

savings, relative to other fields," explains Mike Powell, project manager for the University Athletic Association. "It's also a conservative, tried and true field system."

Chuck Dixon of Turf Diagnostics and Design, Dan Morgan, an agronomist, out of Tampa FL, and the Gainesville firm of Henderson, Quinn & Associates, consulted on the project, working in conjunction with Powell. They chose bermuda 419 sod for the 87,000-square-foot job. Given the site, drainage was paramount.

"Before the site became a stadium field, years ago, it was a pond," Powell explains. "Drainage was a hot issue, because the site has a high-groundwater table. Without drainage, there would always be standing water on the field."

To solve the drainage problem, 5,400 feet of under drain was installed, with 14 runs approximately 20 feet apart. This in turn was bedded in a ditch cross section filled with crushed gravel.

"The other day, we had two inches of rain here in about 40 minutes," Powell enthuses. "Fifteen minutes after it stopped, there was no standing water on the field."

The university also renovated two practice fields less than a mile away from the stadium, but instead of sodding with bermuda 419, they sprigged the entire 170,000 square feet. Powell says they would have preferred to sprig the stadium field, but aesthetic and time considerations prohib-

only 1,200 feet more than the amount installed at the stadium field, which is less than half the size. "You don't have the groundwater problem on the practice fields that you do on the stadium field," Powell explains.

The irrigation systems, using Toro equipment, were designed to be as unobtrusive to the players as possible.

"On the stadium field, we used Toro 640s in what is essentially a row of seven down each hashmark," says Powell. "On the sidelines, we used 650s, eight feet off the wall. Only two rows of heads are in bounds. I feel that's an important issue for football, and soccer as well."

#### Ohio State Goes PAT

When Ohio State University decided it was time to replace the aging artificial surface at Ohio Stadium, they decided to go with a PAT (Prescription Athletic Turf) system. The system was installed at several fields in 1991, including the University of Michigan, the University of Alabama, and the new ballpark for the Baltimore Orioles.

"One of the principal features of the PAT system is the use of vacuum for positive moisture extraction," explains Laurel Mead, executive vice president of PAT Turfgrass Services. "All engineering of the

system is done in-house by Turfgrass Services, but the actual systems are installed by licensed PAT contractors."

Turf Services of Grand Haven, MI, installed the PAT system at Ohio Stadium. "By all reports, the system is working well and everyone is extremely pleased," says David Heiss, president of Turf Services. "It just takes a little while for the field to settle in. After the first few games on a PAT, everything is fine."

PAT fields are completely flat, and getting them that way, particularly in the case of a field renovation, can be difficult. However, Ohio Stadium, says Heiss, was fairly level and did not pose much difficulty in this regard.

Like all PAT fields, Ohio Stadium was excavated to a depth of 12 inches. A plastic liner was then installed, with a network of drainage tile above it. After the liner and tiles are installed, the excavation is back-filled with sand—in this case 5,000 tons of

it—and then the soil and amendments, irrigation, and sod are installed.

A system of pumps underneath Ohio Stadium pulls water off the field. Both vacuum pumps and discharge pumps were installed. The system's electronics are also housed beneath the stadium, and the system can be completely automated by electronically setting drainage and irrigation values.

Ohio State chose a bluegrass sod for the field, which was evaluated by Dr. John Street and Dr. Bill Pound before selection. Huber Ranch Sod of Snyder, IN, provided the sod, a Kentucky bluegrass mix of Northrup-King Premium and Midnight. Since the sod's new home would be a sand-based field, the fact that it was grown in sandy loam played a large role in its selection.

The irrigation system includes Toro 640 heads and moisture sensors. "We monitor moisture throughout the field," says Kevin Miller, OSU's athletic field manager.

"When I deal with colleges and professional teams," says Heiss, "I say that the bottom line with PAT is that it's a proven, patented product."

#### Going Custom In Kansas City

When the Kansas City Chiefs decided to build a new 450-x-450-

square-foot "athletic area," at the Harry S. Truman Sports Complex, designed by HOK Sport Facilities Group, they turned to its head groundskeeper, Chip Toma, Dr. James Watson, and Chuck Dixon, an agronomist and founder of Turf Diagnostics and Design in Olathe, KS. "It was like someone said, 'Here, build the field of your dreams,'" says Toma.

"We call it an 'athletic area' for a reason," he continues. "What we mean by that is you have enough area for two fields, either north-south or east-west. The field is completely uniform from ground level to root mix, which reaches down 16 inches, which we felt was a better environment for bermuda and also had a little better gravity pull than a 12 inch mix. Having the field completely uniform makes it much easier to maintain."

The area's 80/20 root mix is made up of sand from Holiday Sand & Gravel in

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# 1991

ited it. They also would have met USGA specifications on the practice fields, had sufficient funds been available. Still, Powell is quite pleased with the job they were able to do, within their budget, on the practice fields.

"The fields were originally built in 1964, and one inch of rain would flood them out," says Powell. "We removed the top nine inches of material, mixed nine inches of fairly coarse sand with Dakota Reed Sedge Peat, and topped it with three inches of fine sand. We ended up with a very homogeneous and even mix, with a flat percolation rate of 9-1/2 to 13 inches an hour."

Under drain, 6,200 square feet of it, was installed under the practice fields. This is

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*"The bottom line with PAT is that it's a proven, patented product."*

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From left: Scott Martin and Chip Toma show root development one week after sodding at the Chiefs' Kansas City practice facility.

## New Fields

*continued from page 11*

Kansas City and North Dakota Reed Sedge Peat. Holiday Sand & Gravel did the physical mixing, based on a formulation created by Toma and Dixon.

"We planned for drainage, not just now, but two or three years from now," Toma points out. "Any field will eventually start to lose drainage because of compaction and accumulated organic matter in the root zone. That's why we have a complete aeration program."

To get water onto the field, Toma and his team chose a Toro irrigation system, designed by Joe Sheets of Champion Turf in Kansas City, with Toro 670 heads. Aside from the obvious goal of complete coverage, Toma says he wanted the system to be simple.

"Honestly, we wanted to get away from all the 'bells and whistles,' so to speak. We wanted a system that anyone could easily turn on and check, so we went with a real simple controller.

"The system has a diamond pattern," he says. "We added a large, high-pressure, high-volume pump so we'd be sure to have plenty of pressure. We also considered a field warming system, but decided against it since we have an indoor field and the manpower to cover this one if necessary."

The U-3 bermudagrass they chose was acquired from Green Acres Turf Farm in Bixby, OK. They've since overseeded with

PhD. ryegrass, which Toma says he can still see in the field.

The head groundskeeper emphasizes quality control as the key to the athletic area's successful installation.

"I would be on the field at each stage, like when they were spreading the sand," Toma recalls. "There was no way I was going to miss anything. We had meetings on the field every day with the different contractors. You've got to make sure everybody is talking to everybody else. In all, it worked like a well-oiled machine!"

### Cleveland's Net Gain

David Frey, field maintenance director of Cleveland Stadium, home of the Browns and the Indians, took a diverse approach to directing construction of four new practice fields for the Browns in Berea, OH. He used a variation of the USGA system.

"I'm not a sand field proponent—I'm not convinced they work with northern grasses," says Frey. "We used a USGA-type system on all of our fields, as an alternative to all-sand fields. And we didn't use a fabric choke layer—we used a gravel choke layer."

On the fourth field, they incorporated Netlon. "The Netlon system consists of a three-dimensional fiber matrix in the top six inches of the soil mix," Frey explains. "It ties itself together as the plants grow. Essentially, it gives you a tremendous amount of stability under traffic."

Kurtz Brothers of Independence, OH, did all the soil mixing and worked in acquir-

ing Netlon. Independence Construction, of the same town, performed the physical construction.

Four varieties of bluegrass were used to seed the fields: Midnight, Liberty, Bristol, and Eclipse. Seeding was Frey's first choice from the beginning.

"There's no doubt that if you can seed, you have the exact growing medium you want," Frey emphasizes. "If you sod, you get somebody else's growing medium, unless you wash the sod. Obviously, of course, time is a factor when you seed."

Hunter heads were used in the irrigation system. Each lateral can be controlled individually, and all valves are off the fields. As for drainage, Frey expects it to be "out of this world."

"We expect our percolation rate to be four to five inches per hour, depending on how much turf cover we have," he says. "Of course, the fields haven't been used yet."

### Play-All At Comiskey

Of all the fields constructed during the last year-and-a-half, none has received more national media attention than New Comiskey Park. Designed by HOK, the facility replaces Comiskey Park, home of the Chicago White Sox since 1910. Tradition was everywhere in the original park and many die-hard Sox fans didn't take kindly to its demise. Others, tired of obstructed views and deteriorating facilities, welcomed it.

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*We wanted a system that anyone could easily turn on and check, so we went with a real simple controller.*

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Although the Sox are playing on a new diamond this year, some things haven't changed, like Roger Bossard, head groundskeeper for Comiskey for the past 25 years. Bossard, a third-generation groundskeeper, directed construction of the diamond, which features a Play-All field system. The system was designed by Bossard in conjunction with Sportsfields, Inc., of Blue Island, IL.

*continued on page 14*

# WHEN IT COMES TO HIGH SCHOOL ATHLETICS . . .

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## New Fields

continued from page 14

"The New Comiskey field is sort of state-of-the-art," says Bossard. We ran 6,400 feet of four-by-six-inch drainage tiles on 15-foot centers. Around the tile, four inches above, two inches below, and two inches on the side, we put down birdseye gravel. Then we put down four inches of sand. In the top four inches above that, we conditioned the area with 66 yards of spagnum peat and 88 tons of calcined clay fines."

Bossard and Sportsfields started work on the field after it was brought to a "blue-top" condition, which means it was 12 inches below grade with 95 percent compaction. Still, because the new park was constructed in an area where buildings were demolished, some unusual challenges arose during field construction. "When we put in the drainage tile, we ran into two open catch basins, a few brick walls, and even an old street," Bossard reveals. "We replaced more than 40 carbide trencher bits."

To add durability to the infield and areas where players stand most often in the outfield, Bossard incorporated stabilization fibers into the field. Rather than putting the

Conwed fibers down at three inches, which many turfgrass researchers recommend, he had the fibers installed six inches below the field surface.

"If you have a good maintenance program, 90 percent of your roots will be in the first three inches," says Bossard. "But I wanted my feeder roots to stabilize, and they go down deeper. If the plant isn't stabilized at a six-inch depth, it won't be stabilized at a three-inch depth."

The diamond was sodded with a 12-month-old, eight-cultivar blend of four bluegrasses and four perennial ryegrasses from Evergreen Sod of Peotone, IL. Bossard says that because of the accumulation of blends, the field is less susceptible to disease than one with a single grass variety.

"It's not likely that you'd get a disease that would kill all eight blends," he says. "I added the ryegrass to the mix for its light color, which really shows up when you're striping."

The Sox and their head groundskeeper aren't the only traditions which moved to the New Comiskey. Bossard and his crew brought the old infield dirt, all 19 semi truck loads of it, to the new facility. They

moved it in layers, four inches at a time, and laid it down in opposite order in which it had been removed so the mix would remain the same. To protect the newly sodded field from the weight of the trucks, they put down four layers of geotextile and three layers of 3/4-inch plywood. Even with that protection, 150 square yards of sod had to be replaced when the process was finished.

"We didn't move the infield dirt for nostalgia's sake," Bossard explains. "Besides, the players liked it. And that's what it's all about."

### Pulling The Rug Out At Foxboro

If the 1990 season wasn't particularly kind to the New England Patriots, they can take comfort in the fact that this year they will be playing on a kinder, gentler home surface at Foxboro Stadium in Foxboro, MA. Spearheaded by Patriots' CEO Sam Jankovich, the team and the stadium owners replaced their well-worn artificial surface with a GraviTURF Natural Turf Athletic System from Randall & Blake, Inc., a landscape architecture and construction firm based in Littleton, CO.

The GraviTURF system is a gravity-drained, sand-based athletic field setup. It



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begins with perforated pipe drainage lines, which vary from four to 12 inches in diameter, depending on the drainage requirements of the particular project. The pipe is then bedded in pea gravel, and a warming system is installed if requested, as in the case of Foxboro.

After the warming system was installed, it was covered by a sand and peat mix. The job of making sure the sand and peat were compatible went to Chuck Dixon of Turf Diagnostics and Design.

Although RBI generally prefers to seed fields, time constraints forced them to choose sod for Foxboro. To help select the sod, as well as design the pre-plant and post-plant fertilization program they worked with Mark Altman of Altman & Altman, independent soil fertility specialists based in Marshall, MN.

After testing sods from a myriad of farms, they found what they were looking for at Gold Star Farms in Canterbury, NH. They chose a Kentucky bluegrass of 27 percent Merit, 30 percent Ram, 20 percent Glade, and 23 percent Eclipse.

Altman's pre-plant fertilizer program, incorporating biostimulants and foliar feeding, was implemented several weeks before the sod was harvested. After harvest, the sod was washed completely.

One of the main keys to the system, says Dan Almond, RBI's design/build manager and licensed landscape architect, is drainage.

"We guarantee our percolation rates at five inches per hour, but at Foxboro we'll probably get a percolation rate in the range of six to eight inches per hour," Almond asserts. "According to tests we've done recently at the Broncos practice facility [which also installed a GraviTURF system], the percolation rate there now is 6.2 inches per hour."

To protect and maintain their new field, the Patriots and Foxboro's managers hired Pierre Landry as field superintendent. The 29-year-old from Rochester, NY, has a degree in plant and soil science from the University of Massachusetts and was previously an assistant superintendent at Monroe Golf Club in Pittsford, NY, and Andover Country Club in Andover, PA. He was recommended for the Foxboro job by RBI.

"I've worked with USGA sand-based greens, so I have a good idea about their irrigation and fertilization needs," he says.

"The stress on this field is going to be different than it is on a golf green—it's more physical than environmental.

"I think the biggest challenge is going to be satisfying the needs of coaches and players, in terms of game conditions and allowing them on the field," Landry continues. "Of course, I want to keep them off it as much as possible [between games], but it's their field and they're going to want to practice on it."

"We'll work it out by developing a good relationship where understand each other's needs."

## Into The '90s

Six fields, six systems, six (we hope) success stories. How these and the many other fields constructed in the last year-and-a-half will fare may depend as much on maintenance as it does on design and technology. Judging from the designers, builders, and field managers who were interviewed for this article, the push for high-quality natural playing fields, at all levels, is growing. And like the intense focus on proper drainage, that's good for the entire sports turf industry. ☺

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### Send the information below to enter:

1. Age of baseball diamond and brief history.
2. Details on turfgrass, infield dirt, irrigation, lighting etc.
3. Description of maintenance program.
4. Operating budget for field maintenance.
5. Size of maintenance staff.
6. Number of baseball games on diamond per year.
7. Other uses of field.
8. Number of months of operation per year.
9. Include two sets of color slides or prints of the diamond.

**Deadline for entries:** Entries must be postmarked no later than November 30, 1991. Selection of winners will be made by a panel of four Major League head groundskeepers.

### Mail Entries to:

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## EDUCATIONAL SESSIONS

The program for the 1991 ALCA/PGMS Landscape and Grounds Management Conference is almost finalized. Landscape professionals will have a wide range of sessions to choose from this year. More than 21 educational sessions will be offered throughout the week of November 17-21 by the Associated Landscape Contractors of America and the Professional Grounds Management Society.

The action begins with a keynote session led by Jay Conrad Levinson, bestselling author of "Guerrilla Marketing," and continues throughout the week. Sessions cover a wide range of business and landscape design, installation, and grounds maintenance issues. By attending a mix of sessions, conference attendees can:

- \*See how simple changes in pricing strategies can dramatically increase profits.
- \*Learn how to hire terrific employees *and* keep them on the team.
- \*Find out what owners can do to make their businesses recession-proof.
- \*Take a look at the design and installation of low-voltage lighting systems.
- \*Learn how irrigation services can boost profits.
- \*Explore design techniques that can cut water consumption in half.
- \*Find out what industry professionals discovered when they instituted drug testing programs.
- \*Hear what insurance agents look for when they set insurance rates—and learn what landscape professionals have done to cut insurance costs.

Admission to all educational sessions, and to the Green Industry Expo/91, is included in the Landscape and Grounds Management Conference registration fee. These fees range from \$135 to \$275, with early registrants receiving a discount.

For additional conference program details and/or information on booth space, write or call ALCA, 405 N. Washington St., Suite 104, Falls Church, VA 22046; (703) 241-4004.

## STMA ESTABLISHES FOUNDATION

The Sports Turf Managers Association has formed a tax-deductible, non-profit, charitable educational foundation. The Sports Turf Managers Benevolent Foundation will be used to achieve the association's educational goals through scholarship awards, research, and educational forums.

The initial foundation trustees are: Dr. James Watson, The Toro Company; Steve Wightman, Jack Murphy Stadium; Stephen Cockerham, University of California, Riverside; Twyla Hansen, Nebraska Wesleyan University; Dr. Gil Landry, University of Georgia; and Greg Petry, Waukegan Park District.

Prior to establishing the foundation, STMA supported its educational, research and scholarship activities from its operational budget. Any contributions to the new foundation are completely tax-deductible as a charitable contribution.

"We are pleased that the foundation has been established," said Dr. Watson. "This is a major milestone toward meeting the STMA's educational efforts. I urge everyone, association members as well as others in the sports turf industry, to support the foundation's goals through contributions."

Questions about the foundation should be directed to the executive director, STMA, P.O. Box 98056, Las Vegas, NV 89193, (702) 739-8052.

## HERRON APPOINTED TO LESCO'S BOARD

F. Leon (Le) Herron, Jr., retired chairman and president of O.M. Scott and Sons, Inc., has been elected to the board of directors of Lesco, Inc., according to James I. FitzGibbon, chairman and chief executive officer.

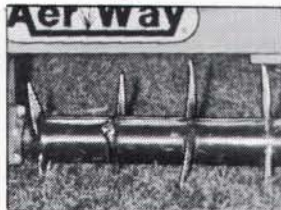
Herron joined O. M. Scott and Sons, now The Scott Companies, in 1965. He was elected president in 1966 and chairman in 1971. He served as chairman and president until his retirement in 1983. During his tenure at Scotts, the company's sales grew dramatically and it expanded into international distribution.

"We're very fortunate to have an executive with Le's experience and background join our board," said FitzGibbon. "Both Lesco and Scotts are major suppliers to the nation's green industry and we believe Le's knowledge of the industry will be valuable to Lesco at this important period in our growth and progress."

# The chemistry of sportsturf management



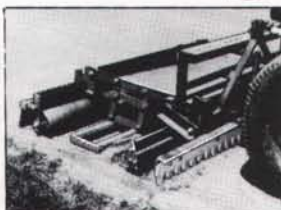
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# Shreveport Country Club

## Bends Tradition

By Matthew Trulio



The 9th hole before bent. "The greens were perfect little circles of sand," says Brown.

**T**his is one of the old clubs here in the South, and the members do like to stick to their traditions," says superintendent Jim Brown from his office at Shreveport Country Club in Shreveport, LA.

"You know," he continues, chuckling a bit, "like on Saturdays when you always have fried chicken, black-eyed peas, rice, cornbread, and mustard greens."

The traditions of Shreveport Country Club reach back to 1909, the year it was established. At that time, it was located on what is now the Louisiana State Fairgrounds. In 1919, the club moved to its present location on the west side of the inner city. From the 1940s through the early 1960s, a number of prestigious state amateur golf championships, and several invitational pro events, were held there.

"In the late '60s, Shreveport turned more toward its members," Brown explains. "It adopted more of a traditional country club atmosphere."

Late last year, however, Shreveport broke from tradition when it chose bentgrass, which is arguably *the* finest putting surface, instead of bermudagrass for its newly reconstructed greens.

"Everybody wants to play on bentgrass!" Brown enthuses.

Like growing bent, a cool-season grass, in the South, breaking tradition is never easy. At Shreveport, it took the members' desire and money, the word of a professional golfer, an excellent bentgrass seed variety, a seed swap, a little competition from another club, and one determined superintendent.

*continued on page 18*



The 9th hole today. Note cooling fan in the right hand corner.

## Shreveport Country Club

*continued from page 17*

### The Road To Bent

When Brown, 41, graduated from Stephen F. Austin College in Nacadoches, TX, with a bachelor's degree in horticulture, he didn't see himself as a golf course superintendent. During college, he had specialized in asexual propagation of ferns and after graduation he worked for a wholesaler of the 77-millimeter variety. He later moved to Tyler, TX, to establish fern houses for the company, but his fern propagation plans hit a snag.

"They wanted me to handle some chemicals that I didn't want to handle, so I left," recalls Brown. "The local county attorney was building a golf course. He'd already hired someone to take care of it, but he put me in touch with someone who was looking for a superintendent."

By the time Brown became superintendent at Shreveport Country Club in 1990 he had been one in Texas for 15 years. He was the superintendent at Troup Country Club in Troup, Meadowbrook Country Club in Palestine, and Emerald Bay Club in Bullard. The position at Shreveport came up at the same time Brown had decided to resign from Emerald Bay and work full-time in a tree maintenance company he had established as a sideline during the years. He had already trained his replacement at Emerald Bay.

When Richard Flemming, a member of Shreveport Country Club and owner of Flemming Irrigation, which installs irrigation systems on golf courses around the country, heard that Brown was available, he persuaded him to apply for the job at Shreveport. The two had worked together before.

"Richard was instrumental in my coming here," Brown reveals. "Actually, the architect had called me four years ago about being their superintendent, but they wanted someone who could play golf and function with the members and I wasn't really interested in that."

This time, however, he was interested. He interviewed and was offered the job.

"When I came for my interview, the greens were perfect little circles of sand," Brown remembers. "It looked like someone had taken Roundup and sprayed it on the greens. And even when they turned on the sprinklers, they could never get the grass to green up on the fairways."

The challenge had him hooked. "Besides," he laughs, "I knew I could always go back to my tree care business."

### Starting Over

During the summer of 1990, Brown and his 22-man crew began what they thought would be root zone modification on all 18 greens, which had been rebuilt using Tifway 328 about four years ago. Once they began excavation, they discovered that the gravel layer under the greens varied from one inch to one foot.

"Drainage was basically non-existent," Brown explains. "What had happened was that greens had been built on top of greens. The exits to the drains had been sealed, and there was no way for the water to get out. It promoted a pretty unhealthy situation for grass growth."

On top of that, Brown recalls, the water used to irrigate the course, all nonpotable, was in bad shape. "The last superintendent here was investigating the water problem, and it turned out that we had high levels of sodium and bicarbonate in the water. Sodium was exchanging for potassium and it was disrupting the grass cells. We weren't getting quality water, so we couldn't grow quality grass."

"And every time we watered, it smelled like sewage," he adds.

The superintendent and crew attacked the water quality problem and greens reconstruction simultaneously. To solve the water problem, they worked with Jim Montgomery, a chemist with Greensmith, a fertilizer production and consulting firm in Dallas, and Hammonds Technical Services, a Houston-based company which specializes in injector pumps and systems used in the petroleum industry. Together, they created an injection system for the course.

"We inject sulphuric urea, which also acts as a wetting agent, and acid fertilizer, so that we're also fertilizing whenever we're injecting," explains Brown. "An impeller in the system creates suction, so that whenever you have irrigation flow, you have injection."

All of the greens, some of them sunken, were rebuilt to USGA standards. "We went strictly USGA—with herringbone, gravel, and choke layer," Brown explains. "The 12-inch top layer is 85 percent sand and 15 percent rice hulls."

Reconstructing the greens, he says, took plenty of effort, 12 hours a day for a few months, but the process was more or less uneventful. The idea of bentgrass greens was welcomed by the club, which was feeling the heat from Southern Trace, a relatively new club in Shreveport with bentgrass greens, according to Brown.

"I think we actually lost a few members

to them," he says. "Bruce Hospes [Southern Trace superintendent] does a great job with the bentgrass there. I think we wanted to keep up."

Getting approval to use the specific bentgrass seed he wanted—SR 1020 from Seed Research of Oregon—took a lot of lobbying and a little bit of luck, Brown reveals. "I guess I butted heads with just about everyone," he admits.

### Overcoming Obstacles

Like a growing number of superintendents in the South, Brown has a particular, if not vested, interest in bentgrass and his ability to grow it. According to Brown and others, superintendents who can successfully maintain bentgrass in the South often command higher salaries than those who can't. The demand for bentgrass greens in the region, and the short-but-growing supply of those who can keep them alive in the summer (when 100-degree, 90-percent humidity weeks are common) has created a relatively new market for savvy superintendents with bentgrass know-how.

Brown had stayed abreast of bentgrass research and improvements for the South through the North Texas Superintendents Association, the Texas Turfgrass Association, and regular attendance at Texas A & M University's summer trials. He also tried to keep up with the latest scientific literature on the subject. Never one to shy away from a challenge, he was confident he could produce and care for fine bentgrass greens at Shreveport.

"The greens were going to be finished in September, and the golf course architect on the job wanted to plant dormant bermuda and overseed with bentgrass for winter play," Brown recalls. "He said the bermuda would come up like a champ in the spring, but I said it wouldn't work. I've never seen that done successfully. When they asked me what I'd do I said, 'Well, as long as we're finishing up this late, we may as well just plant bentgrass, because there are a lot of varieties coming out that are adapted to this area.' To my way of thinking, I'd rather seed than sprig anyway. And if for some reason it didn't work, we could always go back and plant bermuda."

The club management agreed, yet it had reservations about Brown's choice of seed.

"They were kind of hesitant about SR 1020," he recalls. "Nobody knew anything about it. The golf course architect said he didn't want to put his name on a course with some new seed variety, even though I tried to tell them how long SR 1020 had been around."



"Things finally got turned around when Hal Sutton, who plays here from time to time, told the board that Ben Crenshaw used it on one of his courses, and said that it was the best bentgrass for the area. Once they heard that, they were all for it."

One hurdle still remained. The golf course construction contractor had already purchased another variety of bentgrass seed. Seed Research worked with Brown, who needed approximately 20 25-lb. bags of their product, and swapped him seed-for-seed. "I think they took a little bit of a loss on it, but they really wanted the SR 1020 to get in," says Brown.

They seeded the greens at two pounds per 1,000 square feet. They started seeding in September, finished in October, and started mowing the greens 17 days later. The course was reopened a few days before Thanksgiving.

#### Babysitting The Bent

"We watch the bentgrass greens a lot more than we would bermuda greens," says Brown. "Managing bent is a little more touchy than it is with bermuda."

It also takes more water. The course is irrigated, through "an old system that's falling apart," says Brown, to the tune of 1/2-million gallons per night. Much of that

water is devoted to less-than-one-year-old greens (they haven't even been aerated yet) in addition to the syringing they receive three times each day.

In addition, the Shreveport area received a approximately 60 inches of rain from February through April this year, and the humidity was high. Much to Brown's delight, the only problem the bentgrass developed was algae, which he took care of by spraying twice with an algicide. In fact, he says, he's only had to spray six times since the greens were installed.

"A lot of people managing bent in the South have a pretty big spray program, but we don't," Brown points out. "We don't have a preventative spray program—it's strictly curative. The good thing about being here in the transition zone is that we're familiar with most of the diseases which could affect bentgrass."

To cut the bentgrass greens and the rest of the course, Shreveport invested nearly \$175,000 in mowing equipment. After much consideration, Brown decided to buy all Jacobsen mowers. The greens are cut at 1/4 inch, every other day, with walk-behind greensmowers. During tournaments, the greens are mowed daily.

"Bermuda greens are usually cut at 5/32 inch, but we cut the bent a little higher because at this time of year you're just trying to keep it alive," says Brown.

The bermuda fairways are mowed with Jacobsen LF 100 lightweight fairway mowers at 5/8 of an inch. Tri Kings are used to mow slopes and rough, which is cut at 1-1/2 inches. The tees, also bermuda, are cut with the greensmowers at 1/2 inch.

Not all of Shreveport's equipment is quite so conventional. "We have fans, designed by one of the members, to ventilate the greens," Brown reveals. "We try to keep air blowing over them to cool them down and blow away the noxious gases."

Brown's plans for Shreveport's future are both long and short range. During the coming year, he plans to upgrade the course's aging irrigation system to stand-alone satellites, and maybe "something central" a little farther down the road. As for tomorrow and the next day—and every day until the Louisiana summer surrenders to fall—he'll work to keep the greens alive.

Adds Brown, "You have to babysit the bentgrass quite a bit, but it's not as bad as I thought it was going to be. We're just coming into the really hot weather now. That should make for a good challenge."

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# Winter Overseeding

Every August the bins of seed growers in Oregon, Washington, and Idaho are brimming with the summer harvest. The job of cleaning millions of pounds of turf seed is in full swing. Within a few short weeks, bags of certified seed will arrive at golf courses and sports institutions across the South, just in time for winter overseeding.

The first person who applied annual ryegrass to his dormant bermudagrass could not have possibly imagined that one day that millions of pounds of cool-season turfgrass would grow throughout the South during the winter.

"Once you begin to overseed, it's difficult to stop," points out Dr. Gerald Peppin with Pickseed West. "Golfers, coaches, and players are fairly insistent on overseeded turf once they play on it. The turf manager has little choice but to comply."

Dr. Jeff Krans, professor at Mississippi State University, is surprised that overseeding works as effectively as it does. He oversees one of a small number of overseeding trials in the U.S. "Think about it," he says, "just when the bermudagrass has begun to harden off for the winter, we verticut it, make it compete with other grasses, and then expect it to rebound the following spring. Management is critical to both fall and spring transition and can differ from one area to another."

Overseeding has changed considerably since the days of annual ryegrass. Improved turfgrass varieties and different turf species come into play. Seed companies are responding by providing custom blends and mixtures to fit the needs of turf managers from coast to coast. Improved perennial ryegrasses, *Poa trivialis*, creeping bentgrass, chewings fescue, and even Kentucky bluegrass can be found growing on sports facilities in the South and Southwest from October to May.

Each type of turfgrass has unique characteristics. To avoid problems with transition the turf manager needs to acquire a knowledge of color, speed of establishment, seeding rates, timing, fertility, growth rate, and moisture requirement for each, plus have a firm grasp on what his bermudagrass can tolerate. Even then, he has no control over weather, the chief factor determining the behavior of both the cool- and warm-season grasses.

Perennial ryegrasses dominate the overseeding market. They germinate rapidly, tolerate low cutting heights, resemble bermudagrass in color, and are fine-bladed, upright and wear-tolerant. Unlike fast-growing annual ryegrass, perennial ryegrass' growth is more manageable. Whereas annual ryegrass can fade out rapidly in the spring, perennials offer a slower, smoother transition.

Slow spring transition is cited as a problem by some turf managers with the newer, hardier perennial ryegrasses. Improved ryegrasses have been selected largely for their increased heat tolerance, disease resistance, color and texture. "Turfgrasses need to be vigorous to perform well and recuperate from injuries," states Krans.

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"The question is whether or not you want a grass that is less vigorous so it will have faster spring transition."

Dr. Melodee Kemp at the new Pure Seed Testing research center in Raleigh, NC, hopes to find an answer to both vigor and spring transition of perennial ryegrasses. Her goal is to identify varieties with improved transitioning, more rapid establishment, and lower maintenance requirements. She will be exploring for improved bermudagrass varieties at the same time.

Virgil Meier, turf breeder for Scotts, says that the company's Caravelle has a unique niche since it is more sensitive to heat and transitions faster than most other varieties of perennial ryegrass. Other breeders report that they are also searching for less heat tolerant perennial ryegrasses.

"A good turf manager can handle transition problems for the most part," states Doug Toews with International Seed Inc. "There are a bunch of different manage-

ment practices that can be used in the spring to discourage the ryegrass when you want it to transition out." Common management practices are verticutting, spiking, changing irrigation schedules, and careful fertilization. A lot depends on the weather and the timing of spring events.

One approach to managing transition is mixing perennial ryegrasses with less heat-tolerant grasses such as *Poa trivialis* and chewings fescue. "The demand for *Poa trivialis* has increased significantly," states Bill Dunn with Lofts Seed. "Poa triv goes out quickly with warmer spring temperatures. By mixing it with perennial ryegrasses, spring transition is more manageable."

Lofts' John Dimatteo explains further. "Poa triv has three to four times the number of seeds per pound as perennial ryegrass," he points out. "A mixture of 80 percent ryegrass and 20 percent poa trivialis by weight is roughly a 50:50 mix by seed count. If the poa triv goes out, you're still covered by the ryegrass until the bermudagrass comes out of dormancy."

The same can be said for using a blend of perennial ryegrasses as opposed to using a single variety. Each has particular strengths and transition performance. It's unlikely that all three or more varieties will succumb to warmer spring weather at the same time.

Some of the advantages of *Poa trivialis* are it establishes rapidly, performs well in the shade, and transitions quickly. Due to the small size of the seed, it sifts into the bermudagrass with less surface disruption than larger seed. Its high seed count requires fewer pounds to achieve density.

International Seeds Inc. was the first to offer poa triv for overseeding with Sabre. Lofts introduced Laser last year, Turf Merchants offers Cypress, and Pickseed West sells Colt.

Dimatteo mentioned that some superintendents concerned about winterkill of bermudagrass have been trying straight poa triv.

"The seed works its way into the bermuda canopy better than ryegrass or fescue," he adds, "so you don't have to disturb the surface as much while the bermuda is entering dormancy. It's also less aggressive and does not compete as much with the bermuda, especially in the spring."