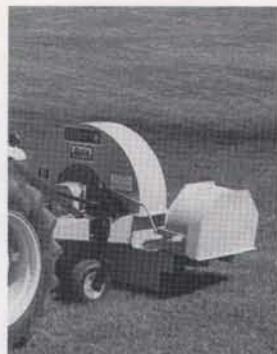




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Model 54HL Turf Sweeper

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# FALL FIELD CONDITIONS DEPEND ON YEAR-ROUND CARE

**T**he 1990 football season got off to a slippery start in the Northeast in August with nearly two solid weeks of rain. College and high school coaches held workouts indoors when possible, but between storms they put the durability of their practice fields to the test. By the end of the month, a lot of athletic directors and coaches were asking their groundskeepers what could be done to improve the condition of their fields.

A few inches of rain are often the spark that gets field improvements off the ground. That was the case at Port Washington High School in Port Washington, WI, and even at the mighty football powerhouse Auburn University in Auburn, AL. Today, both schools, despite vastly different budgets, have fields that reflect the success of their football programs.

The local newspaper led the cry for a better field at Port Washington High School in 1976. The Pirates were consistently ranked at the top of the Badgerland Conference. Local sportswriters could not understand why their stadium field was one of the worst.

The local park and recreation department, not the school district, owned and maintained the field. Years of football, band practice, and high school graduations had pounded the crown of the field into a flat, compacted sheet of Wisconsin clay. Water never reached the two drain tiles originally installed the length of the field.

No crown...no drainage...very little turf. Furthermore, the park department didn't have the equipment or the personnel to do anything but mow and occasionally run traveling sprinklers off quick coupler valves at the edge of the field.

Roy Zehren, a landscape contractor specializing in sports fields, lived near Port



Kentucky bluegrass stadium field, home of the Port Washington, WI, Pirates.

Washington. He knew there was a solution, but the school district and park department had to make the commitment. In 1974, Zehren's company, Natural Athletic Turf, Inc., had achieved some notoriety by building two Prescription Athletic Turf (PAT) fields in Wisconsin. John Demeritt, director of maintenance for the park district, recalled Zehren's name and contacted him regarding the stadium.

"The most the district could afford was to rebuild the center 80 feet to restore the crown," recalls Zehren. "We brought in four inches of sand and mixed it with the existing soil to create a six-inch high-sand profile. After restoring a 14-inch crown, the center was sodded with a mixture of Kentucky bluegrasses."

For the next ten years, the park department maintained the stadium according to Zehren's recommendations. These in-

cluded aerification and overseeding with a mixture of 75 percent Kentucky bluegrass and 25 percent perennial ryegrass, broad-leaf weed control, and three applications of fertilizer totaling four pounds of nitrogen per 1,000 square feet each year. All nitrogen is applied in slow-release form. The field became one of the best in the conference.

Finally, in 1987 the park department sold the stadium to the school district. At this point, the school district had to make a commitment to field maintenance to back up its investment in the stadium. The only maintenance performed on the district's six fields in 20 years had been mowing. Zehren explained that only a scheduled maintenance program could bring the fields back into condition.

"The problem was they didn't have the equipment or staff to do things right," he



states. "The president of the school board asked me to provide an estimate of what it would cost the school district to staff and equip an in-house maintenance program for ten years. He then asked for a bid to do the work on a contract basis."

A comparison of the two figures showed that since the district was basically starting from scratch, that it would spend \$50,000 more per year than Zehren would charge to perform the same maintenance. By using his services, the school district could save more than 60 percent! The district would have to spend nearly \$100,000 for equipment just to get started. "The numbers even surprised me," Zehren admits.

More than cost, the district wanted someone with a track record. Zehren built his first athletic field in 1954. He has since constructed and renovated numerous sports fields and golf course greens and tees in the state. He periodically performs work at Milwaukee County Stadium for head groundskeeper Harry Gill. He had been the advisor to the Port Washington Park District since 1976. Few contractors in the country have as much as experience with sports fields as Zehren.

Al Urness, the high school athletic director, saw an opportunity to have some of the best facilities in the conference. He helped convince the board to hire Natural Athletic Turf.

Zehren immediately submitted a clear outline of the work he planned for each field, along with the cost. Based on these figures, the school's field budget was balanced by setting priorities and phasing the work over a period of two years.

That first summer, five fields were renovated in a period of seven days. Major flaws such as low spots, bare areas in soccer goal mouths, and settled drain lines were cor-



Field at Auburn's Jordan Hare Stadium ready for televised game.

rected. After heavy aerification, the fields were topdressed with an 80:20 mixture of sand and reed sedge seed peat from Leisner's Soils, Inc., in Jackson, WI. Then a mixture of A-34, Adelphi, and Touchdown Kentucky bluegrasses with Manhattan II perennial ryegrass was sown. By September, there was a dramatic difference in the condition of the school district's fields.

In the past two years, Zehren has been upgrading the stadium and practice fields with a program of soil modification, including aeration and topdressing. Today, the sandy crown of the stadium field is back at its specified grade and a combination of winter dormant seeding and early summer overseeding has the turf in the center as dense as the sides.

The school district mows the field at 2-1/4 inches during the entire growing season. Beginning in late August, the cutting height of the stadium field is lowered to 1-3/4 inch. The soccer goal mouths are reseeded and mulched twice a year if necessary. "When the kids see the straw, they stay off the area," says Zehren. As the turf fills in, the mulch is chopped up by the mowers to provide additional protection during the season.

Zehren has recommended that the district install automatic irrigation on all the fields, starting with the stadium. "They are considering it," he adds. For now, traveling sprinklers attached to two quick coupler valves on each field are set up during summer dry spells.

"This is a small district with a limited budget," says Zehren. "but that doesn't

mean they can't have safe, quality playing fields. This year we were able to reduce the school's maintenance budget from the original projections. Since the fields are in better shape, they don't require as much weed control. Now we aerify twice instead of three times a year. We're watching the fields closely to see if they do as well on the low-maintenance schedule. Right now, they are some of the best fields in the state, and the Pirates haven't lost a single player to field-related injuries."

Such injuries are a major concern for Coach Pat Dye at Auburn University. Not only could they disrupt the longstanding rivalry between Auburn and the University of Alabama, but many of Auburn's players advance to careers in professional football. The condition of the university's fields plays a major role in recruiting top football scholars from across the country, because it could cut short a promising career in the National Football League. The school has already produced such stars as Fran Tarkenton, Bo Jackson, and Pat Sullivan.

Dye, who had served as assistant to Coach Paul "Bear" Bryant, came to Auburn in 1981 to build his own football dynasty. In his first season, Dye saw that the bermudagrass gridiron in massive Jordan Hare Stadium exposed his Tigers to progressively unreliable footing during autumn rains. As one of the most televised stadiums in the Southeastern Conference, Jordan Hare's field was viewed by millions of fans each year.

Many of the southern schools, including

*continued on page 14*



## Field Conditions

continued from page 13

Alabama, had switched to artificial turf rather than having to overseed in the fall. However, Dye is a strong believer in tradition and an avid golfer. He preferred to upgrade the natural turf at Auburn by utilizing the staff of experts in the university's department of agronomy and soils. It was a strong staff, consisting of Dr. Coleman Ward, Dr. Ray Dickens, and Dr. Pat Cobb.

To maintain control over the stadium and practice facilities, Dye wanted to create a staff of groundskeepers within the athletic department. He wanted someone who understood field construction so that many of the changes could be made with university staff. After a two-year search, he found his man, Paul Conner.

Conner was an engineer by training, but had moonlighted during his teaching career by renovating and maintaining golf courses. He had been one of the first people to overseed golf courses and athletic fields in Alabama with perennial ryegrasses in the late '60s.

"I had read about overseeding in a number of turf publications," recalls Conner. "One day I decided to go straight to the



Perforated drainpipe being installed at Jordan Hare Stadium.

horse's mouth...and called Dr. Howard Kaewer at Northrup King. He had pioneered the use of perennial ryegrasses in the South and Southwest. He convinced me to try overseeding on a few greens. I've been a big fan of perennial ryegrasses ever since."

By 1983, Conner had gained a reputa-

tion as a skilled innovator. "I was tired of teaching engineering and was looking for another challenge," he remarks. "I had met Coach Dye a number of times on the golf courses I maintained. He explained the conditions at Jordan Hare in detail. In 1982, the bermuda had been beat to a pulp.

"We talked about a few ideas. I guess he



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Midfield water cannon in action at Jordan Hare Stadium.

liked some of my ideas because he asked me to join his staff as assistant athletic director in charge of facilities. His timing couldn't have been better for me," Conner confides.

In seven years, he has renovated the stadium and practice fields, built a separate field just for the band, upgraded Plainsman Park baseball stadium, and constructed an air structure over a 50-yard AstroTurf field. Using a staff of seven and a large amount of donated equipment and materials, Conner has helped Auburn further strengthen its recruiting efforts and expanded its television coverage. "We have not had a career-ending injury on our fields," he boasts. "That makes me feel better than anything else."

Without equipment or staff, Conner took a series of slides and put together a presentation for the administration. Included in his report was a list of what he needed to renovate both the practice fields and the stadium. He put together a timetable for improvements to show the administration there would be no holdups. The project had to be a cooperative effort among the administration, the athletic department and the department of physical plant.

The 3-1/2 acres of practice fields had been constructed without a crown. The one in the stadium had also been damaged because the field was used for football and band rehearsals when the practice fields were muddy. The stadium was irrigated with traveling sprinklers attached to quick-coupler valves.

After the last spring practice in May 1984, Conner sprayed the bermuda in the stadium with Roundup. Two weeks later, he rented a sod cutter that attached to the back of a tractor. "We gave the sod away to fans and saved some for the practice fields," he recalls. "People really took an interest in renovating the field."

Jordan Hare field was surveyed. To avoid a ridge in the center, the subgrade was shaped with a 12-inch rise from the sidelines to the hashmarks. Then it rose another six inches between the hashmarks and a line down the center. "We contoured the subgrade to match the final surface," Conner points out. "Then three inches of sand were brought in and tilled into the top six inches of soil. We worked under the lights...sometimes until 2 a.m. Students watched from the dormitory windows and hardly ever complained."

In the meantime, Conner was busy installing the irrigation system. "Coach didn't want any sprinkler heads on the field," he explains, "so we designed a system with six large water cannons. There are only six heads, one in each corner, and two at midfield. They are fixed on permanent six-foot risers built into the fence around the field. We brought in a four-inch main and hooked it up to a 20 hp booster pump. The pump produces 85 psi static pressure with one head running at a time."

*continued on page 16*

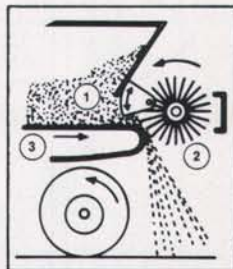
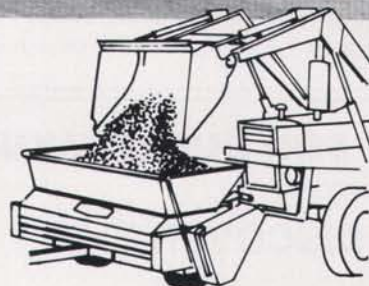
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## Field Conditions

continued from page 15

Conner included butterfly valves at each head, at the pump, and at undisclosed locations in the stadium. "We had to make the system fraternity-proof!" he jokes. "It's all manual, and we run one head at a time. The corners usually run for 20 minutes, and the center heads go for nearly 40 minutes."

With irrigation in place, the pH of the soil was corrected with lime. Starter fertilizer was applied. Southern Turf Nurseries then sprigged with Tifway. By the end of June, the field was solid, green bermudagrass.

As if that weren't enough to accomplish in one summer, Conner also had set his sights on rebuilding the three practice fields. He wanted to match the crown of the stadium field on the practice fields.

In a stair-step fashion, he renovated one field at a time. The topsoil was removed from the first field and stockpiled. A network of perforated drainpipe and irrigation lines was installed. The topsoil from the second field was moved to the first field and graded to the specified crown. The first field was fitted with Toro 640 heads and sprigged with Tifway. The second and third fields were rebuilt in this same sequence.



Hopper feeds sand into slits cut by VertiGroove machine.

When the Tigers returned that summer to practice, they stepped onto a dense bermudagrass carpet, lined to perfection. "It was quite something to look out the coach's window and see the fields," says Conner. "Coach Dye asked me to give tours of the facility to the students we were recruiting that summer. Now I give tours every year."

Since 1983, Conner has been able to give his tours in the late fall as well as the

summer. That was the year that he initiated a program of overseeding all athletic fields on campus. Beginning in late summer, he broadcasts perennial ryegrass (Caddy, Delray, and Pennfine) treated with Apron, a fungicide for control of Pythium. Pre-germinated seed is spread between games in the center of the stadium field, the bench areas, and where the cheerleaders stand. Depending upon the weather and whether the field is covered during storms, Conner

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will apply Subdue or Banol as an extra precaution against the disease.

Auburn is as proud of its band as it is of its team. The band had been forced to practice on the baseball outfield and in the stadium. Conner suggested that he could build a field, identical to the stadium field, for the musicians. In 1986, Conner and the band got their wish. He marks the new band field exactly like the game field. Students and fans walking around campus can now see as well as hear a preview of the band's upcoming halftime performance.

That year, Conner began to have more time to evaluate his maintenance program. He was religious about aerifying and keeping potassium levels up on the fields. However, he wanted to do more to protect the base of bermudagrass and preserve the drainage system.

Being an engineer, he was constantly adding equipment and retrofitting it to get the results he desired. He was able to acquire a large Turfco topdresser, a Jacobsen LF-100 reel mower, a Ryan GA-30 aerifier, a VertiGrove machine, a walk-behind wheel trencher, and a Mott flail mower with the help of Fletcher Yielding at Tieco, an Auburn grad. He has used this equipment to perform a wide assortment of tasks. Conner's gratitude extends further to Andy Sharpe at Sharpe Sand and Gravel for his help with materials.

Drainage was Conner's biggest concern. He watched as the infiltration rate declined slightly each year. Before it became a problem, he decided to install supplementary drainage in the stadium field. That summer he had his crew cut two-inch-wide, eight-inch-deep trenches every five feet across the width of the field. Small perforated drainpipe wrapped in fabric was placed in the bottom of the trenches and connected to trunk lines on both sides of the field. Then the trenches were backfilled with sand.

Next, Conner rigged up a hopper spreader on top of the VertiGroove to inject sand in half-inch-wide, six-inch-deep columns about one foot apart, lengthwise in the field. He used the topdresser to blend sand into the stand of bermuda. "Our drainage jumped back up to the point where we can take a two-inch rain before a game and still play on a dry surface," says Conner.

He has been able to perform the same magic on two of the practice fields. Each year the fields are topdressed with sand. Every other year Conner plans to inject new sand slits in the fields at a new angle across the length of the field. "You don't want to cut slits the same angle each time," he

***"Our drainage jumped back up to the point where we can take a two-inch rain before a game and still play on a dry surface."***

points out. "You need to alter the angle slightly, five degrees or more."

Conner uses every tool at his disposal. Geotextile fabrics are used for bench tarps during rainy games, and they serve as blankets for the turf during cold periods. "If the temperature drops down into the 20s, we put the blankets on overnight to keep the ryegrass growing and the bermuda from getting winterkilled. We didn't lose any bermuda last winter, even though a lot of golf courses in the area did."

A full set of tarps is kept for pregame

*continued on page 18*



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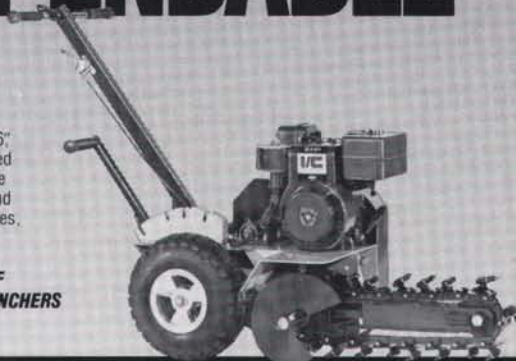
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## Field Conditions

continued from page 17

rains. The tarps from Covermaster have one light side and one dark. The light side is placed up early in the season, when temperatures are still high. The dark side is used to absorb heat late in the season.

After each game, the field is rolled to smooth out divots. Conner checks soil moisture with a probe before the game to make sure the field is on the "dry side." By keeping the field dry during games, topdressing, and aerifying, he avoids compaction problems.

He protects the bermudagrass through light verticutting, judicious irrigation, and applications of fungicides in the late spring and summer for brown patch. To avoid spring competition between the ryegrass and bermuda, he knocks the rye out with a half rate of Kerb, lowering the cutting height, and light verticutting. After aerifying in the spring, he applies Nematicur or Mocap to control nematodes. Weeds are eradicated as they appear with MSMA and Sencor.

This fall, Jordan Hare Stadium and the Auburn Tigers will be on television nine times. As the person responsible for the fields, Conner is proud of television cover-



Jordan Hare Stadium field covered with tarp, light side up.

age. However, he devotes an equal amount of time to the practice facilities. "Most injuries happen on the practice fields," he stresses.

"Recruits are impressed with the stadium when they walk into it for the first time," he concludes. "But it's the practice facilities that show them Auburn cares about their health, this season and for

seasons to come. That's why so many excellent football players want to attend Auburn instead of other schools. And that's why I get calls from other universities about the way we take care of our fields. Whether you take care of a university or a high school, you won't have a successful athletic program for long if you don't set a high priority on field conditions." ☺

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## WATER-USE PERMITS REQUIRED FOR GEORGIA GOLF COURSES

Many golf superintendents in Georgia who have failed to apply for agricultural water-use permits are putting their courses in jeopardy. Under the provisions of a new state law, a permit is required for all groundwater and surface water withdrawals of three million gallons per month or more for agricultural uses.

According to Tony Tyson, a University of Georgia Extension Service engineer, the use of the word "agricultural" in the water-use law has led to confusion and problems among golf course superintendents. "People involved with golf courses normally don't think of themselves as agricultural," he said.

"If they're watering fairways, even nine-hole golf courses would probably use that much water," Tyson explained. "If they water just the greens and tees, they probably wouldn't use enough water to require a permit, although some 18-hole courses might need a permit even then."

Permit applications are automatically approved for any golf course or other recreational turf area with a withdrawal system that was in place before July 1, 1988, as long as the applications are sent in by July

1, 1991 to the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources. The county extension office has applications and instructions on the permit law.

The only exceptions to the new law are in the Chattahoochee River watershed, upstream from Peachtree Creek in north Georgia, and groundwater withdrawals in Chatam, Effingham, Bryan, and Glynn counties on the Georgia coast. Recreational turf facilities in those areas are considered industrial users and require industrial water use permits.

In other areas, if a golf course pumps an average of 100,000 gallons of water per day in any month from any single source, the approximate amount required to water 14 acres at two inches per week, it must have an agricultural use permit, according to Tyson.

Certain very large athletic complexes may also need a permit. "There will be a few athletic complexes that require permits," Tyson said. "But it's primarily golf courses that will need a permit under this law."

EPD officials pointed out that applica-

tions should be sent in before the 1991 deadline. "It's to their advantage to get permits now," explained David Ashley, manager of the EPD Water Resources Program. "During this first phase we'll issue a permit for the full capacity of the system. But there's a chance the permit will be reduced after that. In some areas you may not get a permit for the maximum capacity of the system."

"The way the law is written, we're bound to do a more stringent review of the applications after the initial sign-up period," Ashley added.

## WATER CONSERVATION GROUP HOPES TO UNITE GOLF COURSE FACTIONS

Recent discussions between the Golf Course Water Conservation Group in San Diego, CA, and developers, governmental agencies, and environmental organizations are expected to result in increased cooperation between the groups. According to John Moore, vice president of the conserva-



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