

New Natural Turf of Iowa State's Jack Trice Field Captures College Gridiron of the Year Award

By Bob Tracinski

Jack Trice Field, the playing surface at Cyclone Stadium and the home of the Iowa State University Cyclones, was converted from artificial turf to a sand-based natural grass surface prior to the 1996 football season. By the end of the year, the field had earned both the praise of the media and STMA's 1996-1997 College Football Field of the Year honors.

Before the conversion, the existing artificial turf had reached the point of necessary replacement, and Athletic Director Gene Smith, Associate Athletic Director Elve Everage and football coach Dan McCarney felt natural grass was essential to strengthening the football program, especially as a recruiting tool.

Assembling the Pieces

For the position of athletic turf manager, Mike Andresen was hired and came on board April 12, 1996, bringing an extensive background. He graduated from Grand View Junior College in Des Moines, Iowa, with a major in health and recreation and holds an AAS in horticulture from the Des Moines Area Community College. After spending five years as a manager for a turf and landscape firm, Andresen, a former baseball player, was ready to get back to the playing

fields. He accepted a position at Sec Taylor Stadium, home of the Iowa Cubs, and soon moved up to head groundskeeper. He pulled that field through the 1993 "flood of the century" and earned the American Association Groundskeeper of the Year Award in both 1993 and 1995. The challenge of the multiple fields at ISU and the field conversion drew him to the ISU position.

At that point, the old field rug and underlying base had been removed.

Four-inch perforated drain pipes

were being installed in gravel-filled slits cut into the clay base on 15-foot centers in a herringbone pattern. This was covered with a 4-inch layer of gravel.

The irrigation system was installed at a 12-inch depth. It consists of Toro 640 series heads, a Vision controller and TRC remote controller.

A rootzone was created with a 12-inch base of 95 percent sand, 5 percent peat. A local sand source was used, with consistency ensured by pre- and post-mix batch testing.

Sod with an 84 percent sand-base



Popular with fans, players and the media, the new turf field at Jack Trice has proven better than its artificial predecessor. Photo courtesy: Chris Gannon.



Crew members prepare a post-game mix of pre-germinated seed, Turface, Milorganite and Subdue. Photo courtesy: Mike Andresen.

was secured from a growing field. It was "the best match to the rootzone we could find within a manageable distance," Andresen says. "We felt washed sod wasn't a workable option for a bluegrass football field. The debate was between needing the soil layer for stability and hurting the drainage capabilities by capping off the sand."

Having the sports turf manager on hand during the entire construction process allowed for vital input on decisions that affected post-construction maintenance and provided a hands-on understanding of the field's sub-surface components.

"We're fortunate," Andresen says, "because the architect's 'as-builts' are very accurate, but we also have photos of all steps of the construction process and our own set of notes to back them up. We put them to use even during the construction to repair an irrigation pipe break."

To avoid the extra stress of paint in the heavy-use zone of mid-field, Andresen sold the concept of end zone logos along with two logos centered on the 30-yard lines, one facing each stand.

"As a fan," he says, "I felt cheated when the field logo faced away from me. The new concept is more work. We installed in-ground field markers on the outside edge of the 3-foot border, 1-inch below grade for the measuring points."

Countdown to a Nightmare

With Iowa State's Troy Davis in the running for the Heisman Trophy, Media Day, the field's first official activity, drew a big crowd. Comments about the field were favorable, but as Andresen notes, no real test had taken place yet.

The football team scrimmaged on the field for 2 1/2 hours one week prior to the season opener. Coach McCarney then followed his standard pre-game routine, two hours of on-field practice on Thursday with a Friday on-field walk-through.

Dedication ceremonies for Jack Trice Field and the new Jacobson Athletic Building on September 7 put 450 student-athletes from all the university's sports programs out on the field, along with major donors to the athletic program, and the band — 900 people in all. The Wyoming game, televised on the Big 12 network, put the field in the spotlight that night.

"We applied a wetting agent prior to the Wyoming game to control dew," Andresen says, "and came out looking pretty good. We played Missouri for our second televised game. Rain the Tuesday, Wednesday and Thursday before the game was threatening, but the 378 rushing yards by Troy Davis proved the turf was fine."

Band activity is big at ISU. Each game day includes pre-game, half-time and post-game shows. The band practiced on the field twice in the pre-

Rug to Turf Maintenance

Pre-sod — application of Sand Aid at 4#/M (lbs./1,000 sq. ft.), 8-24-16 fertilizer at 12#/M, Pro-Mag at 9#/M and gypsum at 20#/M incorporated to a 4-inch depth.

May 4, 5 and 6 — sod laid.

May 7 — mowing with triplex reel mowers began and continued every other day until September 1, when daily mowing was initiated. Height of cut maintained at 1.75 inches through August; 1.5 inches after September 1.

May 7 — fungicide (Banner) began to be applied on 30-day cycles for summer patch preventative. Minor leaf spot disease treated with contact fungicide on May 15. No insecticides or herbicides were needed. The few broadleaf weeds that appeared were pulled by hand.

May 9 — root stimulator (Pana-Sea) applied, also on June 10 and July 8.

Turf seams were topdressed by hand during the early grow-in period. Irrigation heads were set to grade.

Fertilization began with lean fertility and irrigation programs to work the roots hard, forcing them to grow deeper for the elements applied before sodding (10 1/2 inches of rain in May did not help). From May through June, 0.5# N and K every 2 to 3 weeks. July to September, 0.5# of N and K every 7 to 10 days. Micro-nutrients added according to soil and tissue test results.

June 4 — field aerified to 1-inch depth. Cores collected. Broadcast seeded with blend of four aggressive, wear-tolerant bluegrasses at 3#/M between hash marks. Filled aeration holes and topdressed with 1/2-inch layer of rootzone mix.

July 11 — slice aerification program began to tighten the top 3 inches of root mass and stimulate rhizome activity. Sliced four separate times with noticeable results. By August 10, turf showed the desired tightness and stability, and had roots to the bottom of the sand profile.

August 29 — iron and Agri-Strep combination began to be applied every 14 days as color booster.

season and three times in-season. Three bands from visiting teams also performed on the field. Band Day, an

Post-Game Maintenance

Sweep field.

Fill divots by hand with mix of pre-germinated seed, sand and Milorganite — Subdue added if disease conditions exist.

Seed between hash marks with pre-germinated seed, Turface and Milorganite spread at a rate of 10 lbs./1,000 sq. ft.

Topdress with 1/8-inch layer of sand, then brush it in.

Aerify (solid-tine) the Sunday or Monday after a Saturday game.

annual event that draws top high school bands from across the state, put 2,000 musicians on the field for the morning practice and the performance, and included a show from the Texas A&M band.

As temperatures cooled toward the end of the season, Andresen incorporated perennial ryegrass into the field and sideline areas to supplement the bluegrass.

"We cut down on sideline wear with tarps," he notes, "using a thick Turf Armor product, with safety flaps on each of the long edges. The tarp is pinned and the front edge taped, pre-game."

Field performance was excellent. Then came the ultimate challenge: game day with Tom Osborne's University of Nebraska Big Red wrecking crew and rain, rain and more rain.

Osborne, whose teams have ranked consistently in the Top 10 due to the prowess of their running game, is one of artificial turf's strongest proponents. Media in Nebraska, Iowa and across the nation focused

on the new-turf and heavy-rain combination that might create "terrible" conditions, perhaps turning the field into a mud pit.

Concerns increased during a pre-game walk-through, when Andresen noted "a slight layer of water hanging up at the sod line." A pre-game topdressing of 750 pounds of Turface between the hash marks, made in the pouring rain, provided an extra 5-minute cushion, absorbing and holding the excess water so the field's excellent infiltration and percolation rates could hold their own against the driving rains.

"So the nightmare that could have been was not to be," says Andresen. "Davis ran for 138 yards, a Nebraska player racked up 214 rushing yards, and even Coach Osborne registered no complaints about the field."


Actually, the field required only the normal divot repair and standard post-game maintenance procedures.

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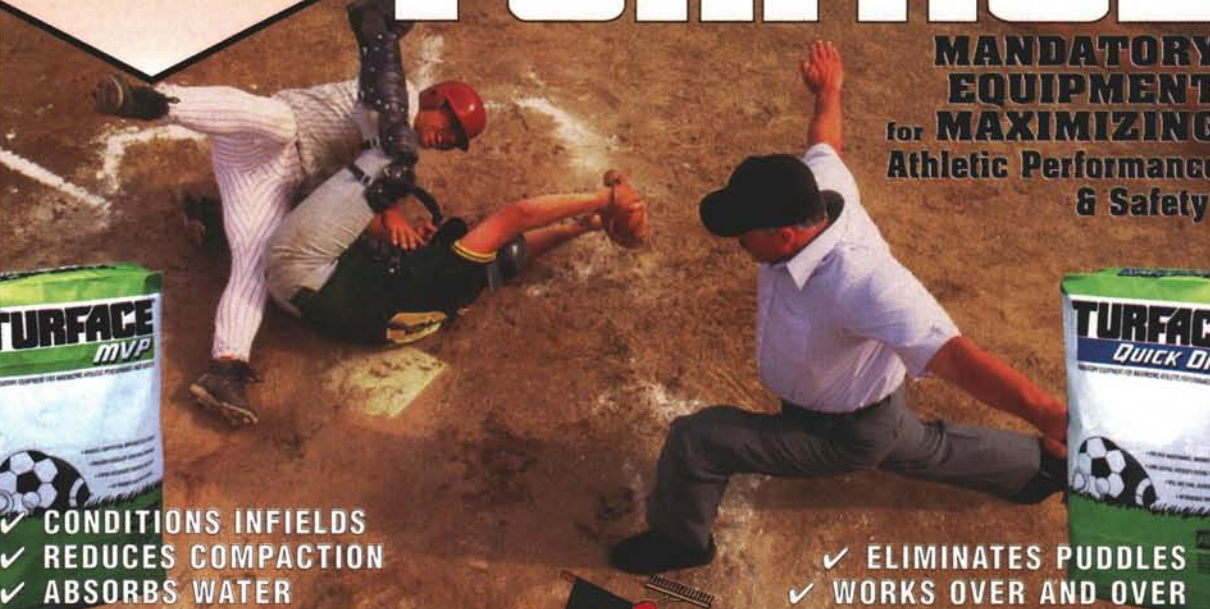
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Field of the Year

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Continuing Tests

Winter moved in early, and the field was freezing tight just as the season ended. Coach McCarney held one more on-field practice. Prior to freeze-up, crews aerified, topdressed with a 1/3-inch layer of rootzone mix and applied a dormant seeding of a bluegrass blend and a fungicide preventive for snow mold. Then they tarped the field for winter.

When the tarp was removed in mid-March of 1997, winter had wiped out most of the perennial ryegrass, but the existing bluegrasses were in good shape, and the dormant seeding was taking hold. With cool weather prevailing, turf growth was slow — the field required mowing only twice prior to the April 16 spring game.

Spring core aerification was made in one direction at 2 1/2-inch spacing. Andresen collected the cores, and continues to do so, to guard against contamination by any soil residue from the



Since washed sod wasn't deemed a workable option for a bluegrass football field, sod with an 84 percent sand-base was secured for Jack Trice. Photo courtesy: Mike Andresen.

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To avoid paint in the high-stress area of mid-field, logos are restricted to the margins of the field.

sod. Another core aerification, along with seeding and topdressing, was performed in mid-May. Deep aerification with 1-inch tines to an 8-inch depth followed to break up any sub-surface compaction.

Protecting the new turf of Jack Trice Field put extra stress on the practice field. Prior to the conversion, many practices were held on the artificial-turf game field. Besides the increased wear, the low-lying practice field was flooded five times during heavy rains in 1996.

"Development of a new practice field is now under way," says Andresen. "The existing native soil was removed and will be replaced with a 10-inch sand rootzone. The new layout also will give us the option of creating two 70-yard fields parallel to and overlying the standard field configuration, so we can spread the wear."

As at all Division I schools, football is just one of many sports, and crews must spread the workload so no field is slighted. ISU has the only dedicated cross-country course in the Big 12 and has hosted national and conference championships.

All fields get a workout. For example, 1,200 youngsters converge at ISU each June for a football passing camp. Twenty-five 60-yard fields are set up

to handle the weekend competition that culminates with three championship games.

"Jack Trice Field is the site for all three championship games," notes Andresen. "It's great to see the attitude of the young athletes when they come out on the field. And catching the attention of these potential college players is part of our job, too. The field plays a public relations role as a symbol of the status of the school."

Topnotch Resources

For the success Jack Trice Field has enjoyed so far, Andresen is quick to credit the consulting team. Dr. Norm Hummel served as a consultant throughout the construction process. Dr. David Minner and Dr. Nick Christians, both of the topnotch ISU Turfgrass and Horticulture Department, have been involved since the conversion idea took shape. John Newton, golf course superintendent of ISU's Veenker Memorial Golf Course, provides expertise in the day-to-day management of sand-based turf and also shares equipment.

A member of STMA, Andresen taps into the resource of other STMA members, too. He especially notes the assistance in sand-based turf management from Jesse Cuevas of Rosenblatt Stadium in Omaha, Neb., and the

snow removal techniques picked up from Ross Kurcab and Troy Smith of the Denver Broncos practice facility.

His "home team" consultants — wife, Kim; son, Mark, 13; and daughter, Kristen, 11 — have some experience themselves, from Sec Taylor workouts, and all three still help out at that stadium.

Andresen also notes the continuing dedication of the excellent staff. The expertise of Dale Roe, sports turf manager, has been invaluable, especially in areas such as field painting, in which Andresen's baseball background gave him limited prior experience. Andresen also gives special praise to Dick Doyle, stadium systems analyst, who handles maintenance of ventilation, electrical, plumbing, security and irrigation systems, and mows when his schedule allows.

"We have the best crew members anywhere, with one or two interns and three to eight part-time employees from the ISU turfgrass program, who really understand turf and the work ethic," Andresen says. "The hands-on experience gives them sports turf as another career option, and I hope those looking for employees will take that into consideration."

"Because of the internship program, we're in a constant state of training, but having students who already have a sports turf interest makes that training more of a fine-tuning."

Developing Relationship

"The honeymoon continues as we develop our relationship with the new field," says Andresen. "We're very aware of the challenges others have faced with sand-based fields and are constantly on the lookout for problems and continue to confer with other STMA members and our consulting team."

"This field conversion was a major step for ISU, but we're convinced it was the right one. Prior to the 1996 season, the media had decided that if Troy Davis didn't gain his 2,000 yards it would be the fault of the natural turf field. But the field held up — and Davis surpassed his goal. It's our job to keep this field in top shape for ISU, the Athletic Department — especially the coaches and players — and for the public perception of natural turf fields." □

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