

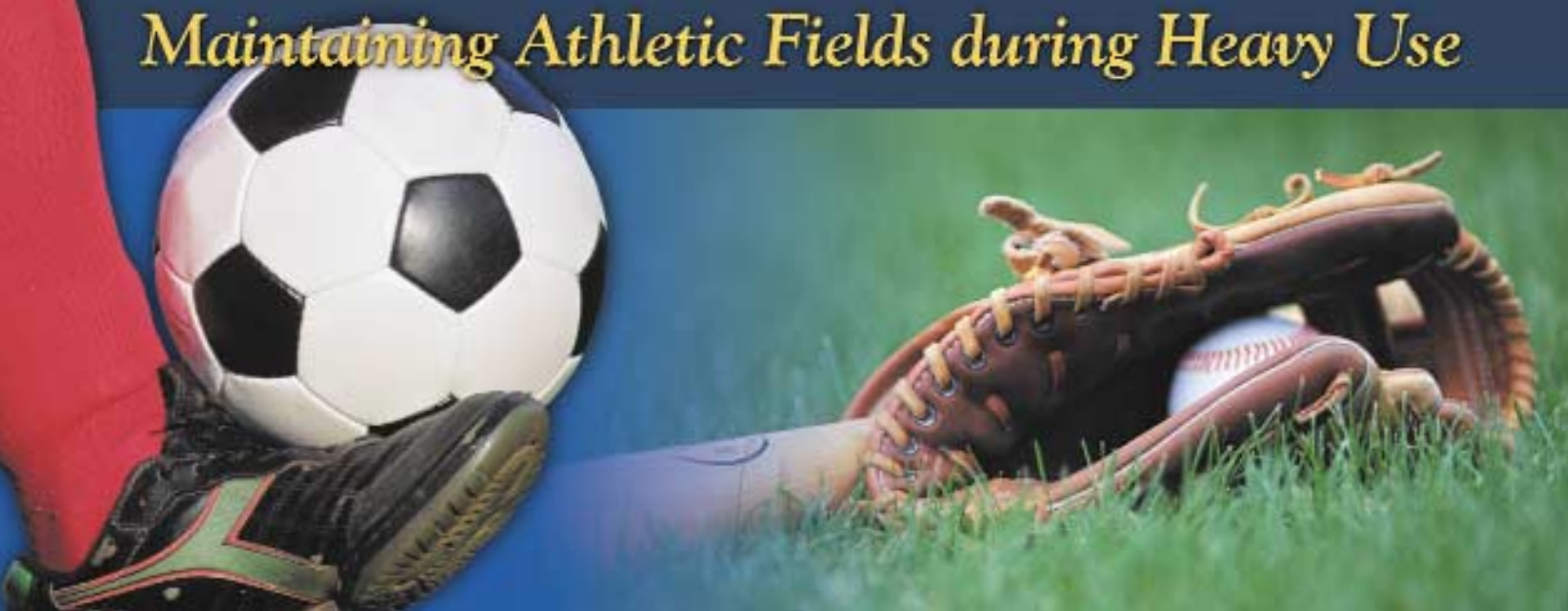
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# Let the Games BEGIN...

by Liz Nutter

*Maintaining Athletic Fields during Heavy Use*



**P**ity the poor sports-turf manager, who carefully nurtures a smooth, green athletic field, getting it ready for game season, only to then watch it get fiercely and repeatedly trampled, torn up and pounded into the dirt. Of course, taking player abuse and intense traffic in stride is the primary point of athletic turf. Maintaining a safe and aesthetically pleasing playing surface, however, especially during heavy field use, can be a turf manager's toughest challenge.

For expert advice on helping you keep your athletic fields at peak performance, even during ball season, *North Carolina Turfgrass* brings you the insight and wisdom of two of the state's most-respected sports-turf authorities—Dr. Art Bruneau, professor of Crop Science at North Carolina State University, and Tommy Walston, head groundskeeper at Grainger Stadium (home of the Kinston Indians professional baseball team) and winner of the Sports Turf Managers Association's 2003 "National Class A Sports Turf Manager of the Year" award.

According to Dr. Bruneau, bermudagrass is the predominant turf on most sports fields in North Carolina, with the exception of fields at higher elevations in the western part of the state. With any species of sports turf, attention to basic cultural practices—proper mowing, fertilizing, irrigating and aerifying—is crucial. Sometimes, though, the secret is knowing when to do what.

#### **Time and timing**

"The first key factor in keeping a sports field at its best is time," says Walston. "You must really spoil your field during the playing season, and that takes a tremendous amount of time. It also takes a commitment to never settling for OK, which means a lot of attention to detail."

Consequently, Walston continues, the second key factor is timing. "Due to practices, games and weather, sports-turf managers have only a few windows of opportunity when they can get onto the field for maintenance. You must really be organized, so that you don't miss those critical times when you can mow, fertilize, aerify or whatever needs to be done. If you wait until 'next time,' you may hit a long stretch of rain or wear and tear, and the turf will pay a price for that delay. Planning ahead is what makes it in sports-turf fields."

#### **Drainage**

Certainly, a major problem facing some sports-turf managers is a lack of adequate drainage on their fields. "Ideally, a sports field should have been graded correctly at the time of construction," Walston says. "If the field is properly graded, the majority of drainage problems can be eliminated."

Often, unfortunately, few school planners or administrators understand the proper design and grading of athletic surfaces. "For instance, I recently visited a new high school where the grading was horrendous," Walston recalls. "The crown on the softball field was overkill—although it drained well, the outfielders were throwing way uphill. You need a happy medium, where you have sufficient drainage but you don't affect the play of the game." According to Dr. Bruneau, the proper slope for most sports fields should be between 1% and 1.75%, depending on the sport and the local conditions.

Whenever possible, new-school planners should be alerted—beforehand—to the intricacies involved in athletic-field construction, says Walston. "We have great sports contractors in the industry—experts who know exactly how much slope each type of field needs—but the people who plan and build the schools don't always use a sports contractor to grade the athletic fields. Instead, they'll call a road grader or a local farmer with a tractor and a box blade. Then they end up with problems."

Whenever grading work is done, the contractor should be instructed to save the existing topsoil. "If you are completely renovating or building a field, make sure to stockpile any topsoil that is present on the existing site," says Dr. Bruneau. "Once the



## **FINDING THE FUNDING**

In times of tight budgets, sports turf managers frequently face difficulty in finding the money to pay for proper turf maintenance. In fact, as Walston points out, "Administrations responsible for funding decisions too often focus on the 'glamour stuff' like grandstands, lighting, the score board, etc. At many facilities, the last thing that gets funding is the playing surface."

For instance, despite its importance in athletic-turf maintenance, an aerator may be financially out of reach. "But let's say you work for a county school system with four schools," Bruneau suggests. "There's no reason the school system needs to buy four aerators. Instead, the four turf managers could share one aerator. Or a local golf course may be willing to do the aerification from a public relations standpoint. It doesn't hurt to ask."

Peer pressure can be equally effective in drumming up support for increased funding. "For example, you could take just one of the schools in the system and really do everything that needs to be done to upgrade that school's field," Bruneau says. "When parents and supporters of other schools come to a game and see how much better that one field looks, they can help put pressure on their own school administrators to find the funding for their own school."



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subsoil is properly graded and the crown is in place, redistribute the topsoil. Uniform distribution and depth of topsoil will reduce the potential for variability in performance and future management."

### Aerification

Proper aerification, says Walston, can be a sports-turf manager's most valuable tool for maintaining athletic turf during ball season. "Aerification can do an enormous amount of positive things for a field," he explains. "Mainly, aerifying helps improve drainage and alleviates compaction. In many ways, aerification will push the turf to make it healthier, perform well and survive during heavy traffic."

Dr. Bruneau strongly agrees. A key priority for sports-turf managers, he says, "should be to aerify, aerify, aerify. I've never seen a field that has been over-aerified. What I mean by aerifying, though, is where you actually pull cores from the ground, not just where you punch holes in the ground. Core aerifying allows for good air exchange in the soil, which is important for root growth. Also, dragging the cores afterwards and letting them fill in low spots will help level the surface. Shatter-core aeration, which vibrates or quakes the soil, can also be used in some instances to reduce the effects of compaction, but it will not bring soil to the surface."

For the aerification to provide a true benefit to the turf, though, the equipment should leave holes every three to four inches, Bruneau says. "Some people have old drum aerifiers that they run over the field only once, so they have holes too far apart to be very beneficial. In that situation, they're not pulling up enough soil or getting enough holes. You may have to go over the field several times in order to get twelve to sixteen holes per square foot."

In general, Bruneau does not recommend filling in low spots, holes or divots with sand on heavy soils. "That's how you make adobe brick," he says. "In many instances, the turf manager is better off dragging the cores to fill in the low spots."

Bruneau and Walston both point out that turf managers should carefully schedule core aerification during a break in field use, to allow time for the turf to recover. According to Bruneau, most bermudagrass fields would benefit from coring in the late spring and again in mid-summer, which is exactly what Walston does at Grainger Stadium.

"In addition to our spring aerification, our most-intense aerification occurs in summer, during a two-week period when my guys are on All-Star break or on the road," Walston says. "That's when I can heavily aerify and verticut and still allow the field to recover by the time the team starts playing at home again. A turf manager must be organized enough to look ahead and get ready for that window, with all the needed equipment lined up and ready to go."

When he can't core aerify, Walston slice aerifies. "During the season, we will slice aerify, and we can still play a game that night," he says. "It doesn't have the tremendous effect that core aerification will, but it's better than doing nothing until after the season."

### Mowing

Bruneau recommends that sports-turf managers stick to the basics about mowing. In other words, keep the grass mowed at the proper height for that kind of turfgrass, and keep up with the correct frequency of mowing.

Bruneau points to a Texas A&M study reporting that the shorter that bermudagrass is mowed within a given recommended range, the denser and more wear-resistant the surface. "If you mow it shorter, you get more shoots that thicken up the turf, which makes it better able to withstand traffic," says Bruneau. "You can hold more games on those fields than you can if you don't mow often enough."

How often is often enough? "When our team is in town, we mow our field every day. When the team is out of town, we mow every other day," Walston says. "Realistically, a high-school turf manager may not be able to mow every day, but certainly the more often, the

better." Dr. Bruneau adds that many bermudagrass fields would benefit by being mowed two to three times weekly.

**Fertilization**

Fertilization, both before and during ball season, is also important. Again, Dr. Bruneau recommends following the recommended fertilizer schedule for whatever species of grass a turf manager is trying to maintain. "Begin by taking a soil sample and submitting it for analysis," he says. "This will determine if you need to add lime, phosphorus or potassium. A turf manager cannot visually determine these nutrient requirements. That can be done only by chemical analysis. Soil samples can be taken any time of year."

If you don't maintain an adequate fertilization program, then the turfgrass suffers a double whammy during times of heavy use, says Walston. "Bermudagrass is a great turfgrass for athletic fields, but it does require a good bit of nitrogen, and it constantly needs to be fed. When you back off of that feeding, the turf simply won't recover as quickly as it should during times of heavy traffic. At that point, the turf will weaken and weeds will become more prevalent."

Consider the timing needed to prepare a high-school football field. "You really have only a six-to-eight-week growing season on bermudagrass before the teams start playing on August 1," says Walston. "So you've really got to be on your fertilization program in June and July, even in May, to push that grass to get thick and healthy and ready to absorb the stress of wear and tear. If it starts out weak, when you're ready to play on it, you'll be fighting an uphill battle all season long."

**Irrigation**

"Irrigation is important, but many facilities over-irrigate, due to a lack of understanding of what's best for the turf," Walston comments. "Often, the problem is that the person in charge of turf maintenance is the team coach or someone else who simply doesn't have a background in turf. He or she doesn't know that lightly watering every day

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## PREVENTING LIPS ON BASEBALL FIELDS

“One of the biggest safety problems I’ve seen is on baseball and softball fields where lips have been created from improper dragging of the infield dirt,” says Dr. Bruneau. “When the infield dirt is dragged outwards, toward the grass in the outfield, it catches on the edge of the grass area and starts to build lips, or small ridges or berms of dirt. Lips can trip up players and can also cause a ball to bounce in an unpredictable direction like a skeet. You can avoid creating lips by dragging the infield skinned areas correctly, parallel with the grass. Or you can use a power rake or even hand brooms to brush the dirt out of the grass back onto the skinned area. Basically, if you avoid that build-up of dirt right at the edge of the grass, you won’t have a problem with lips.”

encourages the turf roots to grow too shallow. Overwatering can also create a soggy or slippery field that is certainly not a safe surface.”

Dr. Bruneau adds that playing on a wet field will also result in a very hard, compacted surface. Therefore, you should irrigate only when the turf really needs it.

That also means you can’t put your irrigation on automatic timers and then walk away from them. “The best turf managers monitor their irrigation needs every day,” says Walston. “If it rains one day, they’ll shut their system down. Or if they know they need a dry field on Friday, they’ll back off on the irrigation on Wednesday or Thursday. And if it’s supposed to rain on Tuesday or Wednesday night, they may not water on Sunday or Monday, to keep their fields from being saturated by Friday. You can’t just take into account today’s weather—you need to stay aware of what kind of weather is predicted between today and your next athletic event.”

### Weed control

Most turf managers know that a thick stand of healthy turfgrass will usually choke out most weeds. But how do you prevent weeds on athletic fields that end up with bare areas from heavy use?

“Dr. Fred Yelverton at North Carolina State University has convinced me that only two applications of weed-control products on bermudagrass will take care of 90% of the weed problems,” says Walston. “The first application, in February or March, should be a pre-emergent product to control warm-season weeds like crabgrass and goosegrass. That way, when the bermudagrass comes out of dormancy in spring, it won’t have to compete against weeds and it can just stretch out, grow and take over. Then, in October to early December, an application of a broad-spectrum pre-emergence/post-emergence herbicide like simazine will control most winter annual weeds. Those two applications can have a tremendous impact on weed control on athletic fields, for not a whole lot of money.”

### Make knowledge a priority

“Many athletic-turf managers weren’t originally trained for turfgrass, but they’ve still been thrust into that position,” says Walston. “And too often, they do things only because the guy in that job before them did it a certain way. That’s why they should always become members of their local turfgrass and sports-turf associations, which often offer free seminars to help them learn the best ways to do things. When you’re on a limited budget and you make a mistake, you may not have the money later to come back and fix that mistake. So, it’s best to try to make the right decisions first, and your local association can really help you with that. Here locally, the Eastern North Carolina Sports Turf Association conducts several seminars to help educate sports turf managers, and we have more information on our website at [www.easternncsportsturf.org](http://www.easternncsportsturf.org).”

Bruneau recommends that sports-turf managers also take advantage of the exceptional (and free!) information available on NCSU’s TurfFiles website at [www.turffiles.ncsu.edu](http://www.turffiles.ncsu.edu). For instance, two calendars are posted: (1) Tall Fescue and Kentucky Bluegrass Athletic Field Calendar and (2) Bermudagrass Athletic Field Calendar. The site also has information on how to renovate a field and what to do under drought-stress conditions.

Keeping an athletic field in top shape even during hard play isn’t easy, but it’s well worth the effort, not only in terms of player safety and aesthetics. In fact, as Walston concludes, “A great playing surface that looks good and feels good underfoot is a real mental and motivational boost for your team. They walk out onto the field and say, ‘Hey, this is really nice. I’m ready to play.’ And, ultimately, that’s the whole purpose—and the best reward—for what we do as sports turf managers.” 🌱