





12 Ways a turf manager can help to

elevate baseball team defense

N PROFESSIONAL BASEBALL, the players are the product, without question. As turf managers, we provide the context for the game itself. Our daily goal is to enable the players to play the game to their maximum potential. The modern groundskeeper at the professional level generally does not doctor the field drastically for the home team daily, as may have been done in decades past. However, he can make subtle adjustments to the field that over time should advance the progress of the team. Much of what I will discuss does not necessarily lead to favoring one team over another. The key is to focus on providing the best possible environment for players to perform.

Players play, it's their game. All we can do is promote quality play by providing a consistent surface. Think of your field and how it appears as the managers exchange lineup cards with the umpires at home plate. Essentially, you have given the players a blank canvas. One of the beautiful moments in baseball is the top of the first inning. Not knowing what the next nine innings will offer is part of the daily excitement that motivates me to work on the field year after year. It could be a good day for the hitters, maybe some spectacular defense, or perhaps a no-hitter. These are the

things a fan comes to see. Our job is to provide a field that facilitates both routine and outstanding play.

Think about that blank canvas for a minute. Ask yourself what you can do as a professional turf manager to provide a consistent surface for 70 or more home games per year. Turf cut at the same height daily, crisp and smooth edges, even and predictable hops throughout the infield skin area. There are different ways to achieve things with infield maintenance, so I tend to focus on two words as we work: emphasize results. The results of your work are

what players see every day. Most of them have no concept of what your processes and routines are each day, and most do not care either. It is all about results with footing, ball roll and ball bounce. Here are 12 ways you can help to elevate your team's defense.

THE CATCHER'S AREA Providing your catcher with footing that is firm, moist and comfortable will help him handle the pitches and throw competitively. It is critical to keep this area level with home plate so your catcher is able to transfer his weight effectively and stay on top of his throws to the bases. Another consideration is the dirt behind home plate, directly in front of the catcher. These areas have a tendency to get hard and baked, as they are not worked up by spikes. The key point here is that most of the short hops on pitches in front of the catcher land in this area. Proper appli-

Ask yourself what you can do as a professional turf manager to provide a consistent surface for 70 or more home games per year.

cation of moisture to this area and daily work with a hard, steel rake is essential. Use a controlled, fine-mist nozzle here; to test this spot, bounce a baseball to check the compaction. Grooming this area will allow the catcher to cleanly block balls with his body.

DIRT IN FRONT OF HOME PLATE

Visualize a pitcher making a quality pitch, getting the hitter to hit the ball at a downward angle, with the ball striking dirt out in front of home plate first. As long as I watch baseball, my view will be that this circumstance should produce an out. By keeping this area moist and a bit softer than the infield dirt, you can slow down the speed of the ball. This helps infielders be a little quicker with their first step. It also gives the pitcher a chance on comebackers. Balls that hit hard, compacted dirt on their way up the middle tend to not only get by the pitcher but by middle infielders as well.

Keep in mind how little reaction time your 3rd baseman has, especially on balls hit down the line. Slowing down the ball a bit will give him a chance on backhand plays that may otherwise have been doubles. While extra moisture is a plus in this area, keep in mind that your catcher needs to field bunts there, and hitters coming out of the batter's box need firm footing. By rototilling a high percentage of calcined clay here (keeping it away from batter/runner takeoff area), you will hold more moisture and reduce compaction, thus improving playability.

1 TURF EDGE IN FRONT OF HOME PLATE

Professional teams may only take infield practice once per homestand, if at all. One part of infield practice for the catcher is taking throws from the outfield. Getting a read on the difficult short hops on these throws is not easy. It is necessary here to keep a smooth and level edge, so the catcher gets a clean bounce. Another point here is that the turf edge needs to be flush with the dirt, so that bunts can roll consistently to the infield turf.

BASELINE WIDTH

Historically, baselines were 6 feet in width, with the foul line directly in the center. Today we see a great deal of variation in this area. Growing the turf in fair territory closer to, or in some cases right against the foul line, can help slow down balls that may have rocketed past your 1st or 3rd baseman for extra-base hits.

PITCHER'S DEFENSE

Fielding by the pitcher is usually not very pretty. Usually, it consists of a reflex by a guy teetering on one leg after hurling a ball downhill. The last thing he needs is a wicked hop at the last instant off of a clay-baked patch of dying turf. We all battle the ongoing problem of wear and stress on the turf in front of the mound. Keep the pitcher in mind as you plan how often you will need to bring thick-cut sod into this spot during the season. Pitchers also have to charge off the mound to field bunts. They may plant and throw or do the pivot, spin and fire move to get an out. I am conscious of this when irrigating the infield during a homestand. My goal is to dry down the turf ahead of the game as much as I can, as the schedule allows. Doing so will help with footing in the infield.



TURF MANAGEMENT

My goal during the course of a baseball season is to maintain a consistent height of cut for every game day. We mow each day we have a game, so that the players know what to expect. All professional players have their own internal "game clock" that enables them to know how much time they have to make a throw or complete a play. Keeping the speed of the ball consistent allows both the infielders and outfielders to have a comfort level with the field conditions.

Your choice for height of cut will depend on geography, climate and management practices. The manager and players may have a say in that as well. Regardless of choice for height of cut, I have seen good results in the field when the cut is the same each day. Also, be aware of what your mowing patterns can do to the baseball. Take the time when the team is out of town to try and stand up the turf by mowing in alternate directions.

We also have had good results the past few years with the use of trinexapac-ethyl consistently every 15 days. The speed and density of the turf has been very good and the overall quality improved. Seed banking on the infield, particularly in the spring, has been very beneficial as well as we try to maintain dense turf through an entire season.

Finally, with our sand-based field, we have altered our method of aerification slightly. We now topdress first, aerify and clean up the cores, then finish by running a greens roller over the turf. This gives us an extremely smooth finish and helps maintain playability at a high level.

THE 1ST BASEMAN

This is a high-traffic area that needs to be micromanaged daily. If your 1st baseman continues to wear out grass in front of the cutout, consider making the cutout larger. There are many options for designs of cutouts that look good and play well. Keep in mind that the cutout in front of the leadoff area can get quite hard if not maintained. Keep a hard, steel rake nearby and monitor moisture.





The area around the base and the leadoff corridor are two spots we spend extra time on. After a game, we will sweep them out just like we do the batter's boxes and then water to establish moisture in the base. The next morning we fill in, grade with a level-board and roll. This process keeps the material fresh and the area firm and level. Both of the leadoff areas at 1st and 2nd base are spots we keep an eye on and will level out and roll when the team is out of town. Another area to watch your grade is where the 1st baseman plays with no runners on. They are the least mobile of all of the infielders, so a low spot may soon appear there after a number of games. Finally, consider the dirt a few feet along the foul line past 1st base. This area can get hard and doesn't get worked too much by your nail drag. It requires a bit more water so that the last hop does not dart up at the fielder.

INSIDE EDGES

Batting practice is a great time to evaluate the state of your inside edges. There is more to it than keeping the lip down. You

want the ball to bounce true as it makes the transition from turf to dirt. This means keeping that first few feet of dirt from the edge level with the turf. You must also be conscious of that first few feet of dirt getting too hard, particularly as you turn and pivot your walk-behind mower there. Remember, any spot on the infield skin that gets overly compacted will require a bit more water to get it to ideal playability.

In terms of edging, consider that more frequent edging and hand rolling is a more efficient method of maintenance and will produce better results. During a homestand, walk your edges and be aware of not only lips, but ledges as well. A ledge is when the elevation of your turf soil is higher than that of your skin. When an edge has a ledge, a ball hitting the edge will gain a great deal of topspin. Instead of bouncing true, the ball will quickly roll and scoot, against the expectation of the infielder. This could cost your team a potential double play.

9 MIDDLE INFIELDERS

Watching the game in person rather than on TV allows you to learn how your infielders move around in different situations. At the professional level, 2nd basemen have the arm strength to play back on the outfield turf much of the time. The shortstop has a longer throw, so unless he has a very strong arm, he will straddle the edge of the grass or be 2 or 3 feet in front of it. What is double play depth? The simplest explanation is: two full steps up and two steps in toward the bag. This allows the infielder to get to the bag faster to receive a throw to begin a double play.

I find that during the day, as I am nail dragging and working the dirt, it helps me to be able to visualize where the infielders play and what types of plays they will be making in different areas. This also helps with knowing how much water to put on the dirt. One other consideration for middle infielders is the 2nd base cutout. In front of 2nd base, where no one runs through, that cutout can be given a little extra water. Your goal is to give the infielder a true hop off the dirt on throws from the catcher. On a stolen base attempt, the infielder reacts reflexively as he picks the throw from the dirt and applies a tag.

BACK EDGES

Professional infielders have range that allows them to field balls in unusual places. They need to have confidence in your back edge. The elevation of the dirt needs to be perfectly even to just slightly higher than the level of the outfield turf soil. Again, I have found life to be easier by edging lightly and often. Because of the many types of shifts teams seem to employ on hitters these days, we make sure to walk and check the entire back edge each game day. Having a walk-behind roller around is vital, and allows us to keep the edge in top condition.

THE 3RD BASEMAN

Sitting at field level at a major league game, I still continue to be amazed at how difficult it can be to play 3rd base in the big leagues. The game is so fast and the 3rd baseman must constantly adjust his positioning to suit the situation. We spend quite a bit of time daily on the 3rd base cutout and the edges in front of the player. We want to be sure the edges are clean, the dirt has enough moisture and the topdressing quantity is consistent. In addition to the calcined clay we use throughout the infield, we will also add some vitrified topdressing before the game in this area. Keep in mind the area along the foul line past 3rd base as well. This area, approximately 3 x 40 feet, needs to be managed so that ground balls stay down. The 3rd baseman has virtually no room for error on backhand plays in this area due to the length of the throw to first base.



12 IT IS YOUR DIRT To cultivate a quality

To cultivate a quality professional infield, I like to think the infield dirt is alive, just like the turfgrass. I find it helpful to maintain an acceptable moisture level in the dirt all the time, even when the team is out of town. I don't like having to totally reestablish moisture just before a homestand. If weather forces you to tarp around the start of the homestand, and your dirt lacks adequate moisture down through the soil profile, the ball will start taking some odd bounces. As you evaluate weather for your turf, do the same for your dirt and water accordingly.

Some other thoughts: try to avoid moving too much loose material around when you screen drag, and consider using a smaller stiff mesh drag. If you choose to nail drag regularly, remember that a light nail drag is the most effective tool for day to day maintenance. Deep spiking is a renovation technique. You want to create a firm, moist base of dirt with some moderate topdressing as an upper layer. I have had good experiences with having calcined clay incorporated into the entire infield dirt profile. Heavy watering early or late in the day will be more efficient for soaking the entire dirt profile.

Finally, it is now widely accepted that new or renovated infield skin mixes have silt to clay ratios (SCR) between 0.5 and 1.0. Our SCR here at Target Field is 0.69. So, watch the game and look for balanced hops. If the ball bounces consistently throughout the infield, you are allowing the fielders to truly determine the outcome of the play. If your infield skin can take some speed off the ball, provide a true bounce and offer clean and firm footing, you've done a great job.

Larry DiVito is head groundskeeper for the Minnesota Twins.





Turf farmers' advice on choosing and successfully managing thick-cut sod

Editor's note: From any good sod supplier, thick cut sod is always more money, and is NOT always the best solution, according to several sources. Some reasons it's more expensive: More soil with the sod means less topsoil for the farmer, which of course he depends on for future crop; more soil means more weight, which means less sq. ft. per big roll of sod, and even less on the truck. If a standard load is 10-12k sq ft, and thick cut sod could be less than half that, it's double the trucking price; more equipment, time and labor on both ends (sod farm and installation at the field).

In this article we get feedback from turf farmers on two questions: What factors should be considered when a sports turf customer is deciding between thick-cut v. regular-cut sod? What are the most important things turf managers need to do, for both thick-cut and regular-cut, after a sod installation to assure a successful outcome?

GREG JOHNSON.

Bigfoot Turf, LaSalle, CO

Obviously harvesting thick cut sod presents some problems for sod producers. The fast removal of existing topsoil is kind of a scary thing when looking at the long term use of agricultural land. The use of expensive, environmentally damaging and economic deficit growing fossil fuel to haul dirt around is also questionable.

We've found that thick cut sod roots down much slower than regular thickness sod. We've even seen instances where thick cut never roots down at all. Hopefully, we as sod growers have prime soil that we grow sod on and the thick cut seems to be content growing roots in the soil delivered with the sod.

We have found that if our customer needs to use the

newly laid sod immediately, a topdressing with sand right after the sod is laid helps keep the sod in place. This allows for the use of regular cut sod, with its faster rooting characteristics, while maintaining the ability to use the area immediately. Also using a core aerator on the prepared ground right before laying sod and removing the cores allows the sod to root faster.

Thick-cut sod experiences at **Busch Stadium**

Billy Findlay, head groundskeeper for the St. Louis Cardinals, has twice turned to thick-cut sod from his supplier, Graff Turf Farms in Colorado, since the new Busch Stadium opened in 2006. The first time was after a U2 concert in July 2011. "It was a hot summer and Graff's was working hard to keep the turf healthy. We went with a 1-inch thick sod and played on it 3 days after the concert," Findlay

"It did well that first year but interfacing can be a problem with the thick cut; ours didn't root down enough and that's tough since we're playing on bluegrass in the St. Louis climate," he said. "But we played on it through the 2012 season, which was the hottest summer on record in St. Louis, and with bluegrass in that heat, the roots just weren't optimal. By mid-August last year we had some divoting and black layer forming. I poked some holes but you can't aerate too much that time of year here.

"After last season we stripped it all out, put in a 1/2-inch sod, and I have an amazing root mass now. We took another inch of rootzone during the changeover to get rid of the black layer and put down fresh sand before the laying the new sod," Findlay said. "In my experience thin-cut sod has always yielded amazing re-

Findlay said when the new Busch Stadium opened he had only a 2-week window to finish the field and 1 1/4-inch sod was put down. "The second season on it we had major issues with tearing and the players were losing footing; I'm a fan of the thinner the better.

"But there are situations, especially after major events like a concert, where you might have to use thick-cut. And after our experiences with it, management is much more likely to let me take out any thick-cut we have to put it, to see it only as a temporary fix," Findlay said. "You can aerate that bluegrass until you are blue in the face in this climate and you won't get the rooting you need."

JAMES GRAFF, Graff's Turf Farms, Ft. Morgan, CO

Thick-cut sod is a great tool when a sports turf manager is against the clock. However, there are additional costs associated with thick cut turfgrass. The added expense is directly related to time and weight. It takes the producer more time to harvest, the install process is slower, and less turfgrass can be loaded on the trucks, so consequently, additional freight expense is accrued.

It is our opinion that a standard harvest turfgrass, established in a reasonable amount of time, produces a better rooted field and more easily managed. Often times, the need for thick-cut sod isn't a choice. What put the customer in this predicament? Something controllable or uncontrollable? A schedule issue or weather?

Playing surfaces are programmed more heavily than ever before and the expectations are high for the sports turf manger to deliver a safe and aesthetically pleasing field regardless of what is humanly possible or what Mother Nature is up to.

To answer the question, "Is it normally a simple 'How soon can we play on it?' issue?"—absolutely, this is the million dollar question. Sports have become a "time is money" type game. The more time the field is available, the more revenue the venue can be realized in concerts, events, band competitions, you name it. Can it be done? We have some amazing men and women in the business of sports turf management, so with their talents, abilities and knowledge, I say yes, it can be accomplished. And

field safety will still be the top priority of the sports turf manager.

A close second to this question is, "How long will it last?" The answer to that depends more on the schedule for the remainder of the season, the sports turf manager, and the budget. Oh yes, and the weather.

Typically, thick-cut grass does not root as well as a standard harvest as it doesn't need to. Think of it like a potted plant: it has no reason to jump in the ground when the roots are shipped in adequate sand or soil. It will last the season, but the uncertainty is, does the thick-cut turf best serve the field in the next season? While thick-cut sod may be used as a tool to survive the season, it is not the standard for a new install with adequate grow-in time. So after the season is over, often the thick cut turfgrass comes out and a field replacement at standard thickness is installed for the next season.

For turf managers to have success after a sod installation, they must start by communicating clear and realistic expectations to the decision makers and facility schedulers. Then hope and pray they listen. No doubt we want to see natural playing fields have success in the future. A field needs adequate time to root in and those timelines look much different depending on turf thickness. The expectations must be set, a plan must be made, and a schedule must be followed. Above all, the attitude of "what is best for the field" must be adopted. We know this is not an easy road. Some managers are just trying to get enough in their budget for fertilizer and staff, let alone request to have input on the programming of a field.



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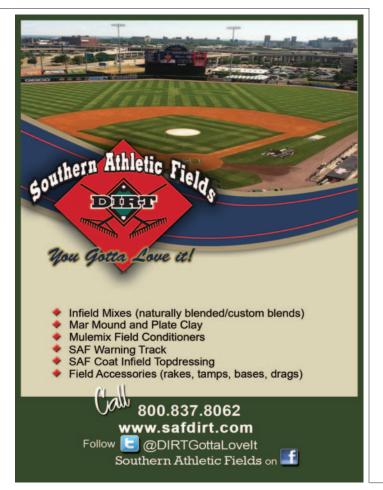
Communicating and coordinating with your turfgrass supplier ahead of time can give you the best product when you need it. This may allow for custom applications, and if the scenario is such that the new turfgrass must match up with the existing, this ensures a high success rate. Also, whenever possible, have someone from your organization at the farm, confirming and verifying the thickness of harvest. We know how we define the thickness of the turf at harvest. Make certain that your expectations are being met also. If this is not possible, ask for a sample test cut to be sent ahead of the delivery date so removal, ground prep and grading will precise when the turf arrives.

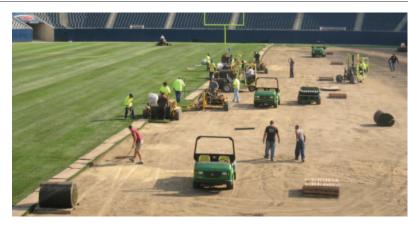
JOHN MARMAN,

West Coast Turf, Capistrano Beach, CA

"We often try to talk customers out of buying thick-cut sod," says Marman. "If you can stay off a field for 3-4 weeks you can get away without thick-cut. But if you have an application where there's a real need to get on the field right away, for example the area in front of a pitcher's mound or a soccer goalmouth in mid-season, that's a different situation and you need a Band-Aid.

"If you are considering thick-cut sod be aware that putting it over a coarse sand base is inviting the creation of a perched water table. At West Coast Turf, in the Coachella Valley, we grow our turf on anywhere from 78-94% sand, so this isn't as big a deal for our customers, since it's a finer material underneath the sod," Marman





said. "Of course most sod has more peat or clay, which holds more water, and if you don't work the repaired area by aerifying, you might end up with root rot or black layer in that section of your field.

"So while putting down thick-cut will get you through the season, as soon as you have the chance you need to core aerify with ½ inch hollow tines. You want to remove as much material as possible then backfill with sand, to get the sand down into the soil layer and create sand channels," says Marman. "This area must be managed well if you want this 'Band-Aid' to work long term. Many times these areas wear out anyway despite turf managers' best efforts and you will have to totally renovate. You have to get in after the season and harvest out a layer then backfill with native material, and then go to a thin sod to get the roots going, assuming your soil isn't too heavy with clay or silt.

"Another application for thick-cut sod is in specific applications such as one-time events on a synthetic turf field, when for example a World Cup or MLS soccer match is scheduled. You put in a barrier and place the sod on top of it. Of course the event must generate enough revenue to cover this cost but the money is well spent in protecting the highly paid athletes," says Marman.

For these one-time or several games only situations, you can get away with 1 inch of soil profile; bigger is better, especially for football I recommend 1 1/4 or 1 1/2 inch but we've done Fiesta Bowls and Rose Bowls with only 1 inch [soil profile only, not including the thatch layer or the grass itself].

"Ideally customers will let us know where their fields will be at a certain time in the future so we can have what they want ready but most of the time it's more of a '911 fire drill' where the field was failing on a Sunday and they are calling on Monday asking how fast we can get sod on their field. We are highly reactive to disaster situations," says Marman.

"Grant Trenbeath of the Arizona Diamondbacks has the opposite situation. We maintain an entire second field's worth of sod for Chase Field on Grant's spec sand and custom grow it to match perfectly to what's on his field. Mature plants guarantee we will have the product he wants," he says.

"After rollout there are air pockets or other incomplete uniformity is most cases. Lots of customers like us to use a solid 42-inch blade on a Bucyrus machine to cut the turf and this length combined with the vibrations from cutting creates a flex in the middle of the blade, and the roll becomes convex or concave," Marman

The biggest issue from a growers' side between thick- and regular-cut is the cost of shipping because of the extra weight and of having to regrade a field if you have to cut an extra inch of soil in some places. The benefit of thick-cut to the customer is being able to play on it sooner. We have shipped sod with 2 inches of dirt on it on a Thursday and they played soccer on it 3 days later. If there is no rush to play on it then there isn't an advantage to getting thick-cut.

—Mark Woodard, Cane Creek Sod, Poplar Bluff, MO

says. "So after rolling out thick-cut sod, you need to use a 2-ton vibratory roller to mash down and even out the high and low spots for a nice surface. One minor issue with sand-based sod is losing sand during transport. Every road bump can cause a bit of sand to fall and you lose more with a sandier base.

"While silt/clay profiles can make for better maintained edges during a short-term fix, if you get rain right after the installation you can have a very soggy field with little to no short-term percolation," Marman says.

JAMES BETTS,

Tuckahoe Turf Farms, Hammonton, NJ

Our standard cut big roll is ¼ inch soil below thatch layer. From past experiences, we strongly feel the thinner you cut turf without scalping (1/4 inch soil +-) the sooner it will root.

Thick-cut sod does have its place, however. We would recommend these guidelines for any sodding project:

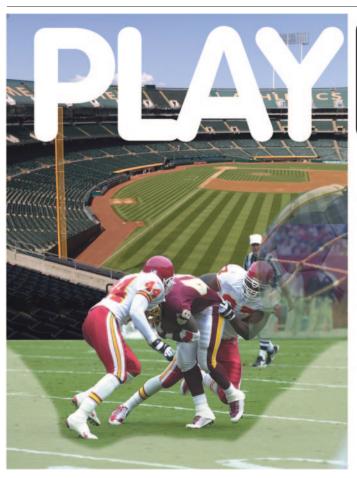
- Any athletic field—¼ inch soil for any sod done in the fall and will be able to winter over for play the next spring.
- Any athletic field—¼ inch soil for any sod done in the spring and play in the fall.

Baseball, Softball, Soccer, & Field Hockey—1 inch soil for play 3-4 weeks after sodding.

- Football 1¼ inch soil for play 3-4 weeks after sodding.
- Baseball, Softball, Soccer, & Field Hockey—1½ inch soil for play 1-2 days after sodding.
- Football—1¾ inch soil for play 1-2 days after sodding. After thick cut sod is used we suggest topdressing lightly and deep-core aerating to promote root growth when 3-4 weeks of re-

covery time is allowed. Please note that when sodding in the summer all new turf shuts down and the rooting process slows down. If summer sodding, you might want to look into a thick-cut sod.

Cost justifications for thick cut sod: If you purchased 1-inch thick cut sod your cost would be more than our standard cut be-



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cause of the increased trucking costs, more rolls, and our soil loss. The cost can be outweighed by the benefits.

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TOM KEEVEN.

Heartland Turf Farms, Columbia, IL

From our perspective, you are spot-on with your first question. It is really just a matter of "how soon." I believe that if one has the time to wait, they should opt for regular-cut sod. On a proper sod installation, done during the right growing season for that particular grass, the field should be usable in 3 to 4 weeks. I have seen it done in as little as 2 weeks—regular-cut, bermuda sod on a sand-based professional field.

You are correct in identifying the major issues with thick-cut sod. It is difficult to perfectly match the rootzones of your sod vs. your field. With thick-cut sod, you are increasing the chances of "sod interfacing," where the roots tend to stay in the sod layer. Especially on sand-based fields, which are often quite nutrient-deprived, you probably have better nutrition in the sod layer. While the thick-cut sod allows you to get by in the short term, you may be replacing it again soon due to improper rooting.

Here's our perspective as a sod farmer: We'd like to be farmers, not miners. Thick-cut sod depletes the soil on the farm, and farmers need to charge for that. Thick-cut sod should be priced significantly higher. Plus, you are going to require extra trucking, up to three times as much, to carry the extra weight.

That being said, we realize that there are many instances where there is not time to wait. In these instances, thick-cut sod is a great tool to keep a field playable at a high level. Many high school fields see a high amount of events from multiple sports. Often these campuses also lack the land area to spread out the traffic. In recent years, many schools have turned to artificial turf as the answer. Instead, they could keep a top-level natural grass field by budgeting a partial replacement of thick-cut sod during the season. If you plan ahead with a local sod grower, the replacement could take place in as little as a day, keeping your downtime at a minimum. Even with the added cost of thick-cut sod, you should still spend less than you would on artificial turf, and have a natural surface that the players would appreciate.



