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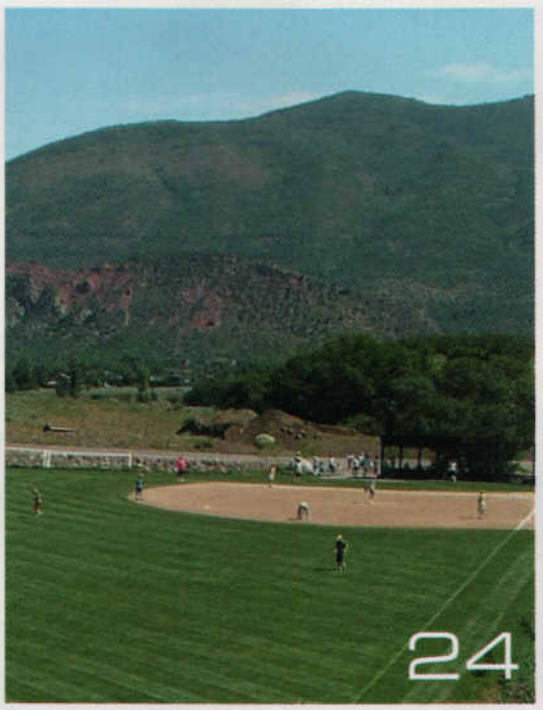

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features

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ON THE COVER: What a place to grow up, in beautiful Aspen, Colorado. Photo courtesy of Blair Elliot, City of Aspen Parks.

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Vern on weeds

Jeff Borger knows his grassy weeds and he's happy to talk about it. Jeff, who is better known to his buddies in the Keystone Athletic Field Managers Organization (KAFMO) as "Vern," is an instructor of turfgrass and weed management who has spent a lot of time at Penn State's Valentine Turf Research Center learning how to kill plants. Here are some points he made during a presentation at KAFMO's Athletic Field Conference:

"Factors to think about when you want to remove weeds, poa annua, or poa trivialis (rough bluegrass) include what type of sport is played on the field, what the wear is, the number of events played," Borger said. "Where is the poa? Can you live with it in a certain spot?"

As an example Borger cited the Penn State Lady Lions' soccer field, which is almost 100% poa annua. "In this case, the 'weed' is your friend," he said.

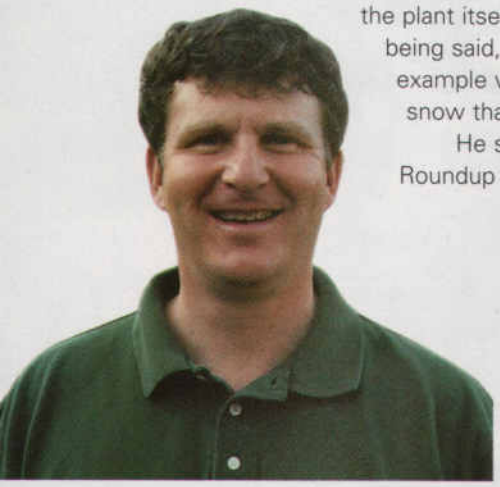
"Annual poa has a growth habit; it germinates, grows, and dies all in 12 months," Borger said. "When you are seeding in the spring, realize if you have a void somewhere, the poa will grow there. Then you have the natural decline in summer and fall germination, which is a good time to use a pre-emergence herbicide. Cool season turf growth habits are slower, so poa grows faster in the spring."

He also asked that you think about your cultural practices. "Aerifying can serve as an over-seeding program for poa. And it is easy to move poa seeds to other spots in your turf, with your spreader or mower. Keep one mower for the poa field if you can. And watch where you're walking, the poa seed can be spread even by walking," said Borger.

Use a light, slow-release fertilization in summer when the poa is weaker versus the turfgrass, Borger recommended, and also consider physically removing the poa with a cutter. And of course, if you have the resources, removing everything and re-sodding is an option.

Post-emergence herbicides can work, but Borger cautioned to read the fine print. "Don't apply to any excessive wear areas. And when using these products, go by the plant itself, not the calendar, in making decisions," said Borger. That being said, you've got to know when to get the herbicide down. "For example with the product Prograss, you must apply before the snow that stays on the ground," said Borger.

He said weeds could grow in synthetic infill fields. Using Roundup or pulling them out is the only solution there.



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A natural debate

There was much written about synthetic turf in April's issue of *SPORTSTURF*. I want to address any concerns or misperceptions that STMA is endorsing synthetic products or services over natural turfgrass.

One element of our mission is to enhance our members' competence. STMA does this through providing information and education to our members—education that encompasses the entire industry—including natural turf and synthetic turf. I believe that staying current with technology is imperative. Even if I never manage a synthetic surface, I want to know about that technology, as I believe all STMA members would want to learn about it.

We as sports turf managers take our jobs very seriously. We strive to manage natural turf and synthetic surfaces to produce safe and aesthetically pleasing playing surfaces for our athletes. Only by a thorough understanding of our options will we be able to advise our employers, athletic directors, administrators, and coaches of the most appropriate surfaces for our athletes and their levels of play.

I encourage you to read the article in this issue by STMA Board Secretary Abby McNeal, CSFM, who is the chairperson for our new Synthetic/Natural Turfgrass Task Force (see page 36). She and her task group and subtask groups are doing some excellent work to provide the answers to the questions "Why select synthetic turf?" and "Why select natural turf?"

As to the emphasis in April's issue on synthetic turf, look for similar coverage on natural turf products and services in this issue and every issue of *SPORTSTURF*.

As summer officially arrives this month, I have noticed how active our chapters are with events. Many chapters hold their major educational field days now to take advantage of the warmer weather. These activities provide great hands-on learning. Other chapters have planned fun events such as baseball games, golf tournaments, barbecues, etc., involving their entire families. For information on these events, see the Chapter News section in this issue (pages 36-38).

I encourage all of you to be as active in your chapters as possible. Local networking is so critical to each of us, and our chapters provide ready-made opportunities to learn from each other. A strong chapter network goes hand-in-hand with a strong national association. STMA's chapter relations committee is working to create a stronger bond between local chapters and the STMA. One way is to streamline the paperwork previously required by headquarters from each chapter.

Later this summer the committee is planning to distribute a quick guide that has the necessary forms and a checklist so that the chapters know what is due and by when. Also this summer, the Chapter Connection Newsletter will be electronically distributed to the chapter leadership with relevant and timely articles. Look for straightforward information about chapter insurance coverage through STMA, how to request and use the $500 development fund money available to each chapter, and tips to simplify dues renewal and collection.

Have a great summer!

Mike Trigg

MIKE TRIGG, CSFM

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Strategies for overused fields

BY **STEVE COCKERHAM**

Sports field use today is a function of the attention given to recreation, organized sports, and physical fitness. The owner, user, and spectator each have expectations of facility performance. The performance is related to the traffic demands and the resource input for construction and cultural care. Field overuse occurs when the traffic volume exceeds the performance capability.

Sports field demands are basic to ownership expectations and, thus, determine the ownership values. As ownership values connect with the demands to be made the expectations for the site evolve. The demands and expectations determine the degree of maintenance intensity required with the associated expenditures for developing a maintenance program.

Sports fields can be segregated into four levels of quality and performance expectations: PREMIUM, CHOICE, STANDARD, and PLAY decreasing in traffic tolerance respectively.

PREMIUM fields would have high visibility and as such be expected to be of very high quality. They typically would have high traffic from sports and events. Management intensity would be very high to meet the expectations. These fields would generally support major professional league and major college sports teams.

CHOICE sports fields have high visibility in a community and high quality would be expected. They would have moderate to high traffic from sports and events. Management intensity would be high. These fields would generally support minor league professional, college, and high school sports teams. Local school stadiums are faced with community pressures for access to the field.

Optimum care of a Choice level sports field includes enough fertilizer applied as needed to meet the performance expectation, timely uniform irrigation, mowing, aeration, topdressing, rolling, overseeding, and repair of traffic injury. A high traffic level results from actual use of approximately 18 game-time hours of soccer/week or 12 game-time hours of youth football/week or 30 game-time hours of baseball/week.

STANDARD sports fields may have high community visibility with moderate quality expectations. These fields typically have very high traffic from a community college and several high school sports teams as well as practice fields at all levels, including professional, college, and high school. Resource input is restricted with moderate management intensity. Practice fields generally receive less attention during design, construction, and care but are subjected to greater use than game fields and generally have lower maintenance budgets. The use intensity on practice fields is very high and compaction and wear reduce the turf surface performance.

Care of a Standard sports field includes enough fertilizer applications to allow the grass to grow, timely uniform irrigation, mowing, and aeration as needed. For that minimum investment the performance expectation of actual use would be approximately 10 game-time hours of soccer/week or 6 game-time hours of youth football/week or 20 game-time hours of baseball/week. These demands can be met with the minimum input on a field built on at least a loam soil and with reasonable drainage. It is not unusual for traffic levels on Standard fields to far exceed this.

PLAY fields are park and school fields with very high traffic. Quality is low due to restricted resource input resulting in low management intensity.

Performance

Performance is judged against the expectations of the interested parties. The parameters of sports field performance are SAFETY, PLAYABILITY, AESTHETICS, and DURABILITY.

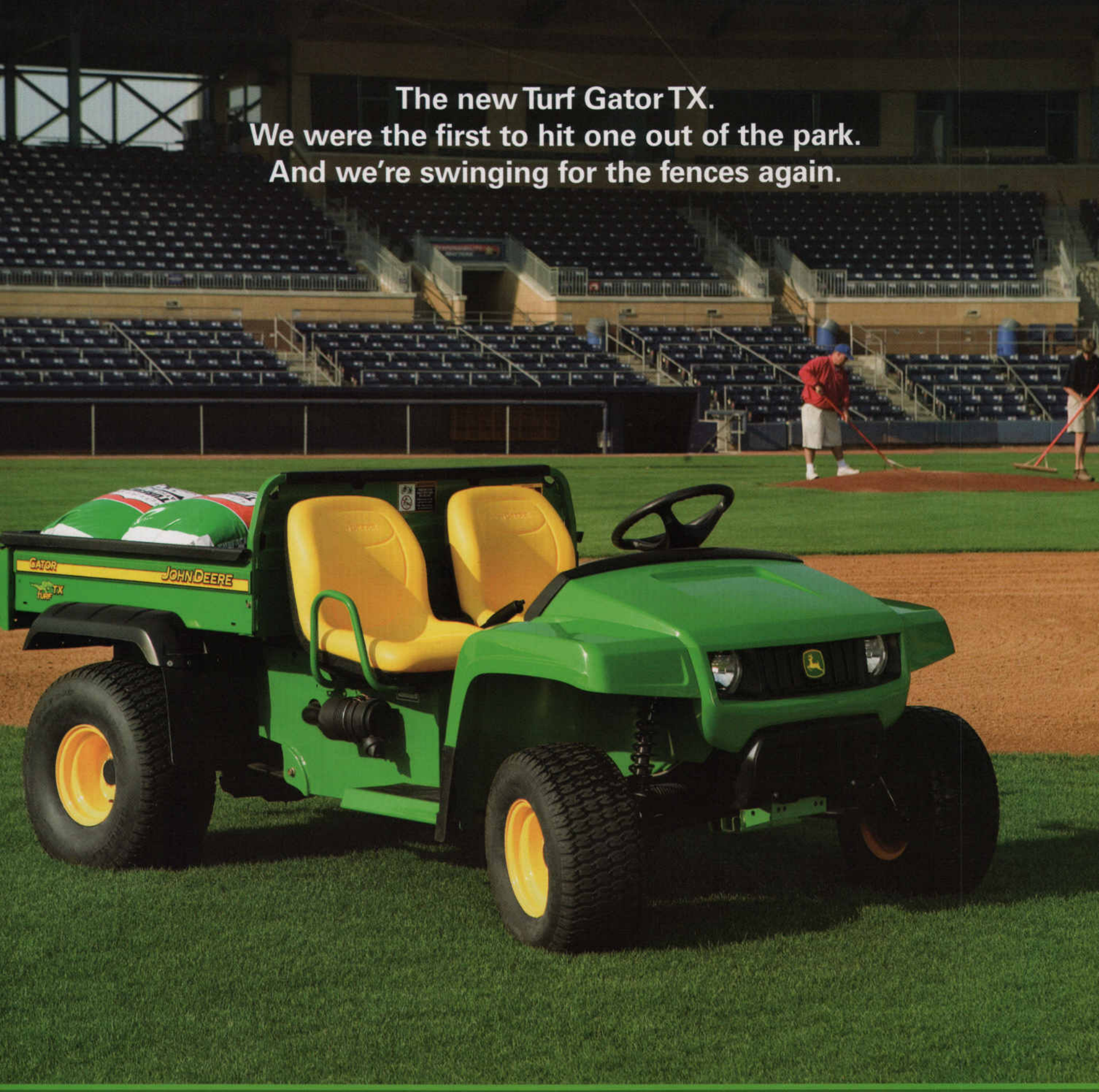
Safety is estimated by measuring hardness and traction, which are related to impact absorption (ability of the turf to take shock), shear resistance (ability of the turf to resist the tearing of the shoe cleats sliding over the turf) and footing.

Playability is both measurable and perceptual. A smooth, uniform surface is conducive to good play. The speed of the turf surface related to a ball or runner can be measured. The feeling of speed to the athlete relates to several factors resulting in the perception of the speed of the surface. The controllable factors are the firmness, surface uniformity, height-of-cut, puffiness, and thatch.

Aesthetics. Turf, wherever it is, has an important aesthetic function. It is supposed to look good. Appearance of the field, even though it is primarily a concern of the spectators in attendance and television audiences, does reflect the pride of the maintenance personnel. A bad looking field, especially if the playability is poor, is a highly visible civic embarrassment.

Durability. Faced with increasing demands, sports field use limitations are pushed to the extremes of their potential. Through the selection of proper construction techniques, turf species, and management practices, the sports turf manager can maximize durability.

Overuse of sports fields doesn't just happen. The traffic volume exceeds the performance level chosen by the owner. There is more play than planned and the resource input is less than needed. Overused fields are not necessarily abused fields. Overuse shows up as turf worn through primarily in traffic patterns, which may become muddy or hard playing surface. Field abuse shows up as ruts, holes, dead patches, irrigation patterns, pathways, and muddy or hard playing surface. Fields of all levels of performance expectations can be completely



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worn out. Even the finest, most durable surfaces, including roads, have traffic limits beyond which they fail. Field abuse is less excusable.

Cultural practices

The maintenance practices that are fundamental to sports turf culture are mowing, irrigation, fertilization, aeration, rolling, and repair. As traffic levels increase it is sometimes possible to push turf growth to meet the demand. Knowledge of the cultural practices can be useful in extending or increasing field performance.

MOWING can be a useful tool for the turf manager who is trying to get the most out of a field. Raising the height of cut increases carbohydrate production and the depth of rooting, leaf width, and rhizome and stolon number, weight, and internode. Lowering the height of cut gradually decreases turf vigor with the decrease in plant size, while thatch and puffiness are reduced as a result the durability declines. Lowering mowing height will increase shoot density and playability speed, though at the expense of shorter roots and lower traffic tolerance. It all means that raising the height of cut increases the traffic tolerance while reducing turf density and speed.

The optimum mowing height range is determined to be where the performance of that grass as a turf is greatest, with good topgrowth, root development, and plant density.

Height of Cut for High Traffic Grasses (inches)

	Growth Optimum	*Traffic Minimum**
Kentucky bluegrass	1 1/2-2.0	5/8
Perennial ryegrass	1 1/2-2.0	1/2
Tall fescue	1.0-2.0	3/4
Common Bermuda	3/4-1.0	5/8
Hybrid Bermuda	1/4-0.75	1/2
Zoysiagrass	1/2-1.0	5/8
Kikuyugrass	3/4-1.0	5/8

**Height of cut below which turfgrass fails under traffic pressure*

Traffic on turf adds a significant stress and increases the impact of the other stresses. Lowering the mowing height below the optimum range reduces field performance including durability. The traffic minimum mowing height is that point at which traffic tolerance decreases dramatically and the turf will fail.

Mowing frequency is determined by the growth rate. Removal of more than 40% of the top in a single clipping completely stops root growth for a period of time. The larger percentage of foliage removed, the longer the root growth remains stopped. The rule of thumb is to mow frequently enough to remove less than 1/3 of the leaf blade at one time to prevent the root growth from being completely stopped. For example, a turf mowed at 1 inch should be cut before the turf reaches 1.5 inches. If that is two weeks, one week, or two days then that becomes the mowing frequency.

Irrigation and drainage. Managing water on sports fields will make or break the performance of the field. Maximum wear tolerance and recuperative ability require optimum irrigation and good drainage.

Irrigation as an art on sports fields is as important as the science considering the irrigator's knowledge of the "hot" spots, wet spots, runoff, wind, shade, etc. and what to do about them. Regular scheduling of irrigation is often impractical for heavily used turf facilities during the periods of activities and hand watering specific areas may be needed. Irrigation with poor distribution uniformity not only wastes water, it wastes resources, all other cultural practices, and the integrity of the turfgrass surface creating the potential for field overuse.

The application of a light spray of water either by hand or by a short irrigation cycle is called syringing and it can be very helpful for turf that is overworked. Syringing is an important irrigation management tool cooling the grass and the environment around the grass blades. It slows wilt and increases the turgidity of grass blades causing them to stand up. It perks up the grass.

Syringing immediately after a game or an event can contribute significantly to turf recovery. When the turf has been covered for an event such as a concert, syringing immediately upon removal of the cover can mean the difference between the grass reviving and not reviving in a reasonable period of time.

Drainage. Most high traffic turfgrass failures are directly related to inadequate drainage. Poorly drained sports fields wear excessively and quickly lose playability and quality. Rutting and soil displacement in wet soil destroys the soil structure further reducing drainage.

Drain lines are the most effective outlets for internal drainage and for carrying the water away from the site. Soils with poor internal drainage can sometimes be helped with the use of sand filled slits. A machine cuts a slit about an inch wide and a foot deep then fills the slit with sand in a single operation with minimum disruption of the playing surface.

French drains are trenches filled with coarse gravel or rock. Grass is allowed to grow over the top of the drains. The bottom of the trench must have fall to carry the water away from the site being drained.

Surfactants are chemicals that reduce the surface tension of water allowing water movement through soil. Surfactants applied to wet spots in a sports field can temporarily increase drainage reducing the effects of field softness and poor traction. A surfactant can sometimes relieve dry hard spots by helping water penetration. Sod rooting is sometimes faster when laid over an application of surfactant due to the increase in the soil permeability. Surfactants have shown to be valuable tools for overused fields and are very useful for any turf manager working with high traffic turf.

Fertilizing

The performance of many sports fields would be significantly improved simply by applying nitrogen (N) fertilizer. Premium fields that have high visibility and high play should have at least 8 lb. N/1000 sq.ft./year. Choice fields where reasonable quality is desired that are subject to relatively high traffic warm-season grasses should have at least 6 lbs. N/1000 sq.ft./year and cool-season grasses should have at least 5 lbs. N/1000 sq.ft./year. Standard fields should receive 3-4 lbs. N/1000 sq.ft./year. Play fields should receive at least 2 lbs. N/1000 sq.ft./year just to keep some grass on the surface.

The turf manager can increase the biomass and cushion on the field by increasing N applications. Doing so, however, can be at the expense of a reduction in root mass, lower recovery potential, and weaker shear strength. Increasing the cushion can make the field safer if footing is not seriously reduced.

Greener turf is not always better especially if the color is from excessive or improperly timed nitrogen applications. Since N tends to increase topgrowth, under rapid growth conditions shoots take priority over roots and rhizomes. If this occurs in the spring, excess N will cause the plant to enter the summer stresses with reduced root development and increased succulence and disease susceptibility. It will be hard to keep up with the regular mowing requirement caused by rapid turf growth.

Turfgrasses use phosphorus (P) in relatively high quantities. Since, in most forms, it is slowly soluble it resists leaching. It can become unavailable to the plant if the soil pH gets too high or too low. P deficient turf is stunted and may show a red color beginning at the leaf tips. On cool and warm-season turfgrasses, phosphorus is