



Converting a field from Kentucky bluegrass to hybrid bermudagrass

» A NEW CAMBRIDGE DRAINAGE SYSTEM was installed before the inter-sprigging of the bermudagrass into the bluegrass playing surface. One-inch perforated drain tiles were installed on 10-foot centers across the entire field and then backfilled with gravel and sand.

» Inset Image: THE KENTUCKY BLUEGRASS playing surface of Thompson Field at Virginia Tech in Fall 2008.

STRESSFUL, TIME CONSUMING, PROBLEMATIC, EDUCATIONAL, EXPENSIVE...from a sports field manager's position, these are all words that can be associated with the process of renovating an athletic field. A renovation might encompass anything from a simple re-sodding to the complete reconstruction of a field from the ground up, but the end result is hopefully an enhancement of the safety and playability of a field.

During Spring 2009, the Virginia Tech athletic department initiated a unique renovation project of their competition soccer field. Thompson Field is home to the Hokie men's and women's soccer teams in the fall, as well as the women's lacrosse team

during the spring. It was originally completed in Fall 2003 as a native soil, Kentucky bluegrass playing surface with a sand-slit (Cambridge) drainage system to enhance water removal from the field. One inch perforated drain tiles were installed in the sand slits on 10-foot centers across the entire playing surface along with an in-ground Toro irrigation system.

When I arrived at Virginia Tech in Fall 2007, I was fortunate enough to be entrusted with the management of the soccer facilities. I quickly learned the difficulties of managing a field for multiple teams and the high expectations of the coaches for their field. While the coaches were always satisfied with the playing surface, I was always under constant pressure to increase the

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speed (and therefore decrease the mowing height) of the field.

Eventually, we reached a point where we felt we could no longer decrease the mowing height and ensure the safety of the field so we began “planting” the idea for a possible renovation of the field surface to bermudagrass. By switching we felt we could provide a more dense, uniform, and faster playing surface than what we had on the original bluegrass field.

Unfortunately, while the suggestion was welcomed by the coaching staffs, there were limited financial resources available to allow for stripping the old and installing the new. For this reason, we continued to play on the Kentucky bluegrass surface, but continually kept the idea of a field conversion alive by discussing it with our coaches and administrators.

TIME TO ACT

During Fall 2008, I began to notice some drainage issues with the field in the fact that it became spongy and remained wet for days after a rain event. At one point a game had to be cancelled due to unsafe playing conditions 2 days after a half-inch rainfall event. This caught the attention of our administrators. While the financial situation hadn't really changed, we had reached a point where definite action had to be taken on the drainage system.

We began to make plans to install a new Cambridge drainage system into the field following the completion of the spring lacrosse season. Knowing that we would have a fair amount of field disruptions with the new drainage trenches, but that we still could not afford a complete re-sodding of the field from bluegrass to

bermudagrass, I began to explore other options. Through my work as a graduate student with Dr. Mike Goatley, I learned of a process of converting a cool-season athletic field into bermudagrass by sprigging directly into the existing playing surface. Dr. Goatley had conducted several successful research trials and had been involved with similar conversions at other schools.

After multiple questioning sessions with Dr. Goatley about the process, I began presenting the idea to my supervisor to be presented to the athletic department administration. The biggest selling point of this approach was that by using sprigs instead of sod, the overall cost of resurfacing the field could be drastically reduced. In order to fully educate and prepare our coaches for the process, Dr. Goatley was brought in for a meeting to present them with the process and answer their questions.

PLAY MUST GO ON

The primary difference between our renovation plan and the previous successful conversions at other schools was that we had to take a 2-year approach as the field would still be used for the fall playing season instead of being allowed to develop and mature for a year without any activity. The upfront education process for our coaches and administrators was the key to the success of this project. By explaining to them what would happen and preparing them for how the field would look, there were no surprises or unmet expectations throughout the renovation process.

The coaches' primary concern was that the field would still play consistent and true during the conversion process and the aesthetics

» **THE CUSTOM SPRIGGING MACHINE** used by Carolina Green in action. The Patriot bermudagrass was inter-sprigged into the existing bluegrass at the approximate rate of 800 bushels per acre.





>> **Above: THIS PHOTO** was taken 1 month after initial sprigging and shows a close-up of some bermudagrass patches growing within the Kentucky bluegrass.



>> **Above: TWO MONTHS** after sprigging, at the beginning of the fall playing season. Notice that the drainage lines are completely covered with bermudagrass and are still distinguishable. Other than looking a little odd aesthetically, the field functioned very well as a two grass system during the first year. The field was successfully converted to 100% bermudagrass the following summer.

in between were of little consequence to them. When asked by the coaches and administrators what might happen in a worst-case scenario for the bermudagrass conversion (i.e. a cool Blacksburg summer where bermudagrass would not thrive), Dr. Goatley told the group that field safety and playability would not be compromised by the introduction of the bermudagrass sprigs into the bluegrass sod, but that the playing surface might look a little strange as cooler

temperatures arrive and the bermudagrass entered dormancy.

As mentioned, this renovation was undertaken with the intention of it hopefully being a 1-year conversion, but realizing that it likely would be a 2-year process in our climate. Following the conclusion of the women's lacrosse season in late April, we began making preparations for the conversion from Kentucky bluegrass to bermudagrass, which would begin in late May/early June which is the most appropriate time to sprig bermudagrass in the Blacksburg climate.

The mowing height of the bluegrass was lowered to $\frac{3}{4}$ of an inch and a one and a half times label rate of Primo (Trinexapac ethyl) was applied 1 week before sprigging to slow the growth of the Kentucky bluegrass.

Contractor Carolina Green arrived during the first week of June and installed new 1-inch drainage lines on 10-foot centers across the entire field, backfilled with gravel and sand to the surface, and then sprigged Patriot bermudagrass directly into the existing bluegrass stand at the approximate rate of 800 bushels per acre. Patriot was selected for its cold hardiness and because of previous success on the Virginia Tech football field.

Following the inter-sprigging, the entire field was topdressed with $\frac{1}{4}$ - $\frac{1}{2}$ inch of the same sand used to fill the drainage trenches. Additional bermudagrass sprigs were placed over the drainage trenches by hand in an effort to improve the establishment and fill-in rate of the bermudagrass. Finally, to complete the installation process, we set an irrigation schedule to ensure that the sprigs remained moist for the first 7-10 days; watering frequency and amounts were then scaled back to a more typical maintenance irrigation schedule.

Mowing was reconvened at $\frac{3}{4}$ -inch on the field approximately 2-3 weeks after the sprigs were installed and continued throughout the rest of the year in order to provide the bermudagrass a competitive growing advantage but still allow the bluegrass to survive for playability. The fertility program was adjusted to resemble a typical warm-season nutrient program except for the fall when it was treated very similar to an overseeded situation.

Summer 2009 turned out to be one of the coolest, wettest summers on record in the Blacksburg area and the bermudagrass didn't spread as aggressively as had previously been shown in research trials at the Virginia Tech campus, and the Kentucky bluegrass continued to thrive even at the $\frac{3}{4}$ -inch mowing height. At the conclusion of 2009, the field was between 30-40% bermudagrass and had a

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unique two grass appearance to it. While the field maintenance crew and administration did receive a fair amount of questioning regarding the appearance of the field, the first year was considered a relative success given the weather.

During the winter months, we covered the field with protective growth tarps and managed in the same fashion in the spring as it was in the fall. Following the women's lacrosse season in April 2010, we fully committed to the bermudagrass establishment and sprayed the entire field with Monument (Trifloxysulfuron-sodium) in an effort to kill off the Kentucky bluegrass and provide the bermudagrass with a competitive advantage. Due to the lower than expected bermudagrass stand, we sprigged an additional 300-400 bushels per acre of Patriot into the field in order to speed up the conversion process.

The mowing height was adjusted to 1/2-inch and we focused the fertility and irrigation programs solely on growing and developing the bermudagrass. Revolver herbicide (Foramsulfuron) was applied a month after sprigging to control any rogue bluegrass plants. Fortunately, Summer 2010 was one of the warmest on record in the Blacksburg area and the bermudagrass thrived. At the start of the fall soccer season in August 2010, we had 100% bermudagrass coverage and our coaches, players, and administrators were thrilled with the results.

This renovation process was a very challenging and educational experience. While it might not fit the needs of all facilities, it does provide an affordable alternative to completely resurfacing a field and the strategy has been used successfully in what turned out to be essentially "single season" conversions for fields at Bridgewater College (Bridgewater, VA) and the University of Louisville. Not only did we deliver a cost effective renovation process that has reduced our annual maintenance costs (seed, herbicide, and fungicide), but we improved the speed and quality of our playing surface without removing the field for use for weeks/months at a time. ■

Nick McKenna, CSFM is sports turf manager for the Virginia Tech Athletics Department.

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