How one small college maintains high-performing natural turf fields

Editor's note: *This article was written by a principal of DryJect, Inc.*

WITH A GROWING LEVEL OF INTEREST in synthetic turf fields, colleges and high schools must weigh the costs with the benefits. Synthetic turf fields have a place, to be sure, where multiple events are planned on one field. Excessive use would damage natural grass to the point of non-survival. While synthetic fields can host hundreds of events with minimum maintenance, the initial investment puts them out of reach for many small colleges and high schools.

Everyone from the athletic director to the team mascot has a stake in a sports field that performs well, especially in adverse conditions. Community and alumni pride, recruitment appeal and player safety are just some of the reasons driving technical and soil science advances in improving natural grass playing fields.

Lebanon Valley College (LVC) in Annville, PA enrolls nearly 1,800 students, and has a full array of practice, intramural and event playing fields. Kevin Yeiser is the sports turf manager at LVC, but sees himself as something as a newcomer when it comes to the playing surface at Arnold Field, home of LVC football, lacrosse and track and field. Yeiser and LVC received the 2009 Pioneer Athletics Field of Excellence Award in recognition for its care of Arnold Field. Winners are selected based on the high quality of athletic field upkeep.

When Arnold Field was built in the mid 1980s, the contractor used drainage techniques used for decades by farmers in the fields on the low lying valley, where the water table is high, and where drainage can be a problem in rainy seasons.

Terracotta clay tiles shaped like a "U" were laid in overlapping fashion in a line and buried 18 inches deep on 8-foot centers. Fully buried in the soil, the tiles form a low-pressure channel that helps to draw water down and away from the field.

Dr. David Minner, from Iowa State's Department of Horticulture, and a well-known sports turf authority, suggested to Yeiser that the clay drainage tiles theoretically help drain away the subsurface water table as well as any moisture penetrating the field's soil profile to that depth.

In spite of that novel drainage system, extreme conditions would pose a true test of the natural grass field.

"In 2009 we had back-to-back football games. It rained during the first game and the turf got saturated. Then before the next game the following week we had another 2 to 3 inches of rain. The turf was flying like pieces of carpet, there were puddles everywhere, and the players were standing in mud. Not good," said Yeiser.

Yeiser and his small crew follow a good aeration routine, using ¾-inch tines to aerate at the end of the football season in November or December, then again after lacrosse season in the spring, with a light aeration at the end of the summer.

"Following the 2009 season we tried something different," said Yeiser. "We contracted the DryJect service to come in and inject Profile porous ceramic over the whole field at Arnold Stadium. We had tested this technique in the lacrosse goal creases and it seemed to produce a good result. The resulting surface was firmer and withstood the heavy traffic better."

» **BACK ROW:** Kevin Yeiser, Keith Evans, Chris Tshudy
FRONT ROW: Cory Kauffman, Ryan Schmidt

In the fall of 2009 LVC used the DryJect and Profile porous ceramic technique on the entire field at Arnold Stadium.

The DryJect machine "shoots" a blast of water and air under high pressure into the soil surface, immediately reducing compaction in the soil. The half-inch holes form a grid pattern 3 inches apart across the entire field.

The high-pressure blast creates a vacuum behind it that draws in dry material, filling the blast hole to the top with the soil amendment. The DryJect hole can reach up to 4 or 5 inches deep, depending on soil conditions. The amendment fills the hole to improve surface drainage, while keeping the surface firm.

"The treatment definitely helped our field drainage," Yeiser said. "On March 13, 2010 we had two lacrosse games back-to-back in the middle of a terrible rainstorm, more than 2 inches. There was no mud on the player's shoes, the footing was firm and the turf needed only a minimum of repair after those two hard-fought games.

"To me it's a pretty good test of how well the technique works. Before the treatment a 2-inch rain gave us mud and torn up turf. After the treatment, a 2-inch rain gave the players a chance to play their best with good footing. There simply was no mud to be seen on the playing field that day. That's proof enough for me," Yeiser said.

Even for schools with synthetic turf on their main field, practice and intramural fields are often in need of improved drainage. Because of the ongoing wear and tear on grass fields, experts say that the aeration and soil amendment technique is most effective when used as a routine part of the ongoing sports field maintenance program. ■

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