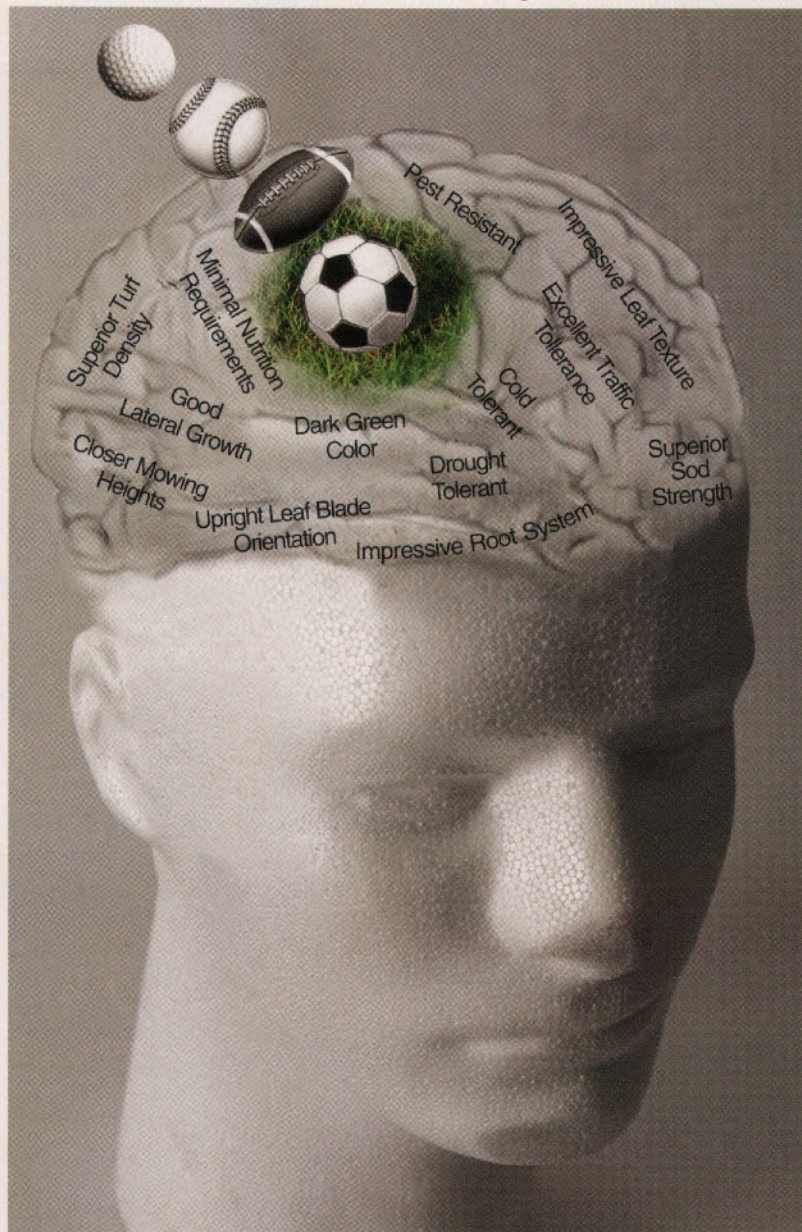


When You Think About It, There Are Lots of Reasons Why TifSport Is So Perfect For So Many Athletic Fields.



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28 days

The stadium's event schedule allowed 1 month starting in early June and so Hostick and crew began by ripping up the sidelines with a front-end loader, while simultaneously taking out the infield layer to till in compost with the soil. New irrigation was installed and then new topsoil delivered to refill the sidelines. The infield turf and dirt were roughly laser-graded before the first delivery of new infield mix. After incorporating one load of mix to create a transition zone, the remaining mix was delivered.

For drainage, a finish grading from the grandstands to the start of the outfield was established, with a 1-% crown running from home plate, through the mound area, and leveling out behind second base. The layout of the turf was done in chalk and sod lay-to lines followed by a final grading to create the seamless transition from turf to dirt.

Construction lasted 28 days. After 1 week of grow-in time, we hosted a baseball camp. Sandwiched between summer events, we topped the sod with sand and ran extra irrigation. In November, another load of infield mix was placed and graded to correct any uneven settling, and we renovated (topdressed, graded, and overseeded) in preparation for the 2005 season.

Special challenges

Soil samples detected high salt and phosphorus levels and this condition was addressed by improving drainage and using gypsum with soil surfactants and liquid polymers to move the salt out of the rootzone. Fertilizers with high salt index or elevated phosphorus are avoided. Hostick says to maintain the high quality turf, foliar applications of nutrients augmented with a slow release nitrogen and high potassium granular are made to provide an even feeding.

Hosting more than 300 hours of tournaments and baseball camps, besides the 600 hours of primary baseball play, means Hostick has to be moving. "We get in early and stay ahead of the schedule. I recommend to do as much preparation before game day as possible," he says.

Irrigation is from the city water supply, regulated by a centralized control system feeding 2-inch remote control valves with 5-6 heads each on a square layout, waters the field. "Water is the key to a safe infield for us. We soak it down at every opportunity but the field has to drain well to get away with lots of water," says Hostick.

He reports that in 2006 he will be using two postemergence herbicides now available in California, a *Poa annua* one for overseeded and one for non-overseeded bermuda fields. He also now has new vertical mowing units for his 5-plex mower and a new turf vacuum sweeper.

What's the greatest pleasure Hostick derives from his job? "When everything comes together on a game day and the field looks good," he says.

What's his biggest headache? "My biggest headache is traffic. Why can they stand in more than one spot?! But [I know] the field is there to use, not just for looks." ■



Monthly Maintenance

Ron Hostick, CSFM, says, "Our maintenance plan is very fluid, every year is different. We have to make it fit the game schedule and the weather."

He takes best advantage of the brief window in November, immediately following fall practice, to de-thatch and overseed before practice resumes at the end of December.

When the Aztecs' season ends, Hostick hosts the county high school finals and then sees camps, fundraisers and other events the rest of the year.

November: Renovate the field in prep for overseeding

December: Replace clay brick at mound and home plate; apply slow-release granular fertilizer

January: Begin bimonthly foliar nutrient applications; repair mound and home plate after every game

February: Begin growth regulator and seed head reducer applications (helps color and reduces *poa annua*)

March: Aerify with solid tines

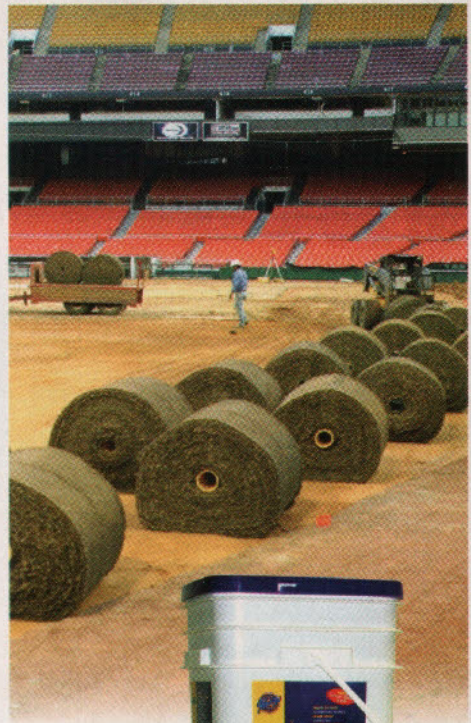
April: Focus on edges of field and grooming in preparation for post-season play

May: Aerify with 1/2-inch hollow tines

June: Stop foliar application of nutrients

July-September: Aerify with 1/2-inch tines and vertical mow in two directions

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Rolling out the Riviera advantage (L to R): Kevin Malone, Collins Wharf Sod; Jimmy Rodgers, RFK Head Groundskeeper; Fred Moore, Collins Wharf Sod; and Eddie Moore, Collins Wharf Sod.



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*National Turfgrass Evaluation Program seeded bermuda varieties 1997-2002 trials and current trials through 2004.

Synthetic/Natural Turf Task Force report

We are publishing this report for two reasons: 1) As a resource for less experienced turf managers, and 2) so sports turf managers have something they can share with all stakeholders in athletic field-related choices and decisions.

The Sports Turf Managers Association (STMA) prepared this guide to provide basic information about the selection and maintenance of synthetic turf and natural turfgrass fields. Because each field is different, the guide offers general information with additional sources to access for your specific situations. This information is not relevant to indoor facilities or to baseball/softball fields. All references to synthetic turf are to the newer rubber infill technology, which has had more widespread use since 1997. All references to natural turfgrass are for native soil fields, unless otherwise specified.

Constructing the field

The most commonly asked question about sports fields relates to the cost to construct them. Just as many factors affect the maintenance of fields, so does the cost to construct them. The cost to construct either field type will vary dramatically depending upon field size; geographic location; labor costs; amount of site work required; irrigation system (needed for each field type); and number of estimated games or activities.



Natural field being aerified. Photo by Ross Kurcab, CSFM.

There also may be state and local regulations governing construction, such as requiring an environmental impact study before construction. Items that should be considered when developing a scope of work for athletic field construction:

- Architectural/Engineering
- Light Towers
- Environmental Impact
- Consulting
- Excavations/Site Prep
- Permits
- Bonds and Insurance
- Engineering & As-builts
- Surveys
- Earthwork/Grading
- Erosion & Sediment Control (silt fence, inlet sediment trap, construction entrance, permanent grassing, and monitoring)
- Storm Drainage System (perimeter drain, tie into catch basin, outfall installations, and base trench drain)
- Bleachers
- Sidewalks
- Fencing

Synthetic turf

Additional factors may affect the cost of constructing a synthetic turf field:

- Accessibility for heavy equipment
- Type of underground drainage system
- Drainage profile
- Design and engineering
- Edge material
- Type of attachment along edges
- Turf density or denier as they vary from product to product
- Type of backing
- Sewed or glued lines
- Type of pad and its thickness
- Rubber and/or sand infill
- Intricacy of logos and end-zone lettering

Following is a typical cost range and what is included in that range to build a synthetic field in the Southeast with the excavated subgrade already provided. (Numbers provided by Tony Strickland, CSFM, Athletic Construction, Inc.)

Synthetic Infill- \$7.80 to \$110.75 per sq. ft. Cost includes:

- Rough Grades
- Curbing and Tack Strip
- Carpet & Rubber Fill
- Lines and Logos
- Geo Textile
- Labor
- Base design and Installation
- Stone & Freight for base
- Drain Collector
- Lateral Drains
- Padding
- Sod & Topsoil Backfill of Curb
- Laser Grading & Compaction
- Equipment & Trenching
- Material Distribution Labor
- Meters
- Backflows

- Irrigation System
- Cleanup and Goal posts

To help you calculate average construction costs for synthetic and natural turfgrass fields, the actual playing surface of (American) football fields are typically 360 x 160 feet, or 57,600 square feet. Normally, a field will extend at least another 15 feet around the playing field boundary.

Natural turfgrass

Here are some specific items that may affect the cost of native soil fields:

- Drainage modifications
- Top soil costs
- Type of cultivar, propagation and its accessibility
- Thickness and mixture
- Accessibility for heavy equipment
- Design and engineering
- Soil interface issues, if sodding a field

Following is a typical cost range and what is included in that range to build a natural grass field constructed of native soil(s) in the Southeast with the subgrade already provided.

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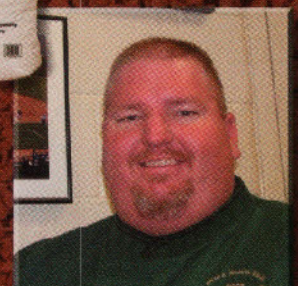
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Mike Bookholder: Head Groundskeeper Philadelphia Phillies - Citizens Bank Park

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Joe Kennedy III: Baseball Maintenance Manager Surprise Sports Complex-Surprise, AZ 2003-2006 STMA Complex of the Year

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- 2-4 inches Topsoil
- Sod & Installation
- Field Lay-out & Stripping
- Topdressing
- Laser Grading & Compaction
- Equipment & Trenching
- Material Distribution Labor
- Meters
- Backflows
- Irrigation System
- Cleanup and Goal posts
- Grow-in Maintenance

Natural with On-site Native Soil (less than \$1 per sq. ft. with no added topsoil or sod). Includes:

- Rough Grades
- Laser Grading
- Seed or Sprigging
- Minimal Irrigation System
- Clean Up
- Final Tillage, Fertilization, Lime Addition
- Grow-in Maintenance

Although this guide specifically focuses on native soil fields, it may be helpful for comparison purposes to have cost ranges for constructing two types of sand-modified fields. These ranges also assume that the excavated subgrade is already provided and are for fields constructed in the Southeast.

Natural with Sand and Drainage \$6.50-\$7.95 per sq. ft. This includes everything noted in constructing a natural with native soils field, excluding the topsoil, including the addition of a 2-inch choker layer, 6-inch sand peat layer, geotextile and geotextile install, 4- and 6-inch perforated piping, and a gravel layer. These fields are typically built for colleges or professional sports where play must occur during almost any weather condition.

Natural with Sand Cap \$3.50-\$5.25 per sq. ft. This includes everything noted in constructing a natural with native soils field, but replaces the topsoil with a 2- to 4-inch sand layer.

Because many factors can contribute to the field's construction cost, it is recommended that your sports turf manager research recent field construction that has like characteristics and a similar environment. For further information, contact the STMA at 800-323-3875 for referral to relevant local and regional resources. Additional information may be obtained by contacting the ASTM, www.ASTM.org, which has released a standard on sand-based field construction (F2396-04); the Synthetic Turf Council, www.syntheticurfCouncil.org, the American Sports Builders Association, www.sportsbuilders.org, or the Turfgrass Producers International (TPI) at www.turfgrassod.org.

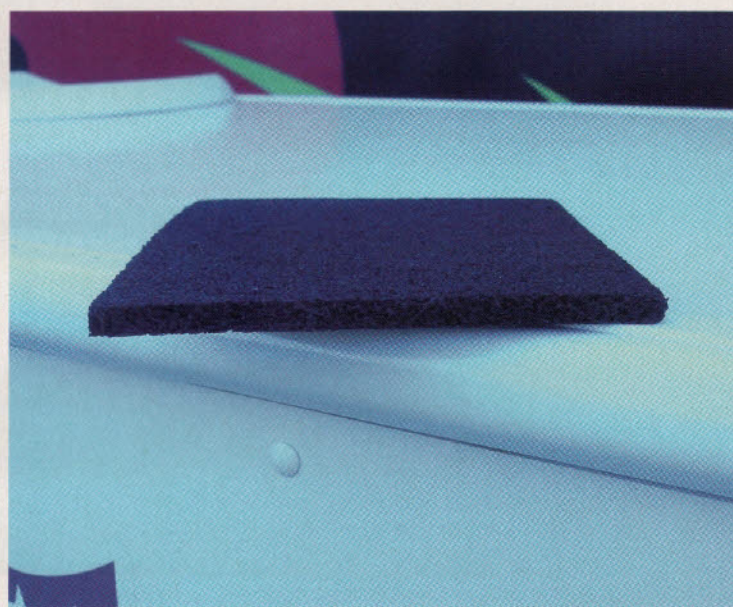
Protecting the asset

As with any major asset, synthetic and natural turfgrass sports fields need well-planned and funded management programs to protect the owner's investment. This includes hiring a dedicated and knowledgeable sports turf manager to develop and implement the program. Management of both surfaces also requires a budget that reflects the amount of activities that may be on the fields. The budget must have the flexibility to expand as the demand for field time increases.

Maintenance and cultural practices will vary based upon these factors:



Rubber mix used for resiliency on synthetic fields. Photo by Darian Daily.



Example of synthetic field padding. Photo by Darian Daily.

TURF FOOD



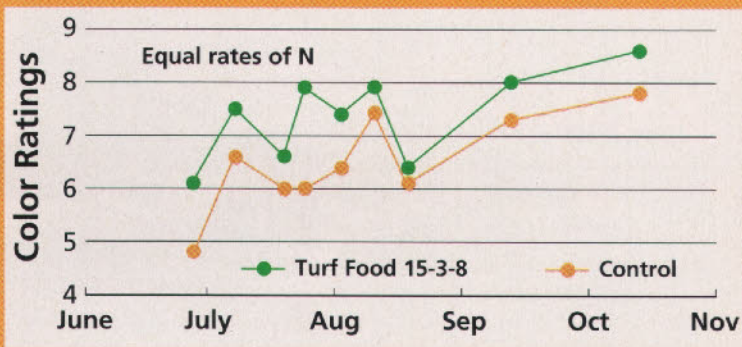
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FACILITY & OPERATIONS

- Amount of use and level of play
- Multi-sport use
- Weather and climate
- Soil and terrain
- Water availability and irrigation system
- Budget including personnel availability
- Owner's goals
- Type and quality of field construction
- Field security (protection against vandalism, non-regulated play, etc.)

A sports turf manager can develop a cost effective program specific to each field's requirements.

Synthetic turf

All synthetic turf manufacturers have recommended grooming practices. Generally, these include sweeping, dragging, and watering for a clean, uniform appearance. Depending upon use and weather conditions, a sand-rubber mix may need to be added annually to help restore the field's resiliency. The sports turf manager will also need special knowledge in troubleshooting and minor repairs, such as seam repair and snow removal. The installer can provide this information per the manufacturer's guidelines. Special solvents and cleansers are used to remove tough debris. Proper testing and a good design will usually mean that drainage is not a problem, if the field is constructed correctly. If the field is used for more than one sport, a plan will need to be developed that follows the manufacturer's recommendations for changing markings. Options may include using different paint colors for different sports; painting over existing lines with green paint; or actually removing the lines and repainting.

Typical maintenance costs to maintain a synthetic field will vary and can range from \$5,000 to \$25,000 per year (cost range provided by Dr. A.J. Powell, Jr., University of Kentucky) including labor, minimal

equipment depreciation and water. It is much more expensive to maintain synthetic fields that are highly visible, frequently televised, or when used for multiple sports. The cost can even be higher if field markings must be painted and cleaned often, or if frequent repairs are necessary.

Natural turfgrass

The most commonly constructed fields for schools and recreational use are native soil fields. These fields usually drain more slowly than synthetic turf and sand-modified fields, and a 1.5% crown is suggested for most fields.

Just as sand-modified fields are more costly than native soil fields to construct, they are also more expensive to maintain. Although sand-modified fields are playable during heavy rainfall, they do not generally wear better than natural soil fields and intensive maintenance is necessary.

All natural turfgrass fields are living, breathing organisms that require mowing, watering, fertilizing, time off from play, and, depending upon disease and pests, the application of plant protectants. To help ease compaction from heavy play, fields may be aerified once or twice a year. Debris is usually removed by mowing, and flushing the field with water removes most other foreign materials. Painting these fields is fairly simple and involves mowing out or washing out existing lines and painting new ones.

Here are some examples of maintenance costs: A Denver-area native soil field, with Kentucky bluegrass and perennial ryegrass that hosts approximately 110 soccer events annually will cost between \$5,500 and \$8,000 per year to maintain, not including equipment and labor. (Provided by Dave Rulli, Jeffco Stadium, Lakewood, CO.)

In New York state, a high school native soil field with perennial ryegrass and Kentucky bluegrass that hosts approximately 15 fall

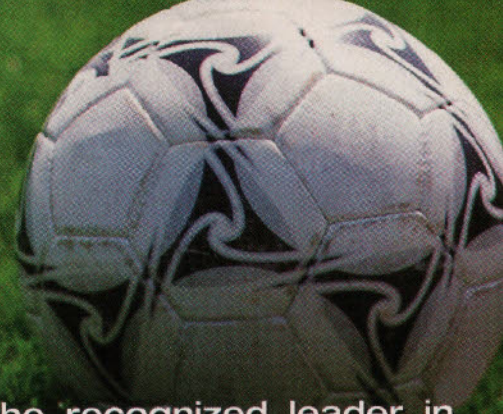


Dragging the field to prepare for game day. Photo by Darian Daily.



Topdressing a football field. Photo by Ross Kurcab, CSFM.

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The three most important reasons for you to join STMA:

1. Job security

Take advantage of STMA's programs and services, and you proactively enhance your value to your employer.

2. Career success

The knowledge, skills and abilities you gain by accessing STMA's education and information can help you to prepare to take that next step in your career.

3. Recognition of your professionalism

STMA's advocacy with groups such as athletic directors, parks and recreation directors, coaches, and parents enhances the image of the entire profession.

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