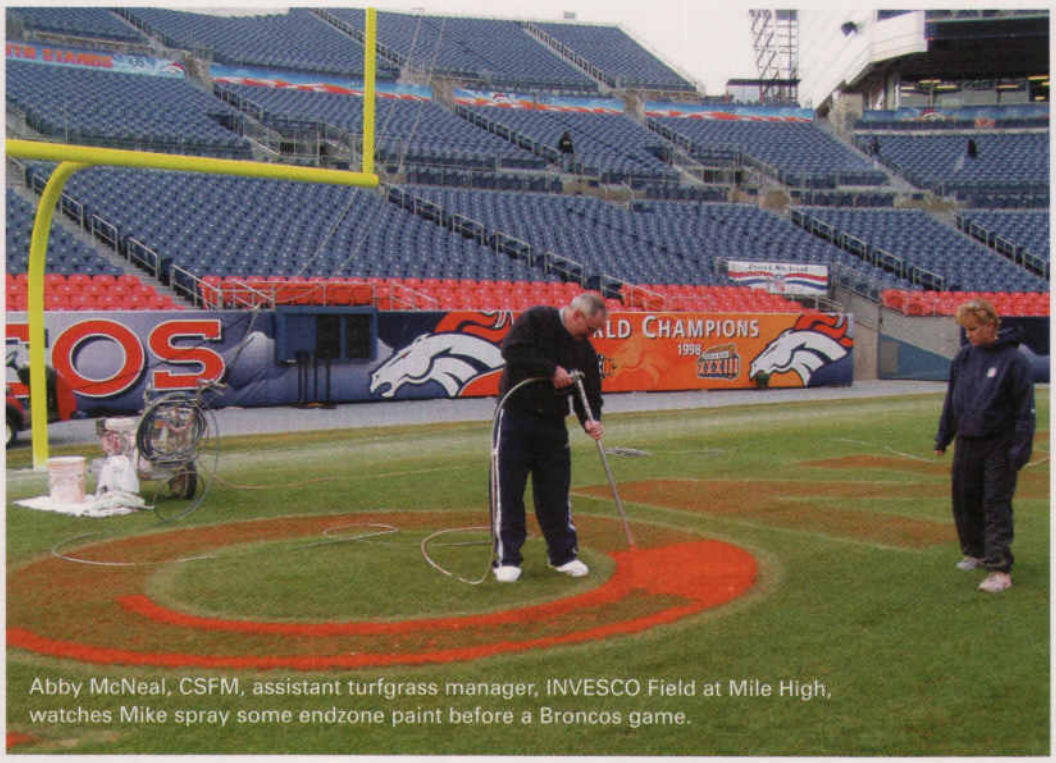


Abby McNeal, CSFM, assistant turfgrass manager, INVESCO Field at Mile High, watches Mike spray some endzone paint before a Broncos game.

formation from a Brownfield to a Greenfield site. Our complex conceptual design includes one full-size, multi-use stadium field with seating up to 5,000, 14 full-size soccer fields, eight youth-size fields, five baseball/softball fields with full fencing, bleachers and batting cage, and five asphalt basketball courts," says Trigg. "Amenities will include 1,500 paved parking spaces, with 500 overflow spaces, three buildings for small concessionaires to serve on-site patrons, two picnic groves that may include small playgrounds, and restroom facilities conveniently located throughout the site.

"At the Waukegan Park District we believe that proper playing conditions and maintenance of fields is extremely important and are obligated to provide the best and safest fields. We identified the importance of Attention to Details in all of our field maintenance operations. The importance of detail in either our daily field preps, routine field maintenance, such as field painting, turf cultural practices or fall field renovation projects," says Trigg.

Full-time park maintenance worker Tony Diaz, under the supervision of Scott MacLean, is responsible for all District athletic field maintenance operations. As summer seasonal staff is hired, Tony's emphasis is placed on proper training so the employee understands what is expected when preparing a ball diamond.

Tony and his seasonal staff prepare for more than 2,300 sporting field events running from April through November. In soccer alone, the fields played more than 1,300 soccer activities on 14 fields and could easily double that amount if more soccer fields were available for play, says Trigg. "Use of Grosche Fiield is in high demand, not only for local games but also weekend rentals for Chicago's Men's Senior baseball and White Sox baseball youth clinics."

"As superintendent, my goals have been to develop a positive departmental image through service, responsiveness, and consistency in daily assignments," says Trigg. "In addition, promote a positive safety attitude and create an atmosphere that stresses the importance of quality and encourages cooperative teamwork.

"I also have hanging in my office a framed quotation from one of my first ever sports turf programs. It was from a presentation given by Dr. Richard Caton. It states 'Prior Planning and Prudent Preparation Prevent Poor Performance.' I can't tell you how true this is for me with our park maintenance operations. Whether scheduling daily maintenance tasks or long-range capital improvement projects, the prior planning and preparation makes for efficient performance," Trigg adds.

Career advancement

"I read an article in another periodical that stated the importance of keeping on top of the latest issues and trends in your profession, and gather and share solutions to day-to-day challenges with other colleagues. In addition, seek out resources to improve your performance and make important networking contacts by renewing membership in professional associations. This definitely sounds like great advice for any sports turf manager," Trigg says.

"I truly believe STMA has a lot to offer for anyone either new in the industry, or with years of experience, to develop into the best professional they can be.

"For me the benefits of STMA membership began hitting home with the establishment of the Midwest Chapter in 1990. I took an active role as workshop chairman organizing several sports turf workshops in the early 90s. As I mentioned earlier, the thrill in having Harry Gill as a speaker. In addition, the first ever sports turf workshops at the Chicago Bears Training Center with sports turf manager Ken Mrock, and in 1992 at Wrigley Field with Frank Capparelli and grounds manager Roger O'Connor. I also organized the Chapter's First Annual Meeting and Luncheon in March 1991 asking Steve Wightman, at Jack Murphy Stadium, to come to be our guest speaker. Also, it was exciting having as our Keynote Speaker Chicago Bear quarterback Jim Harbaugh.

"In 1992 and 1993, I was assisted by many in the Midwest Chapter as we organized and conducted the National Midwest Sports Turf Institutes at Wheaton College. The institutes were daylong events including educational sessions, mini trade shows, and keynote speakers. We drew from National STMA Board speakers, such as Gil Landry and Henry Indyk," Trigg says.

"I attained my STMA certification in 2001. CSFM certification brings greater credibility to our profession. It recognizes the education and training standards necessary to provide high quality park and recreation sports field facilities. Attaining certification signifies to my peers that I have made a commitment to excellence. I am proud of my profession and accomplishments as a Certified Sports Field Manager," says Trigg.

"I believe my involvement with STMA has contributed to my personal and professional growth. I urge everyone connected with this industry to get actively involved, to volunteer your time and talents to STMA or a chapter. I know for me the more I give, the more I get back." **ST**

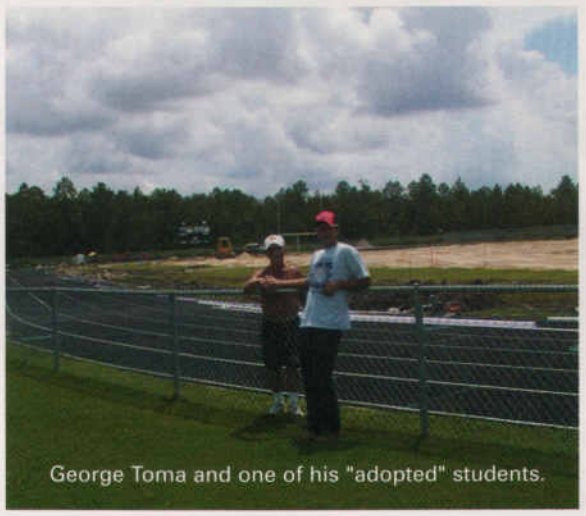
—Edited by Eric Schroder

High school hosts Super Bowl practices

BY **RONNIE GRIFFIN**

When Super Bowl XXXIV was awarded to Jacksonville, FL one of the issues was finding practice sites for the teams. The team hotel for the AFC champion was at the World Golf Village and the only fields within the required distance of the hotel were at local high schools. The NFL picked Bartram Trail High School because it is secluded, has nice facilities, and a Turfgrass Academy.

We currently have 47 students enrolled in Horticulture/Turfgrass classes. The first year in the Academy students must take Agriscience and we have more than 100 students currently in that class. In these classes, we train students for careers in Landscape, Golf Course, and Sports Turf Management. We spend about 1/3 of the time in the classroom and 2/3 of the time outside for hands-on learning. One of our students spent summer 2004 as an intern for the Jacksonville Suns, the local double A baseball team. Several students work at local golf courses and lawn maintenance companies. Some of these students are planning to further their education at either Abraham Baldwin Agricultural College or Lake City Community College.



George Toma and one of his "adopted" students.

This fall we hosted a workshop for the newly formed North Florida Sports Turf Managers Association chapter. Many students were involved and are now members of STMA.

Our fields were good by high school standards, some of the best in the area. Minor problems included poor drainage, irrigation, and soil. So to make the field playable for the NFL renovations had to be made, and the work began last July. The sod was removed and the soil taken out about 2 feet down. Some of the material taken out was used as a base for a 70-yard practice field near our game field, since two fields were needed. Then drainage was installed around the track and sideline, and a mix of 90% sand and 10% peat was installed.

It was about this time that Hurricanes Frances and Jeanne paid us a visit. We were lucky to have had only minimal damage. The project was delayed but it gave the students an opportunity to work on the renovations. Students helped rake and had to blow off the track several times because of sand being blown by the storms. Since the old field only had about a 6-inch crown in the center it was decided the new field should have a 12-inch crown. The sod was Tifton 419 Bermudagrass and cut 2 inches thick.

The installation was finished on a Tuesday and we played our first game on Friday night. We rescheduled our first 3 games of the season because of the delays but it was worth the wait. Some of the Turfgrass students are football players so getting to play on the beautiful new field was especially exciting for them.

During the renovations we had a special guest on our campus. George Toma visited to oversee the renovations. What a treat. At first many of the students didn't know who he is but they soon found out! They learned of his experiences with the Kansas City Chiefs and Royals and all of the Super Bowls and Pro Bowls. George took the time to speak to the students about turf and their work ethic. Students quickly learned about giving their best effort "and then some." Working side by side with George prompted some students to help out on the field over weekends. The students found it funny that whenever he needed something George would call out "hey son." They were all like his adopted children. We appreciated the opportunity to work with a legend.

Ed Mangan of the Atlanta Braves and the NFL also visited several times. We also had help from Ed Attalla and Bob Norman of the Jacksonville Suns. They came out several times and helped us line our field and paint the logos. Students also assisted with overseeding the fields.

The challenge then was maintaining the fields. We played soccer on them until the start of the year. Students mowed the field with new mowers provided by Toro and the NFL. We are proud to be the only high school chosen as a Super Bowl practice site. The students and faculty at Bartram Trail will always remember what a wonderful experience this has been. **ST**

Ronnie Griffin is the Turfgrass Instructor, Bartram Trail High School, and secretary of the new North Florida Chapter of STMA. He can be reached at griffin@stjohns.k12.fl.us.

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STMA announces FOY Award winners

Eight fields were selected to receive the 2004 Field of the Year award, and two were selected as the 2004 Complex of the Year.

The winners are:

Baseball

Professional: Thomas Nielsen, Louisville Slugger Field, Louisville, KY
Collegiate: Jarad Alley, Isotopes Park, Albuquerque, NM
Schools/Parks: Joseph Harris, Doubleday Field, Cooperstown, NY

Football

Professional: Chris Morrow, Dallas Cowboys Football Facility, Irving, TX
Collegiate: Leo Goertz/Craig Potts, Kyle Field at Texas A&M, College Station, TX
Schools/Parks: Jim Wilson, Blue Valley District Activities Complex Football Field, Overland Park, KS

Soccer

Schools/Parks: John Netwal, CGCS, North Scott Community Schools, Eldridge, IA

Softball

Collegiate: Jennifer Roeber, Bowlin Stadium-Haymarket Park, Lincoln, NE

Complex

Professional: Joe Kennedy III, Surprise Recreation Campus, Surprise, AZ
Schools/Parks: Blair Elliot, Aspen Recreation Center Community Campus, Aspen, CO

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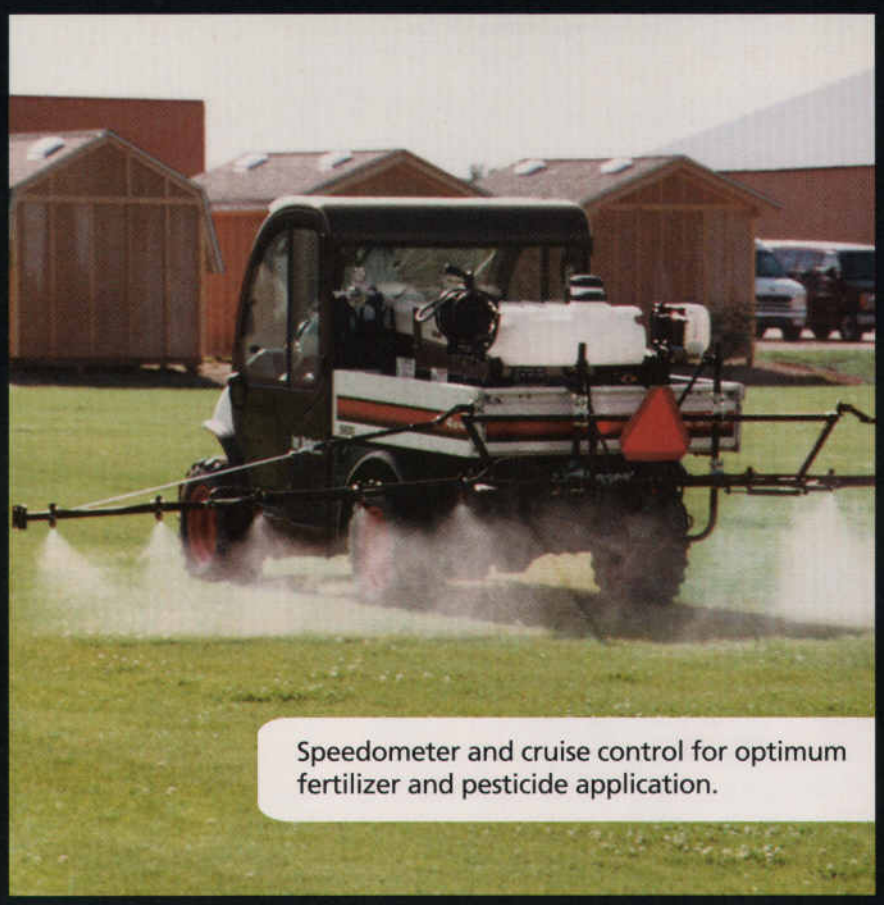
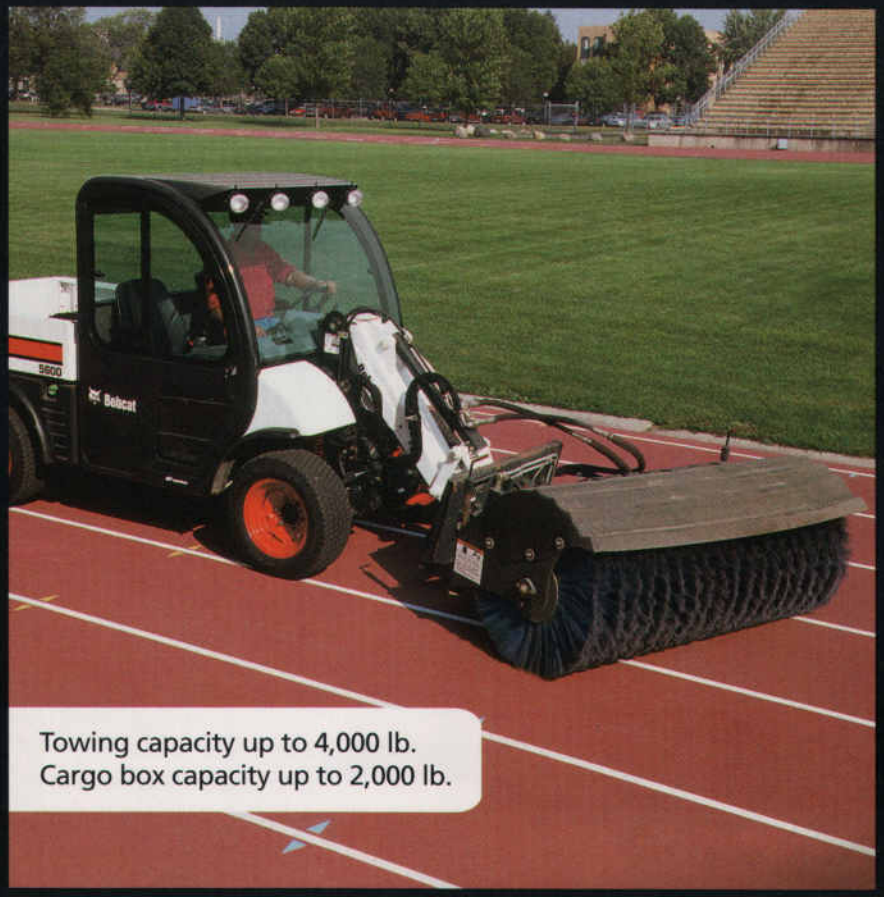
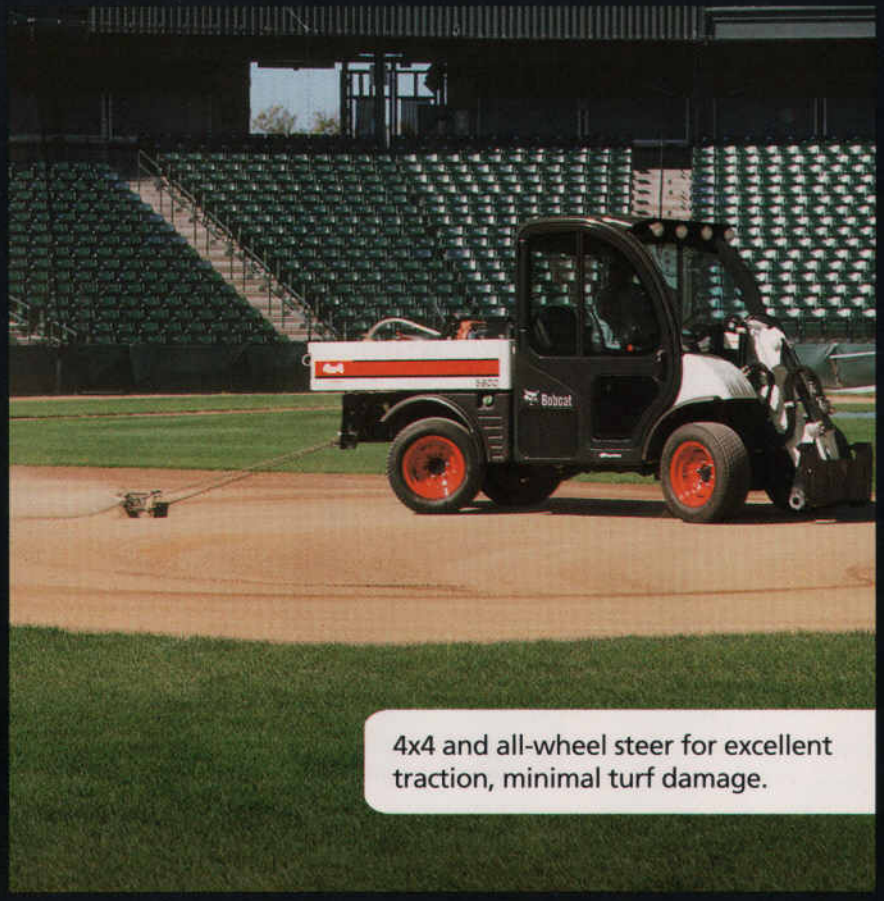


Toolcat 5600 with Bobcat sprayer



Toolcat 5600 hauling and towing turf tools



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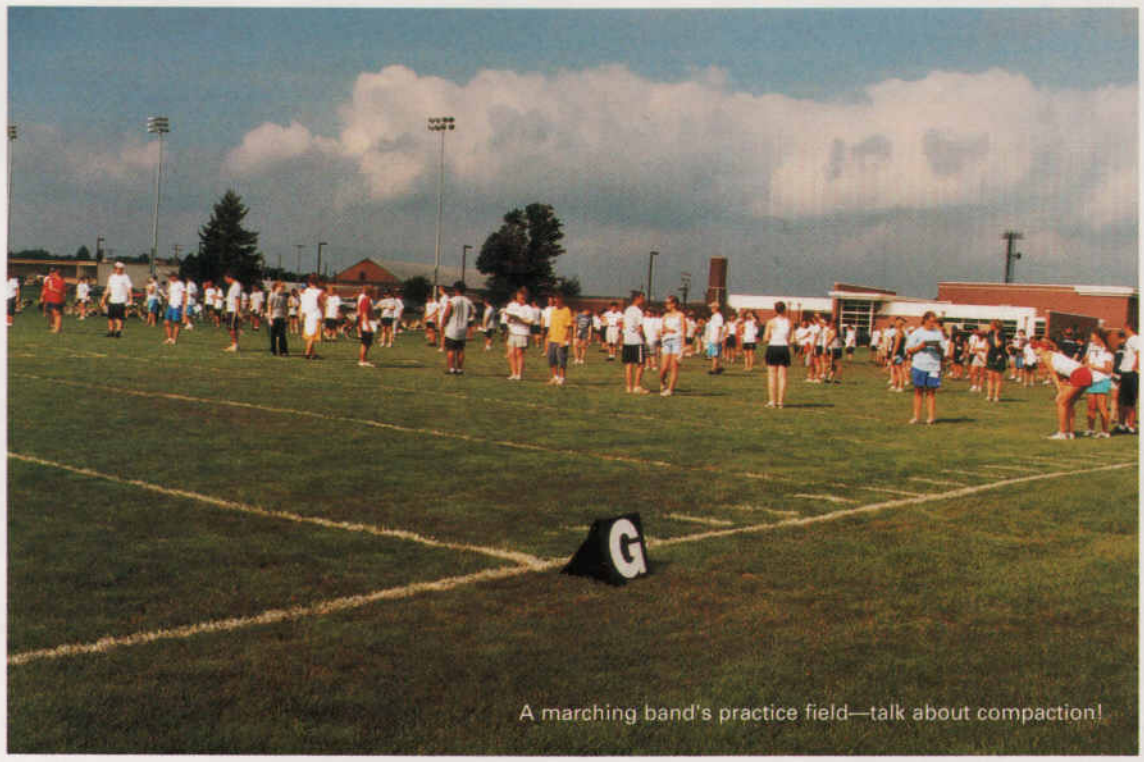
BY **PHIL BROWN AND DR. BERT MCCARTY**

Understanding and minimizing soil compaction

Soil compaction is becoming an ever more prevalent problem within the turf world. With the surge of athletic events and practice on a limited number of fields, unhealthy turf and playing conditions are emerging. Facilities wishing to attract additional revenue are facing the situation where the more customers they attract, the greater the traffic on the turf and thus, the greater the amount of soil compaction.

Soil compaction is the pressing together of soil particles, resulting in a more dense soil mass with less pore space. When the soil particles push together, they occupy a smaller space, thus, are considered compact.

Compaction occurs in areas receiving the most traffic. Athletic training fields are a high compaction risk due to the near daily usage and the evolution of larger and stronger participants. Other areas at risk are recreational fields open to almost unlimited play and practice. It is not just foot traffic causing compaction, but also vehicular traffic. Daily mowing, periodic topdressing, and fertilizing require heavy machinery to perform, thus, additional sources of compaction.


A marching band's practice field—talk about compaction!

Soil compaction can occur at any time, however it is most acute when the soil is wet. This is from the water in the soil acting as a lubricant, more easily allowing the soil particles to slide past each other with less resistance than when they are dry. This is amplified when soil high in silt or clay is used during construction. These soils remain wet longer following rain and the smaller size of these soil particles allows them to press closer together.

Problems caused

Compaction can also cause a number of soil problems, including an increase in bulk density, an increase in soil strength or firmness, a reduced aeration porosity, and an altered pore size distribution when soils are highly pressed together.

Bulk density is a measure of mass or weight per unit area. In compacted situations, due to the increase in number of soil particles in the area, the mass will increase. This also contributes to the reduction in aeration porosity, as the closer soil particles are to one another, less pore space exists. Sufficient pore space allows air, water, and other nutrients to enter the soil, a reduction in this eventually leads to poor turf. Non-uniform pore size distribution also can contribute to this, causing soil particles to move closer to one another, reducing pore space.

These physical changes can have detrimental effects on turfgrass growth such as decreased root growth, decreased shoot growth, reduced carbohydrate reserves, and decline in overall quality. Destruction of the soil structure also may occur. The resulting soil often becomes "hard as a brick" when dry and a "mud hole" when wet. The turf eventually thins, potholes develop, and the resulting hard surfaces can cause player injury.

Prevention

Constructing fields with sands that do not compact is the first step in preventing soil compaction. This involves replacing the existing soil with a pre-approved sand-based rootzone mix that balances good water management and compaction prevention. Unfortunately sand-based athletic fields are more expensive to build.

The most common way of reducing compaction of existing soil is through the use of soil cultivation techniques. Most of these techniques operate by physically altering the soil profile in some way, be it by removing parts of the soil or by altering the structure of the soil. A great deal of diversity exists among the cultivation techniques available.

The most popular method of reducing existing soil compaction is hollow tine aerification. Hollow tine aerifiers are hollow tubes 1/2 to 3/4-inch in diameter and 3 to 12-inches long, designed to pull plugs out of the soil, thus, reduce the amount of soil per unit area. They operate on the principle that if less soil is present then a lower mass per unit area (or bulk density) results. Note that hollow tine aerification can disrupt the surface considerably, the equipment can be expensive, and generally requires a medium sized tractor.

The disruption cause by hollow tines has increased the popularity of solid tine aerification. Solid tines are designed to enter the soil vertically and shatter (disrupt) the structure of the soil as they are retracted from it. Since solid tines do not pull out plugs of soil like hollow tines, they require very little clean up, saving on labor costs, and helping keep the playing surface smoother. However, there is a question over the effectiveness of solid tines since they do not remove any soil material and therefore might not be reducing the bulk density of the soil.

Adaptations to hollow and solid tine aerification include both deep tine aerification and spiking. Deep tine aerifiers are hollow and solid tine aerifiers able to

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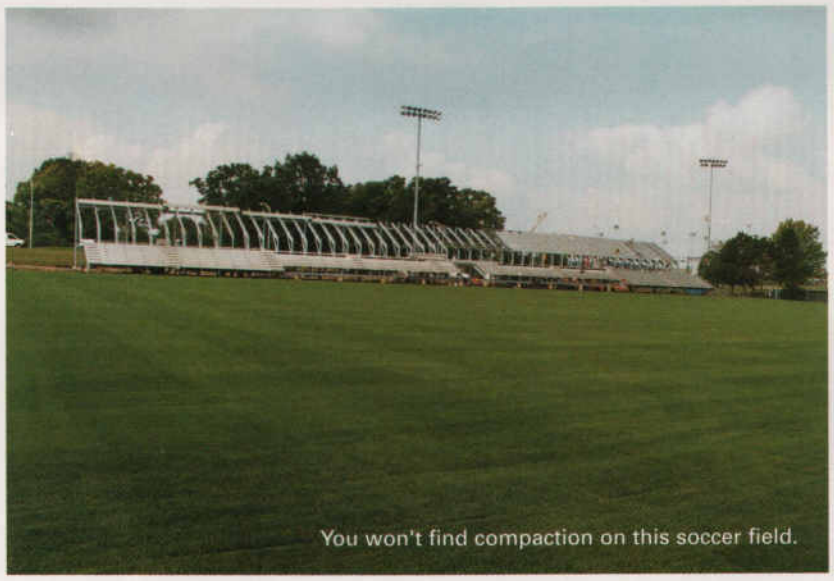
penetrate to depths of up to 12 inches. Spiking is similar to solid tine aerification except the tines are thinner and shorter. Spiking is designed where the surface of the turf requires as little disturbance as possible.

The hydroject operates on a similar principle to solid tine aerification but instead of a tine, high-pressured jets of water are used. The water is pushed into the soil under pressures of 2000 psi enabling it to reach a depth of roughly 8 inches. The water not only aids in the relief of compaction but helps water penetrate to the lower parts of the soil profile, redistributes organic matter in the soil, and wet hydrophobic (excessively dry) soil.


You won't find compaction on this soccer field.

Another technique that operates in a similar way to the original solid and hollow tine aerifiers is "drill-n-fill." Drilling involves using a piece of machinery with drill bits attached to it. The bits are drilled into the ground, creating deep holes. As is the nature of a drill, some soil from the hole is brought up to the surface, lowering bulk density. This, however, is not in the same quantities as conventional hollow tine aerification. Some machines allow the hole to be filled with sand and tend to cause less surface disruption than conventional aerifiers. Unfortunately these machines are relatively slow when compared to other aerifiers but do not disrupt the surface as much as deep-tine aerification.

Other techniques use a horizontal motion. Slicing, for example, is using a rolling blade to cut slits into the soil. The slicer helps break up the soil surface, reducing surface compaction as it does so. Slicing also helps soil water and air exchange and slices algae and turfgrass runners. Slicing blades can be continuous or a series of teeth set on a rotating blade.

Similar to slicing is grooming. Grooming operates in a similar manner but the blades are attached to a walk-behind mower. The blades used in grooming are much smaller and thinner than those used in slicing as the technique is generally used in the prevention of mat and grain formation on turfgrass. The blades are powered to revolve against the direction of machine movement. Due to the shallow blades, grooming is unlikely to have a great deal of effect on deep compact areas but helps in alleviating or preventing compaction in the upper soil profile.

Supplements to the use of machinery include reducing or altering the traffic pattern on the turf, especially when the soil is excessively wet. On football and soccer fields concentrated practices should be performed or rotated on different parts of the field. Using only lightweight machinery and minimizing its use and practice when soils are saturated also help prevent soil compaction.

Soil compaction is a serious issue among the turfgrass community and one that has possible legal ramifications. It can cause the deterioration of turf quality and be a danger to participants. Take steps to relieve this problem or eventually undesirable turf and soil conditions will develop.

Phil Brown earned his Master's degree under Dr. McCarty at Clemson University and now is working on his Ph.D. in soil physics at Clemson. He can be reached at philipb@clemson.edu.

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Keep softball maintenance costs in the ballpark

BY **MARK NOVAK AND PATRICK MAGUIRE**

As the days grow longer, the first signs of spring bring with it the excitement of a new season. Yet, whatever opportunities the season may bring for athletes, athletic fields bring their own set of management challenges: how to increase usage and improve field conditions on limited budgets. With the unique combination of skinned infields, turf areas and other facility elements, softball fields are some of the most difficult athletic facilities to properly maintain. Attention to detail and creative athletic field design can help to reduce scheduling headaches and keep annual maintenance costs in the ballpark. Following are several cost-effective techniques that will help to improve playing conditions and increase the life span of softball facilities:

Customize the infield mix. Composed primarily of sand, silt and clay, the "skinned" area of a softball field might be the most delicate and maintenance intense component of all athletic field surfaces. In fact, many high-level facilities have staff dedicated solely to the upkeep of softball (and baseball) facilities.

Determining the composition of an infield mix directly influences both the playability of the field, and how well it will respond to various weather conditions. Across the country there is an enormous variety in climatic conditions and just as many variations in infield mix design. In New England, weather ranges from cold and wet months in the spring and fall, to hot and dry during the summer. A typical ratio for an infield mix in the northeastern portion of the country also reflects the area's climatic conditions: 60-75% sand, 9-25% silt and 16-25% clay. The high percentage of sand helps keep the infield mix playable in the spring and fall while the percentage of clay helps maintain the skinned area's moisture during the dry summer months. Each softball field is unique and the design of the infield mix should be considered the same.

Water efficiently. Watering the skinned areas is necessary to maintain a consistent infield mix. Water is the glue that holds the components of the infield mix together. During the softball season and the hot, dry months of summer, skinned areas can require water up to three to four times daily.

Springfield College in Springfield, MA, last year experienced an extremely dusty softball infield. The college's president called in a design consultant to assess