soil testing and agrees with the idea of keeping a fertility program as lean as the soil and the turf will allow.

Perhaps he spoke for the others and summed it up best when he said, "The beauty of a low fertility program is that adding is easy ... taking away is tough."

Sally M. Lee is a freelance writer based in North Ridgeville, Ohio.

Fla., was the first of the stadium courses. There are now 14 in the United States with another six in varying stages of planning and construction, according to PGA Tour Director of Public Relations Sid Wilson.

There is another in Bato, Japan, the site of a recent United States-Japan Seniors championship. Another 10 Japanese TPC courses are on the drawing board, Wilson added.

"We're obviously delighted that the TPC network is being honored by its peers," said the PGA Tour official. "The Tour has always taken great pride in its TPC courses. Our players become involved as consultants and work very closely with the architects. Yet while the pros play on the course one week a year, he is still very playable for the members the rest of the year."

GCBA President Perry Dye of Dye Designs will make the presentation, which has become one of the highlights of the association's annual meetings.

"We're very proud of how this award has grown since it was first presented in 1984," said Rossi. "There were just 40 people at the first awards dinner. Last year there were 225."

The National Golf Foundation was the inaugural award-winner. Following the NGF to the podium over the last seven years were the Golf Course Superintendents Association of America, Golf Course Architects of America, Professional Golfers Association of America, Club Managers Association of America and last year's winner, the U.S. Golf Association Green Section.

Domino's founder opens The Rock

Domino's Pizza Inc. founder and chairman Tom Monaghan has opened The Rock, a new golf course on Drummond Island in Michigan.

Designed by Harry Bowers, a former understudy of Robert Trent Jones Sr., the 257-acre course was built to encourage walking. It is a six-mile walk compared to the average 4.5-mile walk around an 18-hole layout.

Monaghan has named each hole after a Domino's executive or a celebrity he admires—like former President Gerald Ford, University of Michigan football coach Bo Schembechler and Detroit Tigers manager Sparky Anderson.

The \$5-million course adds to a hotel and conference center development.

HOW TO ADD 1,440,000 YARDS TO YOUR DRIVE.



Easy. Just get the golf car battery that drives longer. Get ours. Get Trojan. We conducted a little test. Trojan vs. some other big names on the tour.

Guess what? Based on the new Battery Council International testing procedures, based on a par 72 course, the Trojan played 200 more rounds than the challenger. (That explains the 1,440,000-yard drive at the top of the page.)

Trojan's T-105 was 225 cycles better than the next leading brand - 635 to 410 - in this BCI speed test.

225 more cycles x 2 rounds per cycle x \$10 per round car rental = \$4500 more revenue per set before they need replacing. (Now, multiply that times your number of cars.)

All this is amazing. But not surprising. Because Trojan has an exclusive Multi-Rib separator: Better electrolyte

distribution. Less negative plate expansion. Lower end of charge current uses far less water—lower recharging bills. And a glassmat that's twice as thick reduces positive shedding—boosts life.

One last thing. Trojan's been around since 1925, since Bobby Jones was tearing them up at Augusta. Not far, in fact, from our newest manufacturing facility in Lithonia, GA.

If you want to be money ahead, call Trojan. In California, (213) 946-8381. Outside California, (800) 423-6569.



PLANTSTAR, INC

- Manufacture of High Grade Liquid Fertilizer
- Customized Fertigation Systems
- Bulk Transfer And Handling Systems

1-800-277-STAR
404-769-TURF

PLANTSTAR, INC
PO BOX 304
Watkinsville Georgia
30677



Trojan
The Better Battery