

Overseeding southern athletic fields

BY DR. MICHAEL GOATLEY, JR.

The practice of seeding ryegrasses into bermudagrass athletic fields is a maintenance strategy that has long been practiced in the southern United States, but far too often the potential results and effects of the overseeding have not been fully considered. With the arrival of football season, it's time to think about how overseeding may or may not fit into your field management program.

Why overseed? Dr. Jeff Krans, my colleague at Mississippi State, made a statement several years ago that I have never forgot: "Overseeding is NOT an agronomic decision it is an economic decision." What Jeff meant was that you can disregard any argument about how overseeding is possibly good for the bermudagrass. Common sense says that introducing millions of seeds into a warm-season grass field just before winter dormancy cannot be good for the warm-season grass. If you want superior bermudagrass, the answer is simple: don't overseed!

However, Jeff's statement also points out the "economic" justification for overseeding: color and playability. For southern sports field managers who are familiar with "bermudagrass color" for 8+ months out of the year (and if you grow it, you know what I mean), there is tremendous satisfaction in the color and striping possibilities that present themselves when an overseeded bermudagrass field peaks in appearance.

Is an overseeded field more playable than a dormant bermudagrass turf? There is no clear answer, but the concept is that an actively growing grass will withstand the wear and tear of athletic events better than a dormant or slowly growing grass. However, don't correlate green turf cover from the overseeding grass turf with recuperative potential. The ryegrasses that are used for overseeding athletic fields are not capable of producing lateral stems (rhizomes or stolons); hence, once the stand is thinned it cannot rapidly fill voids in the canopy.

Things to consider

Many coaches strongly believe that overseeded fields are slick and this contributes to more player injury. Unfortunately, there is not a lot of research that has been done to support or disprove this thought. From work presented by Dr. Don Waddington of Penn State and Florida's Dr. Grady Miller (see "Q&A" p. 54), it appears that the critical factor in slipping on overseeded fields is moisture on the leaf surface. No surprise—wet leaves of any turf will increase the chances of slipping. The debate continues.

Does your field use really justify overseeding? Consider this: In Mississippi, the regular season for public high school football ends for all teams by November 9 in 2002. Out of approximately 250 teams that play football in five classifications, 80 will make the state playoffs beginning Nov. 16. This means that more than 67 percent of the teams will not be playing soon after Halloween (and a check of other southern state high school athletic associations shows similar scheduling). For some of these fields that are overseeded, it is likely that their ryegrass seed has not completed germination before the season is over!

Also, consider that the average first killing frost date in the northern half of our state is the first week of November, and in the southern half, it is roughly 7-10 days later.

So, is overseeding REALLY necessary for your situation? If your answer is yes, then do it, and do it well, but in many situations overseeding may essentially be wasted time, effort, and money.

What about overseeding for winter and/or spring sports? Spring baseball is the best argument for overseeding bermudagrass sports fields. When baseball season begins (in February in most states in the south) most bermudagrass is still dormant. Throughout the late winter and early spring months, the overseeded ryegrass will be peaking in density, playability, and wear tolerance. The ryegrass will greatly retard bermudagrass



Vertical mowing bermudagrass before overseeding enhances seed germination and establishment.

regrowth, but since the entire spring schedule is going to be played on overseeded turf, it is much easier to justify overseeding for spring baseball than for fall football. (These comments would apply for spring soccer and other sports as well.)

What are you using?

What are you going to overseed with? Perennial ryegrass is the superior choice for athletic field overseeding if you seek the highest quality playing surface. It is usually more expensive per pound than the other ryegrasses, but its performance usually justifies the additional cost. Perennial ryegrass has rapid germination and establishment, excellent density, tolerates regular mowing as low as 2 inches, and is exceptionally wear tolerant after establishment. There are many cultivars available, but experience has shown that two- and three-way blends of cultivars have performed the best (i.e., you are taking advantage of the genetic diversity gained by blending the grasses).

Remember though, the higher the density and qualities of the ryegrass turf the more competition for the bermudagrass. Our research in overseeding trials consistently shows that the plots with superior performing perennial ryegrasses during the cooler months are by far the lowest quality bermudagrass plots later that year.

Turf breeders have made great strides in improving the heat and drought tolerance of perennial ryegrass, but these grasses do not necessarily meet everyone's needs for a superior overseeding grass.

Why not? Again, defining success in overseeding is measured by how the grass fits YOUR situation. A more heat and drought tolerant perennial ryegrass is a logical choice if you want to play baseball into late spring on a ryegrass turf, but such a grass is not nearly as critical for you to use if your need for overseeding is fall football alone. A great resource to determine how perennial ryegrass cultivars are performing in your region is the National Turfgrass Evaluation Program. View the performance data on the web at www.ntep.org.

Annual ryegrass is the cheapest ryegrass per pound of seed, and is noted for having the fastest germination, establishment, and growth rate of the ryegrasses. However, its rapid growth rate means it has the most frequent mowing requirement, and it also has poor traffic tolerance, and is extremely intolerant of temperature extremes (i.e., there will usually not be a transition problem because it likely will not be around).

Use annual ryegrass primarily for a splash of color, but not when lasting turf performance and quality are most important. The latest entries into overseeding programs that warrant consideration are the intermediate ryegrasses. These hybrids are hoping to combine the strengths of perennial and annual ryegrass and truly meet the niche of southern overseeded turf by providing a rapidly establishing grass with good quality that transitions quickly in the spring.

There are some promising releases on the market, but it is still too early in the evaluation program to make recommendations. The earliest intermediate ryegrasses more closely resembled annual ryegrass in performance and appearance, and would have limited application for superior athletic fields.

What seeding rates should be used? Field use should be considered. For fall football, the use and appearance of the field dictates as much color and grass as soon as possible. Therefore, recommended seeding rates are anywhere from 10-20 pounds of pure live seed per 1000 sq. ft. If the field is to be used only for spring sports, seeding rates of 6-10 pounds of pure live seed/1000 sq. ft. are adequate, as the grass density will increase over time.

Good timing

When should you overseed? Research from Texas A&M many years ago indicated that overseeding establishment was most successful when soil temperatures at a 4-inch depth peaked at approximately 70 degrees F for 4-5 consecutive days. Basing your overseeding date on soil temperatures allows for a very reliable environmental window that balances adequate temperatures for ryegrass germination with slower bermudagrass growth rates.

However, real-world situations where field use is extremely heavy often means the overseeding event is simply crammed into the best break in the schedule possible. In this case, it is best to schedule overseeding earlier in the season rather than later in order to provide future opportunities to apply more seed if necessary.

Overseeding earlier results in more rapid seed germination, but also means greater bermudagrass competition, more disease pressure, and problems due to desiccation, heat, etc., so the field must be given constant attention! In very tight scheduling situations, playing on a field immediately after seeding is unlikely to significantly damage the seed, and likely improves soil to seed contact. On the other hand, heavy play on seedling ryegrass very likely removes most of your overseeding stand and results in an unacceptable stand (and the need to overseed again IF it is possible and/or affordable).

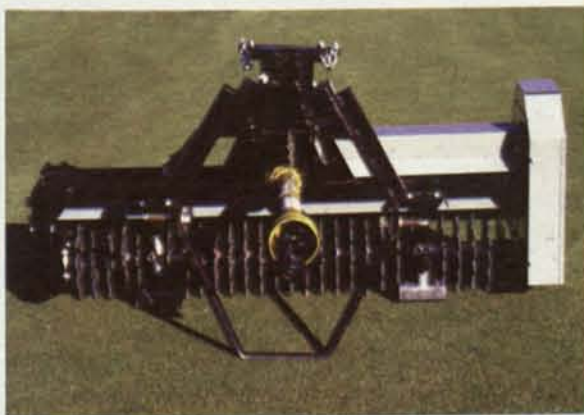
The best ryegrass establishment is gained by mechanically thinning the bermudagrass before seeding. Vertical mowing is an excellent way to prep a bermudagrass field, reducing initial competition between the grasses and improving soil to seed contact (see photo). But remember this is absolutely one of the worst times of the year to severely disrupt the warm-season turf. This practice solidifies your commitment to having the best overseeding establishment possible and tosses common-sense bermudagrass management aside.

(Note: Vertical mowing at this time of year is not intended to be a dethatching event. If a significant thatch problem exists on the field, it should have been addressed during the summer months.)

Pre-seeding applications of the growth regulator Primo have also been shown to improve overseeding establishment by way of slowing the bermudagrass growth, but our experience has indicated that this treatment is not as successful as vertical mowing. Another way to improve establishment if time, money, and/or work force allow, is to topdress the overseeded field following seed application. A 1/8 to 1/4 inch depth topdressing with an appropriate soil material can greatly improve overseeding establishment by ensuring soil to seed contact.

Preplant fertilization should balance the needs of the emerging ryegrass with the potential growth response from the existing bermudagrass. Too much nitrogen will

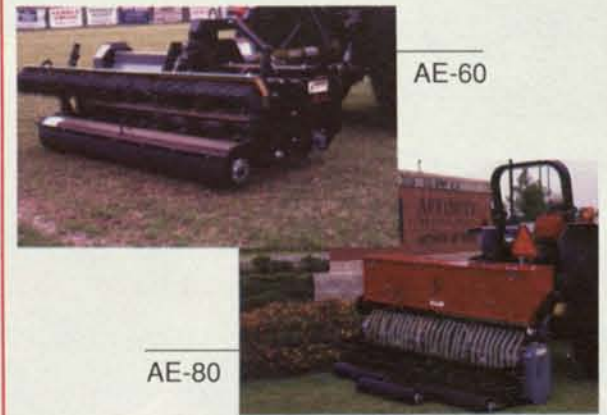
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encourage bermudagrass competition so an application of a complete fertilizer high in phosphorus and potassium is desirable (e.g., an 8-24-24 at a rate of 200 pounds product per acre is often used at seeding). Later, as the ryegrass establishes and the bermudagrass growth slows, fertilizers containing more nitrogen can be used to promote overseeding development. Fertilize as needed to promote growth and color for your particular needs, but realize that turfgrass growth during the dead of winter will be very limited for weeks at a time in many parts of the south.

Irrigation and mowing require some special considerations to enhance overseeding establishment. The irrigation philosophy on a newly established field is "lightly and frequently." The strategy is to maintain a moist soil surface, while not drowning or washing away the seed. Anticipate numerous irrigation cycles throughout the day for a period of 10-14 days, followed by a gradual shift in watering philosophy toward "deeply and infrequently."

If it is possible, refrain from mowing the turf for a few days after seeding. Raise the mowing height, remove baskets, and try to mow when the turf is as dry as possible within your irrigation program. As the turf establishes, gradually bring mowing heights to your desired level and mow regularly in order to promote turf density. The ryegrasses will be actively growing when daytime temperatures are consistently above 50 degrees F, and annual ryegrass in particular will require very frequent cutting to maintain desirable turf quality.

Next spring, you will likely have to make a choice regarding how to handle the overseeded turf and the transition back to bermudagrass. If the field is only used for fall football, then the ideal way to handle the ryegrass overseeding is to chemically remove it as soon as possible to minimize spring competition with the emerging bermudagrass.

However, for baseball or other spring sports, the strategy will likely be to maintain the ryegrass until the completion of the sport season. To hold the ryegrass is going to require very careful water management as much as anything. One day of excessive heat in the late spring can result in catastrophic loss of an overseeded stand.



The striking visual appeal of an overseeded bermudagrass sports field.

If you have no need for the ryegrass during the spring, then the prospects for chemical removal are better than ever. Non-selective herbicides such as Roundup Pro and Finalé have been successfully used to remove ryegrass from bermudagrass, but obviously the bermudagrass must be completely dormant. Kerb and Image are two herbicides that have successfully been used for selective ryegrass control.

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Michael Goatley, Jr. is professor of plant and soil sciences at Mississippi State University.

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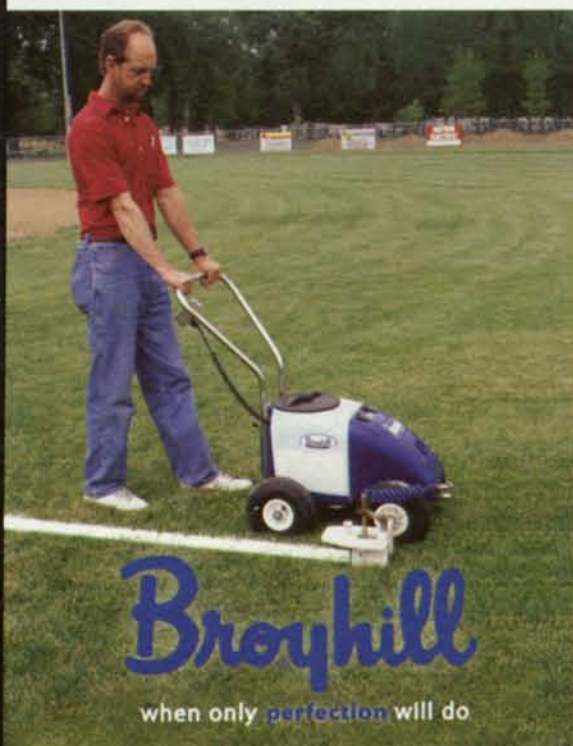
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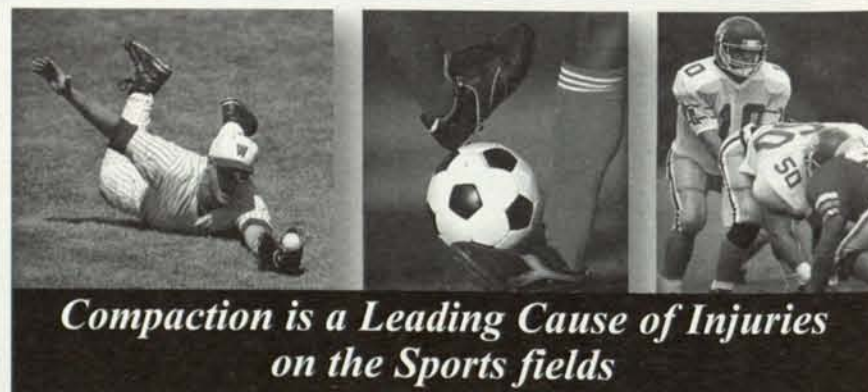
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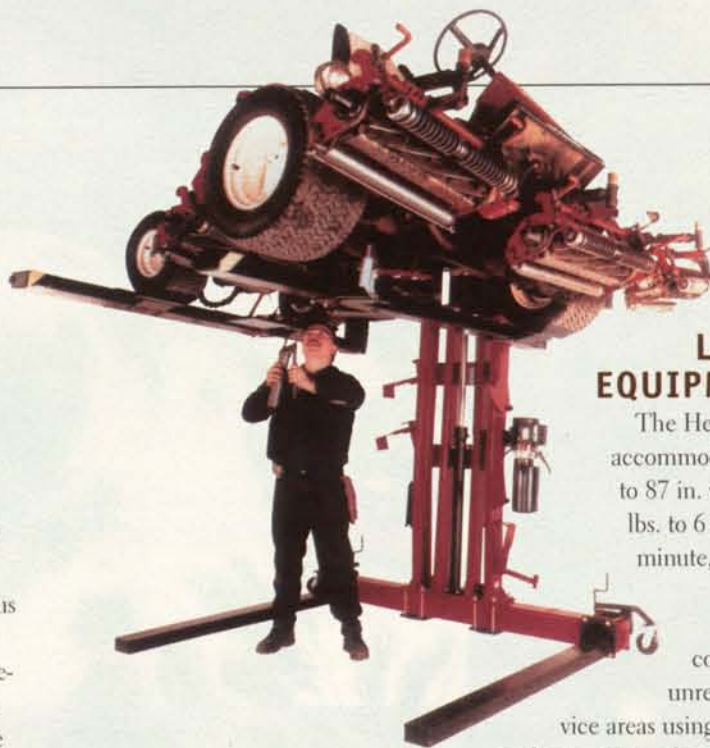
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4500-D unit (pictured) has five floating cutting units producing a 9-ft. width of cut; the 4700-D unit has seven units and 12.5-ft. width.

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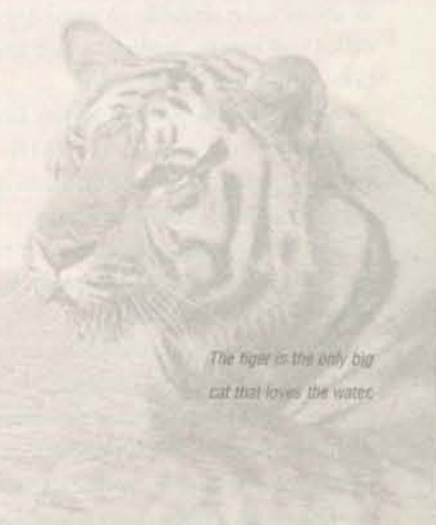
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The tiger is the only big cat that loves the water.

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Roger Bossard: Tips for maintaining sports fields

Whether you work with high school, college, municipal, or professional sports, maintaining your field properly is imperative. It can get you back on the field after a rain and minimize player injury by providing an even, resilient playing surface.

While a professional groundskeeper may have a crew of more than 20, many of their tips can improve sportsfields at any level. Roger Bossard, head groundskeeper for the Chicago White Sox, has been in the sportsfield business for over 35 years. He is a world-renowned designer and builder with several prominent projects throughout the world, including six of the last 10 Major League fields in the U.S.

He suggests, "There are two main factors in the success of any sportsfield project. First, is that the right decisions are made during construction. Second, that it is properly cared for and maintained. Building and maintenance is really a partnership. Sportsfield builders and groundskeepers work hand in hand. Either you both look good or you don't!"

You can research, plan, and design the best field around and if it's not maintained properly, you've got a problem. You can have the most talented groundskeepers in the game and if your field is improperly built, you'll always be fighting a losing battle, which can cost hundreds of thousands of dollars to fix.

"While research data and turf science are important to the design of a sportsfield," Bossard added, "you have to use it in the context of athletics. There's nothing worse than a field architect whose never stepped foot on a ball diamond."

Every ballpark is unique. The geographical region, irrigation system, type of grass and habits of the players all have an effect. Bossard works with a team of experts like Dr. Hank Wilkinson of the University of Illinois and Andy Wright of Muller Mist Irrigation. Through their years of experience, they have become the undisputed experts on sportsfields and retractable dome field installations.

"When we start a project, our approach revolves around three considerations," said Bossard. "These concepts don't just work at the Major League level. If anything, they're even more important to consider on municipal and academic projects."

Never forget the purpose of the field—athletics. The decisions you make will affect its ability to be available on game day. Games that have to be rescheduled or cancelled cost money. Inadequate turf and infields can also cause poor playing conditions, which can lead to injury.

Common sense goes a long way in designing a field. Keep it simple. Once it's built, someone is going to have to take care of it. His success depends on the decisions you make. In Seattle, the team spent 3 years finding a grass that would proliferate in the Pacific Northwest climate, under a retractable dome, no less.

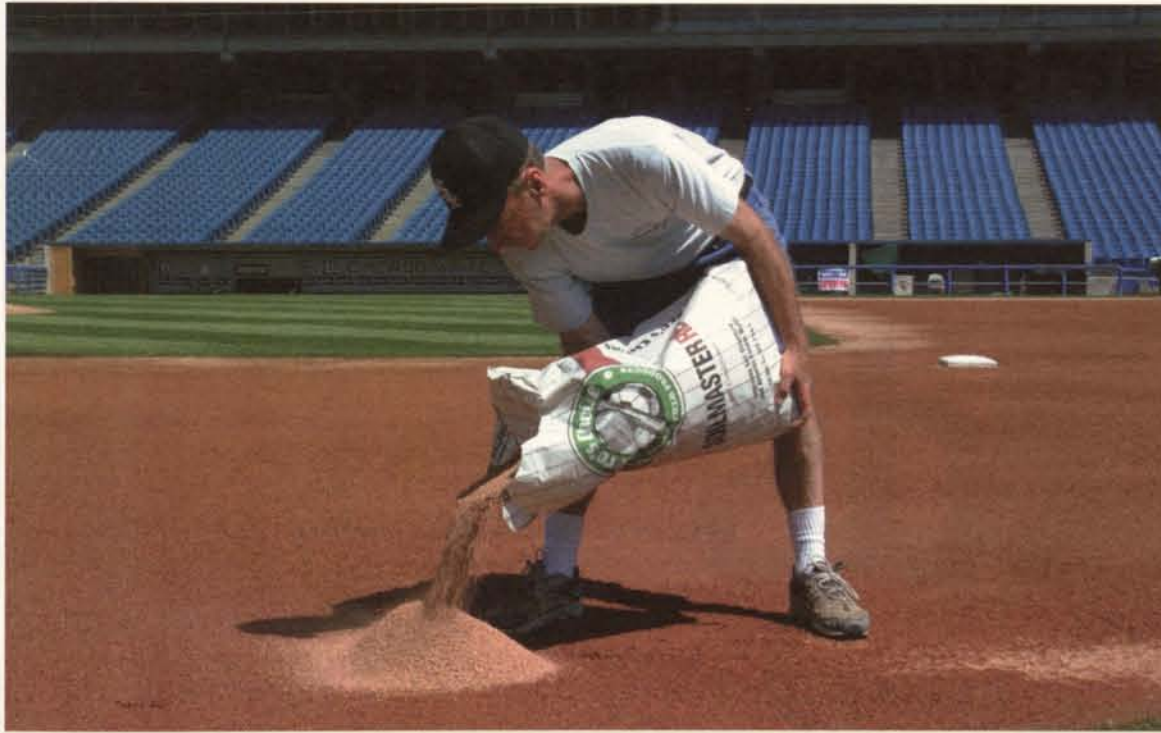
The original design concept must not only keep the construction budget in mind, but the maintenance budget as well. Even the best designs will suffer if you can't afford to take care of them.

Keeping that thought process in mind, there are four keys that will ensure the field stays in top-notch condition. "In baseball it's important to remember," said Bossard, "70% of the action takes place on the infield, so that's where your resources should be focused. Don't forget the turf though, proper maintenance will prevent more expensive repairs down the road."

Know your athletes wants and needs. At the Major League level, that means making sure that the franchise players have conditions that optimize their talents. At other



Bossard has constructed six of the last 10 Major League fields in the U.S., including his own stadium, Comiskey Park, where he actually installed 550 tons of the old infield into the new facility. "It's all about the dirt."



Bossard advises to look for a soil conditioner with good granule sizing, a deep red color and minimal dust. He's even helped develop his own special product.

levels you need to ensure the field is safe and ready when needed.

Choose the best base clay and soil conditioners for your needs. There's no such thing as one perfect infield mix. Of all the soil structures out there, only about 10% are even suitable for a baseball field. You have to find what's best for your situation.

Verify that your drainage options meet your needs. The number and placement of your watering heads is critical to good irrigation. Your clay should be moist to a depth of 1/2-3/4 inches at game time. Of course, weather factors like wind and humidity will play a role in the amount of water needed.

Find a knowledgeable/skilled groundskeeper. There are many good resources and a pool of knowledge out there to help you. The best resources are often other groundskeepers.

If you want to create the perfect medium for playing ball, you have to do your homework. "We've tested as many as 20 different soils before finding the optimum infield mix for a site," said Bossard. "There are some Major League stadiums, including Comiskey, that have even brought the infield clay from the old stadium to the new facility. It can be one of the most valuable assets you have.

"Most Major League groundskeepers prefer a soil conditioner made of calcined montmorillonite clay," said Bossard. This will optimize the conditioning and moisture management effects on your field. These products are super-heated to provide stable granules that are durable and don't break down into dust. Find a granular size distribution that best meets your needs and your budget. For your turf areas, a hard, irregular-shaped material will give you the best performance. "For the infield, I recommend choosing one with the reddest color and the least dust," added Bossard.

On the infield, the more uniform the granule size, the more professional the infield will look. Of course, you'll also pay a premium price for that sizing. Calcined montmorillonite soil conditioners with a larger range of granule sizes still provide the best conditioning features

at the most economical price.

"Through years of trial, I've even come up with a special blend that I think works the best for me," advised Bossard. "You want the granule size to be fairly large and uniform to optimize the stability of the playing surface. You also need a certain amount of small material in the blend to quickly soak up moisture. But I'm careful not to allow too many small granules, because they start to settle, giving less traction. I've worked extensively with Pro's Choice to develop my specially formulated conditioner 'The Bossard Blend'."

Of course these considerations are of crucial importance at the Major League level. For the average ball-field, choosing a good calcined montmorillonite clay that best manages moisture and keeps the infield mix non-compacted can go a long way toward maintaining a field that is playable, rain-delay resistant and reduces player injury.

One of the biggest challenges on the field can be maintaining adequate moisture. Trying to water enough to keep the grass from wilting in the hot summer heat, while working around batting practice and games is hard. The more moisture the soil can maintain, the better. Soil conditioners can ensure the best moisture management for hot, dry days and during rainy conditions.

Montmorillonite soil conditioners aren't only used in the infield, they can also help you improve your turf. "Aerifying three to four times a year promotes gas exchange. The conditioner can break up compacted areas and promote stronger rootzones and healthier turf," adds Bossard.

"Over the past 20-years there have been great strides in agronomics, like chemical supplements and even high-tech mowers," added Bossard, "but in reality, the principles of maintaining good turf haven't changed that much. The goal is to create a field that looks and plays great, and is easy to maintain."

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This article was contributed by Oil-Dri Corp., manufacturer of The Bossard Blend soil conditioner.



Roger Bossard's Professional Sportsfield Institute

For three days in December, you can work with Roger Bossard, Head Groundskeeper for the Chicago White Sox and world-renowned sports field builder. As a third generation groundskeeper, he will share his expertise while you get on-the-job training in Athletic Field Design, Construction and Renovation. This is a one-of-a-kind educational opportunity for anyone interested in maintaining high-quality sportsfields at any level of play. You'll even help re-construct three fields at Tucson Electric Park, home to White Sox spring training camp. For more information on this course and how to register for the Dec. 5-7 program please call or check out our website, space is limited...

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