DURABLE SOD FOR IN-SEASON REPLACEMENT

As I write this article, we are in the middle of NFL playoff season, my favorite time of the year. Not so much because of all the quality play and intense rivalries unfolding on the gridiron, but more to check out how the fields are holding up in the middle of winter, and at the end of a long, extended season. Yes I know, words of a true "turf rotor head." During the replays, I am checking out what type of traction the sod provided while everyone else is looking to see if the players' feet were in bounds.

Being in the sports turf industry for more than 20 years, I can begin to appreciate some of the many challenges the professional sports field managers face. We all naturally look to the pro groundskeepers for ideas on what's new, what's proven, and what's possible. We have seen the evolution of many products and practices at the professional level that eventually trickle down to college and amateur sports.

▼ **Sod grown** on plastic by Carolina Green Corp.'s sod farm in North Carolina.

The damaged stadium field was replaced following the concert and ready for immediate play (to view time-lapse video of field replacement log into *http://www.cgcfields.com/CarolinaGreenWebcam.asp* and click on UVA Stadium Turf Replacement).

One area of advancement has been with in-season sod replacement. We see it on almost every natural grass NFL playoff game and college bowl game field this year. Either down the center of the field, or often the entire surface is replaced in a matter of a couple days with 1.5-2-inch thick sod that can withstand immediate play. Some replacements may look better than others, and field managers are great at masking the transitions, but all replacements have the same intent. Provide sure and consistent footing under a wide range of weather conditions. Sounds easy enough, especially with an NFL or bowl game budget, but what about for your high school field? Well, the industry trickle down is happening and here is the story.

THE HISTORY

The invention of big roll sod harvesters in 1991 was a big step in being able to provide thick, stable sod from farm to field. Slab and small roll versions were available before then, but a 42-inch or larger width roll really helped reduce the number of seams and allowed a more mechanized installation. Some of the problems include finding a good sod source and a farm willing to harvest thick cut. It is hard to convince a sod grower to change his cutting depth and truck off their most valuable resource (topsoil) in order to provide a field manager with heavy thick sod. Also, sod must be very mature and tightly knitted to hold together in a thick cut application, so planning a year in advance is necessary to secure a source.

Once the sod arrives at the field, there can be other problems. The thicker the sod is harvested at the farm, the bumpier it feels on the field. Also, if the farm native soil has high clay content, and you place over a drainage system, vertical drainage can be negated. When it does rain, the result can be a muddy, unstable surface. So the challenge became to develop a sod with a smooth uniform thickness, dense root system, a vertically draining root zone, and withstand 300-pound guys digging in with their cleats.

ENTER SOD GROWN ON PLASTIC (SOP)

I am actually not sure who came up with the idea of growing sod on plastic. It sounded crazy to me at first when I heard of a company in Georgia growing bentgrass

on plastic for golf greens. The product was about ½-inch thick and basically looked like a grass floor mat. From there I heard of versions of sod grown on plastic being used for some NFL teams as opposed to traditional thick cut, but supplies were scarce, if non-existent.

In 2009 my athletic field construction company, Carolina Green Corp., was asked by The University of Virginia to provide a full field replacement following an in-season U2 concert. The damaged stadium field was replaced following the concert and ready for immediate play (to view time-lapse video of field replacement log into http://www.cgcfields.com/CarolinaGreenWebcam.asp and click on UVA Stadium Turf Replacement).

We opted to partner with a sod farm to produce that field, and from there developed Game-On! Grass, a sand-base bermuda sod system designed for immediate play situations. Since then the product, grown at our farm in NC, has been used for in-season turf replacements by Philadelphia Eagles, Washington Redskins, Tennessee Titans, University of Tennessee, University of Kentucky, University of South Carolina, Florida State University, and the University of North Carolina.

Most of these clients are able to plan for their sod needs months in advance, therefore much of the Game-On! Grass is reserved and grown under contract. In addition to those orders, we try to speculate on emergency needs and keep product on hand for smaller orders that pop up such as soccer goal mouths, position areas and in front of mound on baseball, lacrosse creases, and anywhere there is need to keep the games going. So the market is growing, and the result is that much more product is available for venues other than the NFL stadiums.

THE ROOT BOUND EFFECT

The basic principal in sod grown on plastic is exhibited in a pot-bound plant. When you pull the plant out of a container after it has been there too long, all you see is a mass of roots that can hardly be broken. The same thing happens with mature sod grown on plastic. The roots have nowhere to go and as a result form a dense mat. Topdressing is used to build the sod layer up to desired thickness. With our product we aim for 1.5-inch thickness which provides approximately 17 pounds per square foot total weight. One important characteristic of is that we use sand-base sod as an initial base, and then add topdressing sand typical for sand-base construction, therefore producing a sod that vertically drains and can be left in the field profile without impeding vertical drainage or contaminating the profile.

In growing this market we have had to overcome the perception that sod on plastic was a product that would have to be removed and replaced with regular cut sod after the "emergency" was over. Since most installations were in the fall/winter months, questions were raised if the grass would survive and root into the field the following year once the bermuda breaks dormancy. This was probably the experience with early thick cut products with heavy soils and much less total root mass. What we have found in all cases is that Game-On! Grass is the best grass on campus the following spring. It is thicker, greener, and quicker to break dormancy, and usually makes the grass beside it look inferior. The ability to control the rootzone profile of seems to be the difference both short term and long term with performance and survivability. In fact, a mid-field replacement in football practice field situation can usually be effective for an entire year cycle, making the additional cost more justifiable. We also have license agreements with patented protected grasses so we can provide a specific bermuda variety of Game-On! Grass to customers if requested.

COMPARE COSTS

No doubt SOP is more expensive than regular cut or thick cut sod, possibly anywhere from 2 to three times the cost. Freight costs are three times that of traditional sod due to SOP weighing at least three times that of traditional sod. The material and labor inputs at the farm are intense. Imagine growing anything on plastic in the summer with 1.5" soil layer. Not much margin for error, and no holiday time. So does that make it just an NFL product?

Here are some cost justifications I hear from customers. It keeps the field open year round for practice and play. In a situation where there is no additional space or no down time in the program, they can remain open with a few hour delay with SOP. They already

have significant investment in a facility with lights, parking, bathrooms and such, so why not use the facility to maximum potential? It is the same argument used for considering synthetic turf. The alternative is build additional fields, go synthetic, provide fewer programs, all of which cost money. I would suggest compare cost of a new synthetic field annually over an 8-year replacement schedule compared to annual replacement with SOP down the center of the field along with additional goal mouth and lacrosse crease SOP replacement. Then ask your players what surface they would prefer to play on throughout the year.

This is not an answer to all situations, just a consideration. But having an alternative resource for intense-use natural grass field with minimal down time is a tool every field manager needs in the bag. The key to incorporating SOP into a turf management program is to plan ahead and secure a source. The supply of sod grown on plastic is limited, but we have seen several new vendors in the marketplace. Several of our clients have already ordered our product for fall/winter of 2014. We currently ship the product 12-15 hours from our farm, and are looking at possible satellite locations. So just coordinating trucking can sometimes be the biggest challenge. You also need a good prep and install plan for handling the turf. The equipment is similar to traditional sod replacement, but the added weight to move and manipulate the product creates an additional challenge. Removing turf from a field a few days before a big game involves a significant level of trust in the sod supplier and in the installer. For smaller jobs such as goal mouths, installing SOP in-house is a good option. Just remember if you are bringing in 1.5 inch, you need to remove 1.5 inch. That is a lot of soil.

BREAK OUT THE WAR PAINT—UNIQUE APPLICATIONS

In December 2011, WFI Stadium Inc. (FedEx Field) was faced with the task of logo replacement between games when they hosted the annual Army Navy Game less than 24 hours before Washington hosted the Patriots. The solution? Paint the sod before its harvested. This had to be an historic first in the field replacement industry. The sod for the NFL game was pre-painted before being cut, transported and then installed. Before the install, the grounds crew came to Carolina Green's sod farm in Indian Trail, NC to paint the midfield logo and end zones game. The sod was harvested, each roll numbered and logged, then transported to FedEx Field to await install. Management elected to only replace the in-field logos between the games and leave the Army-Navy end zones in tact as a tribute to the armed services. After the NFL game the end zones were replaced with the prepainted sod as well.

▲ **The sod** for an NFL game was pre-painted before being cut, transported and then installed.

▲ **Replacing** the turf at the University of Virginia's David A. Harrison III Field at Scott Stadium.

The "overnight success" of the WFI-Carolina Green field replacement industry milestone at FedEx Field was reasonably assured because the key sod grown on plastic component had already been field tested by the Philadelphia Eagles and declared a winner. Over the past 3 years the Eagles have used the product to replace just the sod between the hash marks and end zones of Lincoln Financial Field. Tony Leonard, the Eagles' director of grounds, reports, "The sod on plastic grown by Carolina Green provides us with a solid and stable playing surface in the middle of our field. We had to get through six games in November and this was the best choice for us to match up our existing bermuda grass." ■

Carolina Green Corp. is a North Carolina-based Certified Field Builder. They operate two Bermuda grass sod farms and employ 35 full-time employees and travel throughout the south & eastern United States constructing and renovating natural and synthetic athletic fields for professional, college, high school and recreation level use. The company can be viewed on the web at www.cgcfields.com. Chad Price, CSFM, CFB can be reached at 866-753-1707 or cprice@cgcfields.com.