Turf maintenance for athletic fields

For the healthiest turf, these special considerations must be observed throughout the year.

by David D. Minner, Ph.D.

■ Constant evaluation of athletic field turfgrass management is essential for grass survival and player safety. The following factors deserve special consideration:

Irrigation—Adequate irrigation should be your top priority. It will do more to establish and keep turf under tough conditions than any amount of seed, sod, fertilizer, pesticide or cultivation.

The best irrigation is a permanent and automatic and supplies water evenly.

Use light, frequent watering when forcing growth or renovating high-traffic areas with seed, sod or stolons. Design irrigation to fit the traffic patterns of the field. In a block irrigation system, install additional heads on separate blocks to water high-traffic areas separately. Or, arrange the irrigation blocks to water at least the center of the field separately.

Commercial traveling gun sprinklers can be used successfully to irrigate athletic fields. They are portable, but usually take 8 to 10 hours to irrigate a single field.

Drainage—Three basic types of drainage for athletic fields are surface, subsurface and internal rootzone. Combining all three provides the best growing conditions and, more importantly, avoids soggy wet playing conditions.

Surface drainage involves crowning or grading the field to provide a 1 to 1.5 percent slope to remove water rapidly from the surface during heavy rains. All topsoil fields should be crowned. Fields with concave "reverse" crowns should have soil replaced to reestablish proper grade. Sand-based soccer and baseball fields with good internal rootzone drainage can be constructed with 0 to 5 percent grade.

Subsurface drainage uses an interconnected system of perforated drain pipe and clean gravel in trenches. On topsoil fields, these drains typically are placed 2 feet deep on 15-foot centers. They reduce prolonged saturated soils and improve root growth; they drain slowly, however. Subsurface drains are also placed in sand fields to remove water from the base of the sand profile. Sand rootzones must handle a high volume of water in a short time.

ATHLETIC FIELD TURF CONSIDERATIONS

1) Irrigation: preferably permanent, automatic and even.
2) Drainage: preferably surface, subsurface and internal rootzone.
3) Traffic control: preferably with cooperation of coaches, administrators.
4) Cultivation: preferably 12-25 holes per square foot.
5) Overseeding: preferably in high-use areas.
6) Fertility: preferably nitrogen and potassium at equal rates.

Internal drainage involves the flow of water after it enters the surface and before it reaches a drain pipe. Rootzone materials with many large pore spaces move water faster. Athletic fields with water infiltration rates greater than five inches per hour (usually high sand content fields) have rapid internal drainage. Topsoil fields with infiltration rates below one inch per hour have slow internal drainage.

Traffic control—If you have acceptable turf in non-traffic areas of the field (beyond the end zone, etc.), change the pattern and amount of traffic, rather than the species or management practices.

Administrators should know that proper traffic control costs nothing, and is the most effective way to reduce dangerously worn areas on game and practice fields. Work together with coaches to develop improved grass areas specifically for drills conducted off game and practice fields.

Try to reserve the game fields for games only. Scrimmage on practice fields, but practice drills on off-field areas. Except when the field is too wet, one marching band practice per week under the lights is not unreasonable. Mark out an exact game field with numbered yardage lines on a level, unused turf area as a separate band practice site. **Cultivation**—Core fields regularly. Low traffic areas may need coring only once or twice per year to prevent thatch and increase water infiltration. Heavily worn and compacted areas will require more frequent cultivation to break up hard ground, allowing for the spread of existing grasses and establishment of seedling grasses. At least 12 holes per square foot are needed during routine maintenance coring; 25 or more holes per square foot for renovation with reseeding.

Overseeding—Overseeding may be needed where the turf has been worn beyond recovery.

High-use areas of cool-season grasses may be overseeded during the playing season. Off-season overseeding generally covers the entire field. Overseed warm-season grasses with cool-season grasses to provide actively-growing cover for cool-season play.

Consider sod when cool-season grasses are desired and you don't have enough time to establish cover from seed during the off-season.

Fertility—Test soils annually, and adjust for pH, phosphorus and potassium. Gear the nitrogen application schedule to the climate and grasses. More nitrogen may be required on soils amended with sand. You may need to force growth and recovery of turf in high traffic areas with additional nitrogen.

During the annual field renovation, an additional one pound of P_2O_5 per 1,000 sq. ft. should be applied at the time of seeding, even if the soil test indicates adequate soil phosphorus. Make routine applications of phosphorus immediately after core aerification to move it deeper into the rootzone.

Apply potassium at a rate and schedule equal to nitroge. It improves traffic tolerance, reduces wilt tendency and helps grass blades stand up more quickly.

Grass options—In regions where either cool- or warm-season grasses will survive, consider the pros and cons of each as the dominant turf. Choose from the numerous cultivars available to best meet specific field needs.

—The author was named 1992 "Groundskeeper of the Year" by the American Baseball Coaches Association, and is a former secretary of the national Sports Turf Managers Association.