

March 27, 2008

A summarized history of the Green Bay Packers  
playing surfaces and field issues over the past  
decade

Prepared for Mark Murphy

- A decade ago Lambeau Field was one of the last native soil (high clay content) fields in the NFL. Native soil fields high in clay content have very poor internal drainage capacities
- The consequences of playing on this type of surface were demonstrated during the 1996 Super Bowl run, when the team hosted the 49ers at home.
- Unseasonable rains, which have actually become more common, made the field into a mud bowl. Fortunately the Packers won, but it was obvious that the playability of the surface wasn't performing to the expected standards of each team and the league.
- During this decade, the trend in the athletic field industry has been to copy golf course construction of greens comprised of sand root zones, which can percolate anywhere from 8 – 15 inches per hour.
- These fields can perform exceptionally well as long as there is a sufficient canopy of turf at the surface to keep the underlying sand stable.
- In the southern part of the country these sand based fields perform well throughout the year, because the native bermuda grass is more durable and when it goes dormant in late fall, it can be aggressively overseeded with cool season rye grass for color and added stability.
- Sand based fields in the north usually performed admirably in the beginning of the season, but as the growing season ended and football continued it became difficult to keep the sand root zone stable in the traditional wear areas.
- Private enterprises began trying to solve that dilemma and brought forth some innovative solutions
- In the spring of 1997 the organization agreed to try one such solution. The product was called "Sportgrass". If you can visualize a present day "Field Turf" field absent of the rubber and sand infill, this was the foundation of the product. Sand was topdressed approximately ½" from the top of the synthetic canopy, then overseeded with cool season grass seed. This product was grown at a sod farm then unrolled over a typical sand based root zone which was 12 inches deep.
- The goal of the product was to prevent large, crater-like divots from occurring while protecting the growing point of the turf plant (the crown) so recovery of the natural turf would be more likely to happen.

- The reality of this experiment was that the horizontal plastic backing of the product made it difficult for vertical rooting to occur and created such stability about 1 ½” under the surface that footing was negatively affected. Deep divots were prevented but players would almost skate and slide on the more succulent surface above.
- After 2 ½ seasons of trial and error with this product, Ron Wolf, the organizations general manager ordered the Sportsgrass surface to be removed and traditional local sod be put in its place for the remainder of the season.
- With only two weeks before the next game, administrative personnel scrambled to come up with the best short range solution. Fearing that too thin a sod layer would break apart and players would be eventually playing in the loose sand root zone, the decision was made to cap the 12 inch root zone with 4 to 5 inches of stable, but poorly draining native soil and then place a very thick layer of local sod over the surface for the remainder of the season.
- Fortunately for the rest of that season there were no adverse weather game situations and the field was stable and was functional.
- The following two seasons we experienced some rain of varying degrees on game day and then head coach, Mike Sherman, started expressing his extreme displeasure with the footing during these situations.
- In an effort to address those concerns we resodded the entire surface the following spring with a sand based sod approximately 1 ½” thick, also utilized by other nfl teams in the northern climate.
- The profile of Lambeau Field was now a combination of layers with a 1 – 2 inch layer of turf and sand followed by 4 to 5 inches of very compacted native soil, followed by the 12 inches of root zone sand.
- This solution was an improvement for light moisture games, but the profile still did not provide the type of internal drainage we would need if we received a deluge of rain during a game. The 5 inch layer of native soil made it difficult for roots to penetrate deeply and virtually stopped the movement of water and air at this interface.
- To make this situation the best possible we would perform aggressive deep aeration to create channels through the native soil layer for some water and air movement and we would resod the surface whenever it became too loose and unstable. We had been dealing with this less than ideal situation for the past eight years.

- Meanwhile across the street the team was practicing on two native soil natural turf practice fields.
- Hinkle Field, running parallel to Oneida Street, where the team would conduct its training camp was actually decent considering its native soil profile, however after nights of heavy rain the team was sometimes forced to practice in the Hutson Center for fear of risking injury on the slick clay soil profile. This was unfortunate because it sometimes left fans who traveled a long way to view practice out in the cold. Also the team did not enjoy practicing in the stuffy, enclosed environment. The field could still be saturated from the night before and it could be sunny and beautiful at the time of practice. It would take at least a day or two without rain for the field to become safe again. Another major issue with the Hinkle field was that when the natural turf would wear thin between the hash marks the exposed clay soil would bake in the sun and would become very hard. Some players would begin to complain of sore feet from standing for prolonged periods on these areas of the field.
- On the opposite side of the Hutson Center the Ray Nitschke Field suffered from poor construction. Surrounding property elevations were higher than the field, which created a bathtub effect. Water would often pool around the edges of the field, and an uneven surface would create puddles mid field, creating safety hazards and making it very difficult to manage the turf and provide a sufficient canopy of grass in certain areas.
- In 2004 the organization decided to invest in a total reconstruction and upgrade of both fields.
- Due to the level of expectations from the team, we had to provide fields that would provide safe, consistent footing despite weather conditions. The only way to accomplish the level of drainage desired was to construct the field with a sand profile.
- If we had the luxury of having more practice field space which would allow us to rotate the wear on the fields we wouldn't have had to worry about the stability of the sand profile. We would be able to move the team around enough to keep adequate turf cover to provide the stability. However, this is not the case, and compared to many other nfl teams which hold their training camp at alternate sites, we have very limited field space comparatively.
- To add stability to the sand profile we decided on choosing a technology called DDGrassmaster, which had been employed successfully by the Denver Broncos, Philadelphia Eagles, and Pittsburgh Steelers. The technology was European based and had been used on soccer pitches some fifteen years before entering the American market. Please visit [www.dessosports.com](http://www.dessosports.com) for technical information and click on the DDGrassmaster link.

- The purpose of the artificial fibers is merely to provide stability to the sand based profile once the natural turf wears thin. It allows us to have a fast draining field and provide safe, consistent footing once the growing season ends or turf wear is faster than recovery. This system demands much of the same maintenance as traditional natural turf, but some traditional practices are not acceptable. Applying light layers of topdressing sand to control thatch accumulation can no longer be used because the synthetic fibers would eventually be buried. Traditional hollow tine aeration is also no longer acceptable. In lieu of topdressing, different techniques must be utilized to manage the surface and keep biomass from accumulating and negatively affecting the footing. In addition to aggressively verticutting and scratching the surface while picking up the debris another more intense procedure is utilized approximately every other year. This involves using a specialized machine to mill off the top layer of natural turf while leaving the synthetic blades in place. The surface is then regenerated from seedlings.
- Coach Mike Sherman asked that the Nitschke field be rebuilt as a complete synthetic in-fill surface. Field turf was chosen.
- At the time of construction it was agreed on and understood by all parties (football operations and administrative staff) that Hinkle field was to be used for training camp and Nitschke field and the Hutson Center would be the place to practice during the regular season. This arrangement would allow us the time necessary to “grind” off the thickening layer of natural turf and get seedlings established as soon as possible to maximize the length of time before the field would be needed again for the next training camp.
- After the first season of use the team was pretty impressed with the “Grassmaster” field along Oneida Street. In fact, having already practiced on the newly constructed Field Turf the previous fall during some very warm days, they requested to practice on the Hinkle Field well into the regular season. This has since been the trend, with Nitschke field getting less and less use for one reason or the other.
- After a few seasons of use and Ted Thompson getting hands on experience about how drastically different the newly constructed “Grassmaster” field performed and especially drained compared to Lambeau Field, it was decided to reconstruct Lambeau Field to mimic the Hinkle Field in concept and design. Construction started in January of 2007 and was completed just in time for the Family Night scrimmage in early August.
- Important issues to consider in the future include carefully selecting or limiting extracurricular activities on Lambeau Field itself, as there is a direct relationship between use and decline of natural turf. Every season the natural turf needs to be regenerated from seed and parent material that survives the winter. It is no longer an option to simply resod the field or cover the existing surface with a new layer of sod.

- At every opportunity we should focus on the functionality of the field, which is providing a safe, consistent surface which allows the players to maximize their talents. Aesthetics, while always considered important should come secondary late into the season, when the growing season ends. The synthetic fibers do not keep the natural turf from wearing out or declining at the end of the growing season.
- By our decision to not utilize the outdoor field turf field to its fullest capacity we have reduced our training camp and much of the early regular season practices to approximately 180 yards of field. This is a very limited amount of space for a professional team. In order to provide quality practice fields, we could benefit greatly by having more space. It would allow time within the growing season for the turf to recover, and for us to perform the necessary management practices required to keep the fields in top quality condition.

Prepared by  
Allen Johnson  
Fields Manager