University of Cincinnati's soccer field.

Tall Fescues Meet The Challenge

The pressure is mounting on golf courses and other large recreational turf areas to reduce the amount of chemicals and water used to maintain turf. At the same time, superintendents and groundskeepers face unprecedented use of their facilities. Satisfying environmental concerns while still managing stress on turfgrass is perhaps the greatest challenge of this decade.

Turf managers in the transition zone have been experimenting for years with ways to reduce the maintenance and water requirements of their turfgrasses. The climate of the region does not lend itself either to most warm- or cool-season turfgrasses. Both struggle to remain healthy during the hot, humid summers or freezing winters.

The turf managers have found, however, that one specie of turfgrass stands out under moderate maintenance and irrigation. It is tall fescue. By using improved turf-type tall fescues where practical, both superintendents and sports turf managers have successfully reduced their consumption of chemicals and water.

Dense stand of tall fescue and Kentucky bluegrass on soccer field.

Word about the advantages of turf-type tall fescues has begun to spread among golf course architects and landscape contractors. Architects, such as Robert Trent Jones, Jr., and Dye Designs, have increased their use of tall fescues in roughs without sacrificing playability. By utilizing high-maintenance turfgrasses only where necessary, they achieve an overall savings in maintenance.

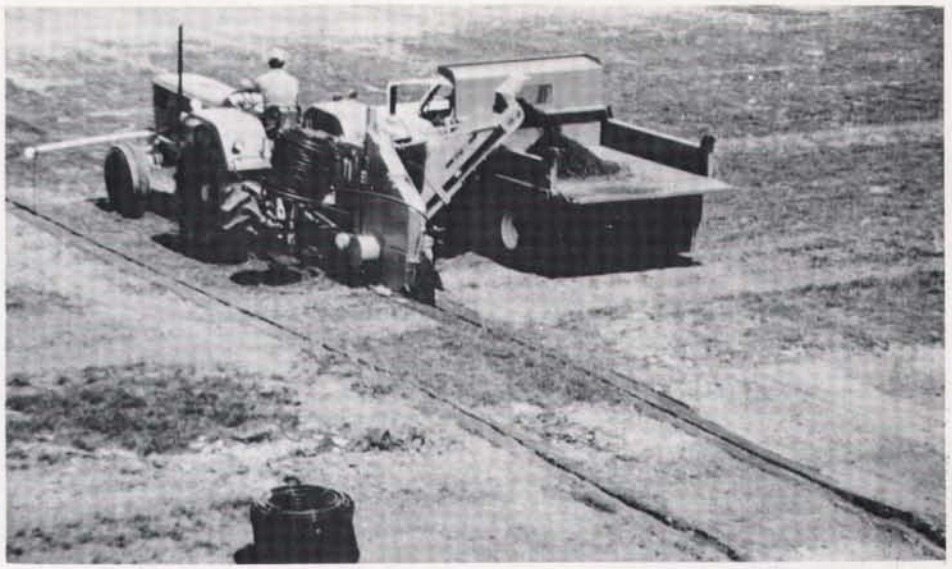
Joe Motz, president of Motz, Inc., a landscape contracting firm in Cincinnati, OH, believes tall fescues are the answer for facilities that want to upgrade their athletic fields but are limited in their ability to maintain them to professional standards. Motz, who built the fields at the Bengals' training center in Cincinnati and the College Football Hall of Fame at Kings Island, knows well the extent of maintenance for showcase facilities.

As vice president of the Ohio Turfgrass Foundation, he has heard the cry for better conditions at high schools and colleges. "Fields without proper irrigation, drainage, or type of turfgrass just can't hold up to heavy use," Motz states. "It's unreasonable to expect schools to build and maintain fields like a major stadium or training center. They need something that is realistic from a maintenance standpoint but will hold up to play and weather."

Motz is careful not to refer to tall fescues as being low maintenance. "The success of turf-type tall fescues is based upon key maintenance practices," he reveals. "We aren't talking about old, common types of tall fescue like K-31 or Alta. The improved turf types aren't pasture grasses planted on athletic fields. They need to be maintained year-round, but not as much as Kentucky bluegrasses."

When the University of Cincinnati approached Motz about renovating its soccer/intramural field, he began to formulate a plan that was in between his showcase facilities and superior to typical institutional designs. He knew that a sand-based field was impractical for the university due to construction and maintenance costs. Even so, he was determined to come as close as possible to sand-based drainage.

Tall fescues have better wear tolerance than Kentucky bluegrasses. However, unlike bluegrass, they are bunch-type grasses. A healthy plant can't spread laterally to fill in worn or damaged spots. The key to success with tall fescues is to protect them until they are established. Once a deep, vigorous root system is developed, the density of the stand can be maintained. At this point, the chief threats to the turf can be managed through proper drainage, fertilization, topdressing, and irrigation. Overseeding is also helpful in maintaining density.



British machine digs trench, conveys soil to truck, and installs drain tubing in one operation.

Wet soils caused by poor drainage reduce the stability of the surface and encourage disease. Plants lost to surface damage or disease are not replaced without reseeding. That is why Motz was determined to provide adequate drainage to the soccer field.

He had read about sand bypass drainage, a technology developed by Geoffrey Davison in Cambridge, England, as a solution to wet weather conditions. Davison invented equipment that installs sand-filled trenches in golf greens and fields suffering from poor drainage. A network of these trenches feeding into existing drain lines can prevent soil from becoming saturated and unstable.

Motz contacted Davison and discussed the soccer field project. Together they worked out a system of cross-linked trenches tied into peripheral drain lines. The specialized equipment was shipped from AF Trenchers Ltd. in England to Cincinnati. When the equipment arrived last spring, Motz moved his crew onto the campus to start the renovation project. Davison flew over to lend a hand.

"The field had to be ready by August 1," Motz recalls. "We wanted to give the fescue as much time as possible to establish. It was important to get the field renovated quickly.

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Second device backfills narrow trenches with sand.

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"A track surrounds the field," says Motz. "Inside of the track were drainage swales containing collection pits. Water running off the 18-inch crown of the field ended up in the swales and finally the pits. There was no subsurface drainage. The school wanted to get rid of the swales to make the edge of the field even with the track."

But first the mains and laterals for the irrigation system had to be installed. The design included 49 Toro 640 sprinkler heads spaced on 40-foot centers. Pipe for these had to lie below the depth of the network of drainpipe and sand slits. Motz allowed six inches for safety and placed the irrigation lines 18 inches below the surface.

Motz calculated that 1,000 cubic yards of topsoil were needed to fill the swales. Once the dirt was in place, four-inch-wide trenches were cut down both sides of the field. Perforated pipe was placed in the trenches, since they would eventually be filled with pea gravel to act as french drains. Smaller drainpipe crossing the field would also be connected to peripheral lines.

"We did not kill the existing turf, since we wanted to protect the structure of the soil," Motz added. That came later, when the drainage project was completed.

The efficiency of the imported equipment became apparent as the first cross-field drains were installed. In a single pass, the trencher cut a two-inch-wide trench 12 inches deep, conveyed the soil removed by the "Wiz-wheel" onto a truck, and pulled 35 mm perforated tubing into the bottom. A second piece of equipment backfilled the trench with four inches of pea gravel followed by sand. The small tubing was connected to the peripheral drains on both ends. In this fashion, cross-field drainage slits were installed every six feet.

A second series of trenches was cut eight inches deep the length of the field and backfilled with sand. These trenches intersect the cross-field drains every two feet in the center of the field and every three feet on the sides.

The existing turf was sprayed with Roundup. After a week, the entire field was topdressed with 1/4 inch of sand and the periphery drains were backfilled with pea gravel. In total, the drainage system required 450 tons of sand and 100 tons of gravel. Finally, the sprinkler heads were connected to their risers.

With the field scheduled for opening in just over two months, Motz didn't want to take any chances with seedling diseases. He had selected a mixture of Finelawn 5GL tall fescue and Chateau Kentucky bluegrass, treated with Apron.

Geoffrey Davison (left) and Joe Motz (right) connect cross-field drain tubes to side line drainpipe.

By weight the mix was 95 percent tall fescue and five percent bluegrass. "This is a little deceptive," explains Motz. "If you go by seed count, the mix is more like 70 percent tall fescue and 30 percent bluegrass. The bluegrass fills in around the fescue to eliminate any clumpiness and gives the stand a softer look and feeling."

The mix was sown at eight pounds per 1,000 square feet in May. The crew applied a starter fertilizer high in phosphorus (8-33-16). After blowing on straw mulch, Motz programmed the irrigation system to come on three times each day.

By the end of the third week, the field was ready for its first mowing. The company used an out-front reel gang mower on a four-wheel-drive Steiner tractor to baby the turf and the surface. "We mow tall fescue on four-day intervals at 2-1/2 inches," says Motz. "If you let it get too tall, the blades get wider and the turf looks more clumped. The idea is to build up density quickly."

A pound of nitrogen (50 percent sulfur-coated urea) with micronutrients was spread after treating the young turf with Subdue. "Tall fescues have a lower fertility requirement than Kentucky bluegrasses, but you have to push them the first year," says Motz. "We apply about a pound of nitrogen each month during the fall. The first year the field will receive 6-1/2 pounds of nitrogen. From then on, we'll drop to five pounds."

Because of high fertility and frequent irrigation to get the fescue established, you also need to protect it from opportunistic diseases. Motz's program included two treatments with Subdue followed by one application of Daconil 2787 for brown patch. "By providing good drainage and infiltration, you avoid damp surface conditions that encourage diseases," Motz points out. "Once you get it established, however, you irrigate and fertilize less than other cool-season grasses. In the long run, you have fewer problems with diseases and insects."

After the University of Cincinnati completed its first soccer schedule on the new field, Motz was back to overseed. "Three things keep it dense: fertilizer, overseeding, and regular mowing," he remarks. "If you don't overseed, you have to fertilize more."

Motz has two goals for the Cincinnati field in the coming years. The most important one is to keep the sand bypass system functioning properly by aerating, verticutting, and topdressing with sand. The second is to maintain turf density throughout the playing season by overseeding.

So far his techniques have worked successfully at more than 25 high schools and a dozen colleges. He has created a sports turf division for his landscape company to concentrate specifically on construction and maintenance of athletic fields.

Three states to the west, superintendent Mike Hulteen has managed a wide assortment of turfgrasses on Kansas golf courses for more than ten years. He started out with bermudagrass on a public golf course in Chanute, moved to a private country club with bluegrass and ryegrass fairways and roughs, and today is responsible for zoysiagrass fairways and tall fescue roughs at a high-end daily fee course in Marysville.

"Lower maintenance turfgrasses are being tried by all types of courses today," Hulteen remarks. "It's pretty common for a superintendent to have three or more different turf species on his course."

Hulteen has worked for North Star Development for the past four years. The company owns and operates resorts, private country clubs, and daily-fee courses from Myrtle Beach to Palm Springs. Deer Creek, where Hulteen works, is a high-end daily-fee course designed by Robert Trent Jones, Jr. This past August, just a year after it opened, Deer Creek hosted the Ben Hogan Tour.

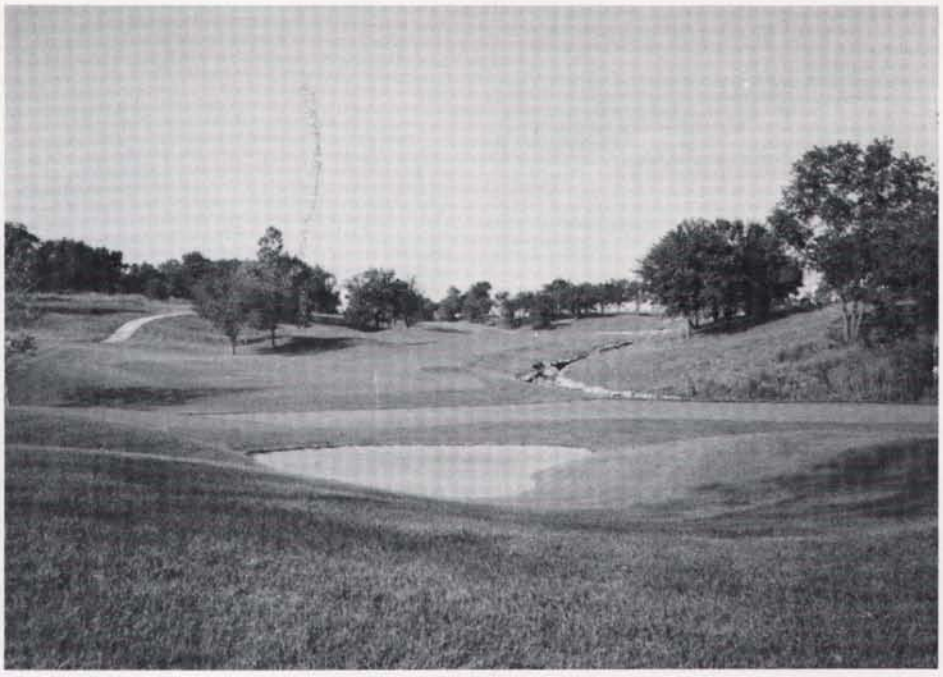
"This course was designed and built to provide a country club surrounding in a daily-fee facility," says Hulteen. In addition to a tour-quality golf course, Deer Creek features a pool, tennis courts, and a full-ser-

vice clubhouse. It derives its income from use fees and corporate memberships. There are no initiation fees.

The golf course was built along the banks of Tomahawk Creek and features many old hardwoods. The location adds to the maintenance challenge, because it is subject to periodic flooding and has many areas of heavy shade. In the summer and fall, heat and humidity keep Hulteen and his crew on their toes.

Surprisingly, the course has experienced very few serious maintenance problems. The only serious challenge Hulteen recalls was a flood last May which deposited drifts of silt on the newly-planted fairways and roughs. This was just three months before the Hogan Tour was scheduled to arrive.

"We had drifts of silt up to three feet thick," says Hulteen. "We had sodded everything except the roughs, where we seeded with Triathalon tall fescue. The greens were sodded with Penncross and the banks of the tees and greens with Kentucky bluegrass. We had to use fire hoses and squeegees to wash the silt off all the sod. But all we had to do for the roughs was grade the silt off and overseed lightly with more tall fescue. The fescue came back up in a few days saving us hours of time we needed to rebuild all the bunkers." The tournament took place without a hitch.



Tomahawk Creek runs through Deer Creek Golf Course.

Hulteen has discovered that tall fescue and zoysiagrass are compatible in many ways. The obvious difference is the zoysia is cut at 3/8 inch while the tall fescue is maintained at 2-1/2 inches. The ball sits up well on both. The 50 acres of rough are mowed with a rotary twice a week. "Rota-

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Many hardwoods create dense shade in the rough at Deer Creek.

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ries have a vacuum effect that stands the blades up," he remarks. "You need to monitor mowing to prevent the fescue from getting grainy. The Triathalon isn't nearly as grainy as K31. If it starts to lay down, we apply extra potash."

Other observations by Hulteen about his tall fescue are its tendency to go chlorotic quickly and to grow more slowly during droughty periods. "We supplement fertilization with applications of iron," says Hulteen. "Other than that, we apply about four pounds of nitrogen a year, most of it Nutrilene and IBDU, from September into fall. In the spring, we give it a shot of one quarter pound.

"I've seen symptoms of brown patch, but it's never devastating like Pythium on bluegrass or ryegrass. The fescue grows out of it without applying fungicides. It also performs extremely well in the shade."

One unique situation at Deer Creek has been with white grubs. "After the course was completed, there was no evidence of grubs," he recalls. "This year I noticed some damage in the bluegrass sod, but not in the tall fescue."

Overall Hulteen sees tall fescue as a good surface that needs relatively little care. It bounces back quickly after stress and can always be repaired by drill seeding. This is especially helpful in areas with heavy cart traffic, he adds.

Deer Creek's irrigation system is wall-to-wall. Tall fescue was chosen for the roughs so the course could concentrate its water where it was needed most. Because it is fairly drought tolerant and bounces back quickly, Hulteen has been able to irrigate his roughs less often.

"It's like anything else," he concludes. "The more you understand about tall fescue, the better you can gauge when it needs attention. If you get a good maintenance routine going, it's fairly easy to manage."

When used in place of higher-maintenance grasses, tall fescues offer savings that add up acre-by-acre and drop-by-drop.

Motz and Hulteen appreciate tall fescue's place in turf management today. However, they both know that too often low maintenance is considered to be almost no maintenance.

In general, turf-type tall fescues require less water and fewer pesticides. For this reason, they help the golf and sports turf industries respond to modern environmental concerns. In addition, they tolerate various stresses, such as traffic, drought, shade, and pests, better than many other turfgrasses. When used in place of higher-maintenance grasses, tall fescues offer savings that add up acre-by-acre and drop-by-drop. ⚽