



Preventing Compaction on Athletic Fields

“The band is on the field! The band is on the field!”

An announcer coined the phrase 32 years ago, at one of the most improbable, last-second victories in college football history. The University of California Berkeley Bears completed five lateral passes during a kickoff return with four seconds left in the game. As the time on the clock was about to expire, the Stanford University marching band flooded onto the field early to celebrate the upset. Unfortunately for Stanford, the game was not over and the early celebration turned to tears when Cal scored a game winning touchdown. As was the case in 1982, having the band play on a natural grass field can be a bad idea with the exception of halftime performances.



Figure 1. Marching band on the field at half-time.

Communication as a means to control field traffic

It is crucial to have communication among the athletic or school administrator, coach, marching band director and field manager. Accepting your role as a user of the field is the first step in communication. This publication

highlights school professionals and their influence on the overall use of the athletic field and natural turf quality.

The role of the band director:

Band directors need to realize their influence on field safety, playability and longevity. It is important to find a separate practice area on either grass or a parking lot, specifically for the band to use, with painted yard line markers. The area should be situated so the practice can be viewed from above, as if sitting in bleachers. Limit band practice on the game field to once per week and only when the soil is dry enough to resist compaction. Just like the football team, the band should never practice on the game field after a substantial rainfall event. The band member’s repetitive movements can cause significant soil compaction, wear and tear of grass resulting in a decrease of turf quality.



Figure 2. Band practice field at the University of Florida with extreme wear marks on yard lines.

The role of the coach:

The coach must take an active interest in scheduling practice activities and preventing excessive turf wear. Both the coach and the field manager can work together

to develop improved grass areas specifically for practice drills that are conducted on and off the game field.

Field rotations should occur monthly. If field orientation can be changed, do so regularly, rotating heavy traffic areas can relieve stress on soil structure. Field managers should spend time talking with the coach to explain this field rotation approach and how it can work best for the team. A majority of practice fields are poorly used because of the mis-concentration of repetitive drills on areas of the field. Commonly, the side of the field nearest to the locker room, parking lot or other point of interest is used more often than the farther end of the playing field. Encourage the coaches to use both halves of the fields to reduce compaction, allowing for turf recovery.

The role of the field manager:

In most situations, the field manager should realize that athletic fields are multi-use facilities rather than just a field used for one purpose. Managers need to account for additional labor, equipment and resources to combat traffic flow from all school functions. Graduation, classes, track meets, cheer squads, concerts and even soccer games may use a portion of the field or sidelines throughout the season.

It is the role of the field manager to be the biggest advocate of using practice fields whenever possible. If practice fields are available require their use; leaving game fields open for games only. The biggest detriment to poor playing conditions on fields is excess traffic and compaction. Allocate school district or university resources so that there is at least one “showcase field”. This allows the school administrator and the public to learn that producing high-quality turf is possible when given the proper maintenance, tools and budget. Even if resources are limited, don't spread them out so that all of your fields are average- to poor-quality, or your reputation as a grounds manager may be perceived as average to poor.

One of the most important things a field manager can do is documentation. Always write down maintenance schedules and use these to justify how an increase in resources will improve the rest of the fields that are in average- to poor-condition. Don't wait for administrators to allocate more money to field maintenance; show them how their money would be used.

The role of athletic or school administrators:

Administrators should keep in mind that proper traffic control costs nothing in terms of dollars and at the same time, offers the most effective means of reducing dangerously worn areas on game and practice fields. Clearly define the conditions for field use at the beginning of each season, so the game field is reserved for athletic games only. Be prepared to allocate resources on an annual basis for field maintenance and on a less frequent basis for field renovation. It is important for the field manager to keep the administrator up-to-date on what is best for the field. Also, remember to discuss budget needs at multiple points throughout the year with all parties involved.

Aerification and its effect on high-traffic fields

The best way to combat excessive field use is with an extensive aerification program. Aerification reduces compaction and reintroduces oxygen, water and nutrients into the root zone. It can also be beneficial in combination with a sand topdressing program to improve the internal drainage of a field, as well as providing a uniform surface that is safer for playing sports. Constant aerification can also provide an excellent environment for new seedlings growth and development, as well as increased rooting of an established field as seen in figure 3.

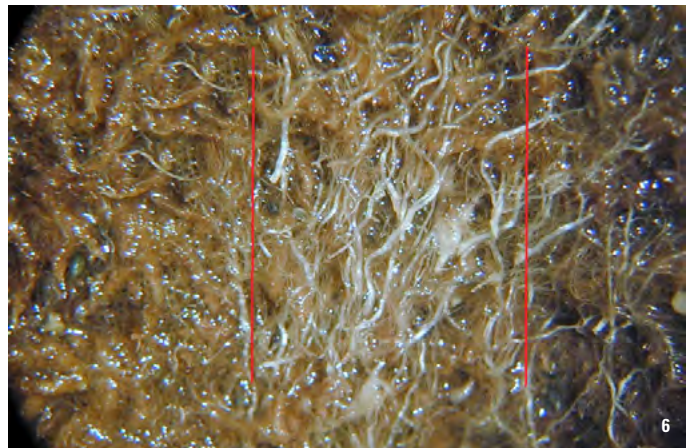


Figure 3. Increased rooting following aerification.

Native soil fields are more prone to compaction than a sand-based system because of the higher clay content. Clays, especially when wet, are highly prone to compaction. Regardless of the root zone constituents, using hollow-tine aerating or coring of turf is absolutely

necessary in the battle to prevent excessive field wear and soil compaction. All fields should be aerated at least two times per year, regardless of budget. On high-use sports fields, it is not uncommon to aerate 4–8 times per year. As mentioned previously, a great time to seed and build a seed bank is following aerification. Late summer or early fall is the best time to aerify cool-season athletic fields, however, anytime works as long as environmental stresses are low and a period of downtime (over three weeks) exists before the next field activity. It is important to remember that pulling a soil core using 3/4-inch hollow tines can double the area of the field that is impacted, in comparison to a 1/2-inch tine.

Types of aerifiers best suited for athletic field use

Hollow- and solid-tine coring, water-jet coring, slicing, spiking and high-pressure air injection (i.e., Air2G2 Aerifier) are methods of cultivation that are routinely used on fields to reduce soil compaction and improve air exchange. The Air2G2 is a new aeration method using pressurized air to relieve soil compaction with minimal to no surface disruption. Research at the University of Tennessee has found that the Air2G2 reduced soil bulk density from 1.63 to 1.39 g/cm³, as well as surface hardness by 21 percent (Sorachan and Dickson, 2014). The biggest advantage of using high pressure air or water injection is the reduction in downtime needed for turf recovery.



Figure 4. Air2G2 aerification equipment.

Conclusion

The two biggest factors in preventing compaction and unnecessary turf decline on athletic fields are communication and aerification. Communication is vital to the facility success and overall longevity of the sports field. There needs to be open lines of communication between the athletic or school administrator, coach, band director and field manager at **all** times. As soon as the communication breaks down, the quality of the field will decline drastically regardless of cultural and maintenance practices.

Second, an extensive aerification program is one of the most important practices in preventing turf decline as a result of excessive play on athletic fields. Aerification not only reduces compaction, it reintroduces oxygen, water and nutrients into the root zone. Regardless of the root zone constituents, all fields should be aerated using hollow-tine coring if possible, at least two times per year. In high-use facilities, it is not uncommon to aerate 4-8 times per year. As with most management practices, seeing beneficial results for reducing turf compaction, depend on the approach taken by all users of the field.

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