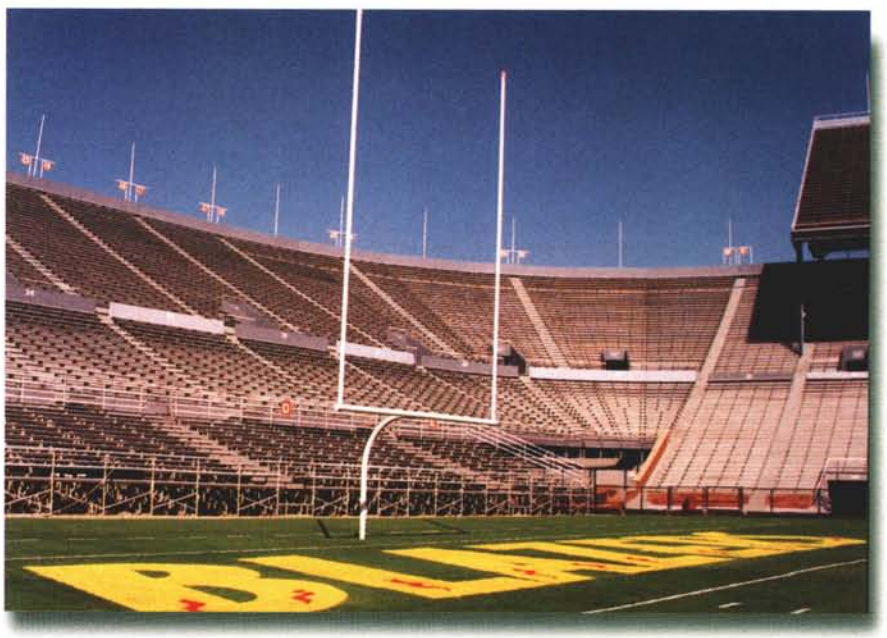
Legion Field Stars as STMA 1999 Football Field of the Year in the College Division

by Bob Tracinski

Legion Field was a star in the City of Birmingham, Alabama, when it was built in 1927 in honor of the American Legion, as a memorial to U.S. Armed Forces members who gave their lives in service. Legion Field also starred in the 1996 Summer Olympics when it served as one of four soccer venues. And it's a star now, as the STMA 1999 Football Field of the Year in the College/University division.



Legion Field, in Birmingham, Ala., is a city-owned facility with a seating capacity of 80,673.

Legion Field is a city-owned facility that has been expanded and renovated several times over the years to its current seating capacity of 80,673. Three city departments play a role in its management. The Park and Recreation Board schedules and oversees events; the Street and Sanitation Department provides cleaning and maintenance crews; and the Department of Horticulture and Urban Forestry provides all the technical staff and crew personnel for maintenance of the playing field, the surrounding turf and the landscaping outside the stadium.

Former STMA President Steve Guise (left), presents the Field of the Year Award to James E. Horton Jr., deputy director of the department of horticulture and urban foresty.

As Deputy Director of the Department of Horticulture and Urban Forestry, one of James E. Horton, Jr.'s duties is management of Legion Field's turf and landscape. Because "good enough" is not in his vocabulary, perfection is always the goal. His annual management plan includes three improvements to make the program better. These improvements were never more evident than in the 1999 field renovation.

The original Legion Field hosted hundreds of football games on its native soil and natural turfgrass. As field use increased, artificial turf was installed in 1970 and remained on the field until 1995. Then a major renovation was undertaken for the Olympic games.

Horton says, "The football field was expanded to 2.7 acres to accommodate soccer. The artificial turf materials

Shallow root development resulted in repairs being needed from 1995 to 1998 Courtesy: Legion Field

and soil profile were removed. A Power Drain system was installed, as was a Big Gun irrigation system. This was topped with a 12-inch base of USGA approved sand covered with a 4-inch layer of 80 percent sand and 20 percent Canadian sphagnum peat. To achieve this surface layer, pure peat was spread over the sand layer and tilled into a 4-inch depth. The turf was Tifway 419 bermudagrass.

"While the return to natural turf was welcomed by most, especially the athletes, the field was not without problems. Each year, from 1995 to 1998, we made field repairs that were attributed to the layered profile. It caused shallow root development, poor gas exchange, slow water infiltration and percolation, and higher than desired water retention at field capacity. Rapidly changing winter conditions and temperatures, combined with heavy field use on the shallow-rooted turf, contributed to poor turf density during spring green-up. The problem literally grew worse as roots developed and decayed in the top layer of the profile despite aerification. By the end of the '98 season, we sought funding for removal of the problematic 4-inch organic layer."

Dr. Coleman Ward of Ultimate Turf served as consultant for the renovation. From January through March of 1999, Horton and Ward wrote and revised the specifications for the new sand-based root zone mix tailored to meet specific water percolation and retention rates. They worked with Dr. Powell Gaines of Tifton Physical Soil Testing Laboratory to test sands and sand-peat blends to match their criterion.

Horton says, "We decided on a blend of 90 percent sand matching that of our existing 12-inch sand layer and 10 percent Dakota Reed Sedge Peat. Ideally our profile would meet this 90:10 blend. However, we could not financially afford to start over by removing the entire profile. We decided to take the next best option. The materials would be blended off-site, with the specifications actually heavier in peat. Following the removal of the existing sod and 4-inch top layer, the 12-inch sand base was laser graded. The new blend was hauled in, spread over the field, laser-graded, and then tilled

into the sand base to a 7- to 8-inch depth. This brought some of the existing sand into the new material, giving us a 90:10 blend with the percentage of peat gradually diminishing until it becomes pure sand at the base of the profile. So, while we do have some variation within the profile, top to bottom, it's a gradual change rather than a distinct layer. This method was determined to be our best solution without total removal and replacement of the entire existing sand profile."

Bids for the project were solicited with an opening date of April 21, 1999. The target completion date was June 1, 1999, with the first game scheduled for September 5, 1999. Southern Turf Nurseries was awarded the bid.

Dr. Coleman Ward served as a consultant during the field's recent renovation

"Once the project began, it proceeded without problems," says Horton. "After the new blended material was tilled, the field was then fumigated with methyl bromide to eliminate any pathogens, nematodes, weed seed, insects and any remaining Tifway 419. Following the final laser grading, the field was sprigged with certified Tif-Sport bermudagrass. Due to a delayed starting date of May 25, 1999, the work wasn't completed until June 18, 1999. The field was turned over to our department at that point to manage the grow-in. Our first game was just 79 days away."

Prior to the renovation, Horton's staff had modified the irrigation system, installing ball valves between the existing gate valves and the Big Guns to facilitate their use. There are six of these units, one oriented in all four corners of the field and one at each side of the field at the 50-yard line. All are removed for games and other on-field events. With irrigation nozzles similar to water cannons, each unit can deliver 380 gallons of water per minute with a 205 foot radius. Two units can be operated at one time with only a slight loss of performance. To open or close the gate valves required from 19 to 20 turns of a valve key, each turn taking approximately a second. Opening or closing the ball valves cuts the time to approximately 2 seconds, making the job easier, faster and keeping the operator drier. This one of the trio of improvements for 1999 was much appreciated during the multiple irrigation cycles necessary for establishment of the sprigs.

Horton says, "During the grow-in process, we found that Tif-Sport was slower to establish, and slower to close and knit together than our 419 had been, despite our aggressive fertilization and a total maintenance program fine-tuned to sprig development and weather conditions. But it really took hold in late July and by mid-August matched our expectations. The field was not only in great shape for that first game, it performed well for the heavy schedule that followed within the first 35 day span—which included six college and two high school games, 10 team practices and one band competition—and for the remainder of the season."

That "remainder of the season" included four college and six high

school state championship football games, six park league championship football games and one band competition, and didn't wrap up until Dec. 11, 1999. Horton avoided overseeding to better gauge the TifSport's performance and the weather cooperated with a milder than usual winter. Wear developed in the traditional places: between the hash marks, from the 20 yard line to the 20 yard line, along the sidelines and at the field entry points. Field paint was used to add color for the last few games.

"The turf didn't want to go dormant," notes Horton. "Some natural green turf remained even after the football season ended despite several heavy frosts. We all thought the field would lie idle until spring, but then, the Alabama Sports Foundation landed a premium event for Birmingham, a US Soccer Federation International Friendly game between the US Men's National Team and Tunisia. We were notified in late January of 2000 that it would be played on Legion Field. To comply with the no visible logo request from the US Soccer Federation, we overseeded the field with a perennial ryegrass blend in February.

"That gave us just 45 days to get the grass up and growing. We used our greenhouse range to pre-germinate 2,500 pounds of seed for application on Feb.7. After two weeks, we then added another 300 pounds of pregerminated seed in the heavy paint and high traffic areas and moved to in-season maintenance levels. The field was star quality for the soccer match on March 12th."

Horton offered Dr. Ward and Dr. Harold Walker of Auburn the use of the field as a test plot for chemically removing the perennial ryegrass this past spring. He adds, "Several products made a good showing, with Manor the most impressive of those currently on the market. As temperatures rose, field green-up was excellent. Dr. Ward's inspection by cup cutter revealed strong roots 6- to 8-inches deep with good stolon and rhizome development."

The third improvement made during the 1999 season involved an equipment up-grade. We were able to purchase a new boom sprayer similar to the one we already had but with a major improvement. This one had a diaphragm pump instead of a centrifugal pump. As most turf managers have learned, turf paints cause the seals of centrifugal pumps to leak. The diaphragm pumps operate

Renovations in 1999 created a 90 percent sand base that increased infiltration and perculation rates and eliminated the 4-inch organic layer.

without problems with all paints, fertilizers and pesticides.

Horton has worked with Field Supervisor, Donna Kent, on development of an aggressive and comprehensive field management program over the last four years. He credits her daily attention to detail and the dedication she and the crew consistently focus on the field for its success. "I couldn't do it without her," he says. "She has incredible intuitive instincts concerning turf." He also credits the cooperation and support of the City Administration and of the other two City Departments, Parks and Recreation and Street and Sanitation and their staff. Lastly, he appreciates all fellow employees of Horticulture and Urban Forestry for their help during the year, and for putting up with him during the football season.

Horton facilitates cooperation by supplying the departments with a daily schedule of field maintenance at the beginning of each week so they know when mowing, fertilizing, spraying and irrigation will take place. He also communicates adjustments in the schedule to adapt to changing weather conditions.

He says, "With the sand-based field, the Legion Field staff takes both soil and tissue tests at the same time every four weeks during the growing season and every six weeks in the winter. The results can change rapidly, with the soil test usually indicating the turfgrass is starving while the tissue test proves otherwise. The tests are compared to fine tune our fertilization program.

The Maintenance Program

*** Mowing:**

March - May: 3/4 inch or less, as needed

June: 1 inch, every other day

July-August: 1 inch, daily or every other day, depending on growth

September - December: 1 inch, as needed

January - April: to be determined by XFL team needs

*** Aeration:**

Total field: 5 to 7 times per year (3-4 hollow core/2-3 solid tine)

Cores always removed in logo-painted areas

Remaining cores removed 1/2 time, dragged into profile 1/2 time

*** Topdressing:**

Up to 4 times per year, following core aeration, with sand/peat mix matching soil profile, or with matching pure sand

*** Nutrient Applications:**

(All based on soil and tissue test results, usually 4-1-2 ratio warm season and 2-1-4 ratio cool season)

Granular fertilizer at the rate of 1/2 to 1 pound of N per 1,000 square feet per week depending on seasonal demands

Granular formulas used include: 10-20-10, 5-10-31, 13-13-13, 34-0-0, 13-0-44, K-Mag, SC 34-0-0, poly coated 0-0-52, poly coated 45-0-0, and Milorganite

Gypsum applied as needed

Liquid applications include: 28-8-18, chelated ClawEl magnesium, Ferromec A.C., and Sol-U-Bar

Pelletized lime is applied to maintain pH at or near 6.5, at least 4 times per year

*** Pest Control:**

Field is evaluated daily for insect or disease activity and treated following IPM methods

Ronstar applied each spring at sprigging

TurfShield for Dollar Spot and Brown Patch in late spring

Merit for insect control applied in May

Subdue for damping off control applied at time of overseeding

Chemical removal of overseeded perennial ryegrass with Manor or Kerb as early in season as field use allows

*** Post game:**

Immediately after game:

Divot replacement

Irrigation

Immediately after game, or following morning:

Field clean up

Divot replacement

Mowing

Fertilization

Painting for Saturday event on Wednesday or Thursday, depending on weather

*** Other:**

Field covered with winter blanket when temperatures drop below 25 degrees F more than 6 hours

Sideline and gate areas tarped for every game with Enkamat placed under tarp

Terraplas specified for every non-game function (i.e. concerts and band competitions) on any area of field used

Logo painting changeovers as required for each game, as many as six different end zones painted per season

*** Improvements Scheduled for 2000 Maintenance Program:**

Improvements in paint application methods

Improvements in field cover methods

Experimentation with new chemicals for any needed applications

Usually, potassium, boron, manganese and magnesium levels are low in the soil, but in the sufficient range in the tissue. Iron, sulphur and phosphorus usually test in the medium range in the soil tests. However, we're keeping all nutrient levels between the sufficient and optimal ranges in the tissue.

"Slow release N and K are used trying to get a sustained baseline hoping to avoid the peaks and valleys of fertilizer release and leaching. Supplemental applications of ammonium nitrate, urea, potash and other nutrients are necessary to maintain adequate nutritional levels. We'll often use liquid fertilizer and iron on the Thursday before a Saturday game to enhance the field color and the contrast of the mowing pattern because the boost generally shows in the turf about three days after application."

While some college level football games have moved away from Legion Field, the 2000 season is still packed with ten college games, nine high school games, and one band competition. And, beginning a new era of Legion Field football tradition, the Birmingham XFL Thunderbolts start their first season of play in February of 2001, proving once again that star quality has staying power.

The XFL will come to Legion Field in 2001, as the field will host the home games of the Birmingham Thunderbolts.

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