



John Mascaro's Photo Quiz

John Mascaro is President of Turf-Tec International

Can you identify this sports turf problem?

Problem: Huge wrinkles in artificial turf and displaced infill material

Turfgrass Area: Baseball infield

Location: League City, Texas

Grass Variety: Artificial infill type turf

Answer to John Mascaro's Photo Quiz on Page 36

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Our frustration was at an all time high when the district was renovating two high schools and building a third; our athletic field numbers were growing yet the staff count was not. Administration realized that the dollars being spent needed to be protected so they formed a committee to work on developing an Athletic Strategic Plan for the High School Athletic program. They covered everything from student safety and conduct to field maintenance.

»» Occasionally a group would dump dirt (yes dirt, not topsoil, topdressing or soil) in a goal mouth, kick it around, sprinkle some cheap seed, and call it helping us.

Having the privilege to be part of this committee, I helped institute an evaluation tool that we revised from information from Dr. Dave Minner and many others in the STMA and Keystone Athletic Field Managers Organization. We developed a communication tool using Red, Green & Yellow flags for each of our fields along with updated emails of field conditions as they changed in status from one flag color to another; we established and implemented a more meaningful facility use policy for both outside and inside venues; limited the amount of use by outside organizations to reduce wear and minimize traffic to where we could maintain quality turf; and we developed and implemented rules and guidelines for all users, which included that all users be taught how to help maintain our facilities.

All of the items incorporated into the Athletic Strategic Plan are important and meaningful, yet the one we embraced was the last one. Teaching our users was and still is huge. Never in my dreams did I think that we could get users/athletes to help maintain the fields. In the past most groups expected the best yet would rarely help out. Occasionally a group would dump dirt (yes dirt, not topsoil, topdressing or soil) in a goal mouth, kick it around, sprinkle some cheap seed, and call it helping us.

We began meeting with the middle school teams as they were more receptive to what we wanted to do, and the coaches liked the fact that we weren't asking them but the students to participate. Our promise to them was simple—help us out with a few small items (filling holes after practice, using divot mix on the turf where needed, spreading some seed in the goal mouths before practice, etc.) and we would provide them with game day facilities each day they took the field.

The first season we had about 70% participation from the middle school teams but once the other coaches saw that some fields

were exceptional they quickly realized they too needed to work with us. As we went into the second season the students began asking when we could meet with them and this has progressed to the point where they now email when they need seed, or a rake or shovel is missing from its place.

Each season brings something new; we now teach our outside users by holding mandatory training sessions that every coach involved in each organization must attend before the group is issued their permit. We began holding these in the spring and quickly realized that with the unpredictable spring time weather in Pennsylvania, one fourth of the spring season was over before we got everyone trained. Now we hold them in late October when we are putting our fields to rest for the upcoming winter and this allows us to be more aggressive with our training.

Each team member participates in one or more stations that we have set up. We begin with a brief explanation of why we hold the training classes, dealing with trash at all our facilities and what responsibilities they have regarding trash, how to maintain the player bench and spectator areas, and lastly the care of our fence. Then depending on how many are present we either divide them up to the different stations or we work as a group from one to another. Our stations are natural turf areas where we explain using a field within a field; repairing divots with provided mix; pitcher's mound care, repair and covering with provided tarp; home plate care and repair, base path care and how each of the provided tools are used, as well as how to deal with water puddles, wet infields, etc. We show them how we take care of these areas and allow them the opportunity to show us a different way, try our way, and we answer many questions that they come up.

Some organizations have committed 100% to our efforts while others have gone over our expectations. We now have groups willing to mow (following our guidelines) fields, handle the irrigation responsibilities (again following our guidelines), provide manpower and equipment to help apply topdressing, grass seed, infield mix all of which we provide so we control the materials used. All of this did have initial costs (nothing is free) that we quickly recovered from saving man hours that the groups provided.

We did purchase tools for each field, buckets for divot and seed mix at each field, tarps for each home plate and mound area, batter box jigs that the crew made for each baseball and softball field, metal storage boxes we had made to hold materials, hoses, quick dry materials, and many other minor things for them to maintain the fields at no cost to them. Ironically some of the groups have bought extra rakes, booms, hoses, tank sprayers for wetting down the mounds, bags for trash and taken ownership toward our facilities. A win-win for all involved.

So when your frustration level reaches an all time high, look around at the resources available and don't turn the help away but turn them into teammates. In the end the children and the athletes are winners no matter what the outcome of the game.

Jim Cornelius is the facilities supervisor for the West Chester (PA) Area School District. ■

Cost of bluegrass seed to rise

BLUEGRASS SEED prices are going up. Projections that prices could increase by nearly a dollar a pound were incorrect; it's likely to increase more than a dollar, and a great deal more for the 2010 sod seed plantings.

Depending on the variety, prices for 2009 will increase 15 to 20 percent. But, when prices will be really jumping is after the new crop seed harvest fall 2009. Elite Kentucky bluegrass prices for 2010 are projected to increase 60-70%. These projected price increases are based on actual signed contracts with seed growers to produce the seed. At the time of the contract signings seed growers had alternative crops that were more profitable than producing bluegrass. If the higher prices had not been contracted, the seed would not have been produced.

Supply and demand does work. In this situation it was the increased demand for the grower's acre of ground to produce Bluegrass seed or an alternative crop. At the same time the demand for Elite Kentucky bluegrass was low due to the poor housing market. Kentucky bluegrass seed production has been greatly reduced to compensate reduction in consumption.

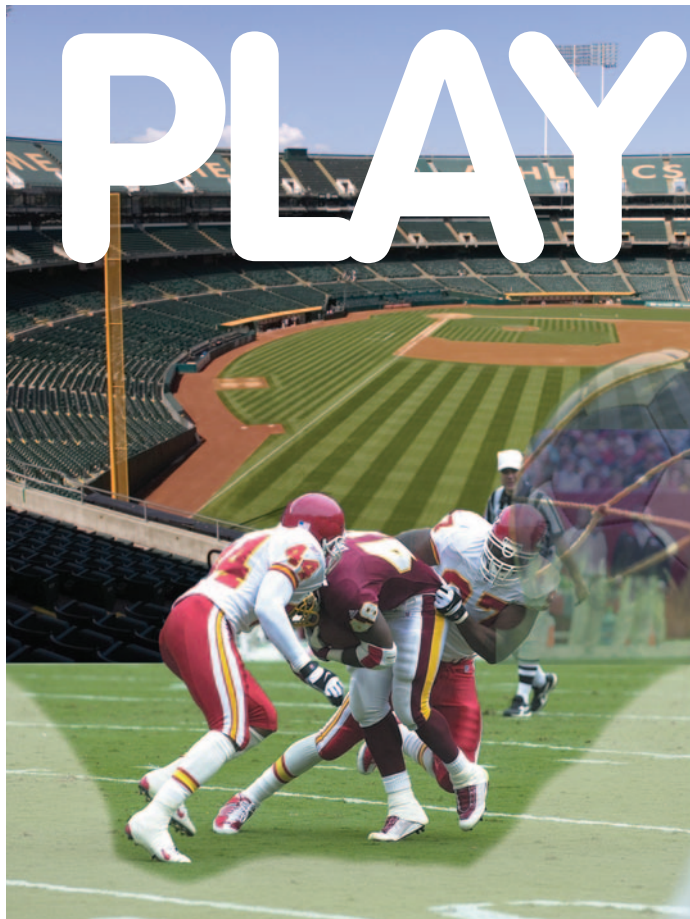
The 2010 Kentucky bluegrass price is expected to be the

peak in prices. As most of you know many agriculture commodities prices collapsed last summer. This collapse occurred after the contracts were signed at record setting prices. The good news is Kentucky bluegrass prices are expected to start a decline by 2011 season.

The currents of the market are moving in many directions. Ag commodities prices were increasing while the demand for elite Kentucky bluegrass seed was decreasing; thereby reducing the bluegrass seed production. Sod producers have been very conservative with sod inventories and rightfully so.

Farms have been limiting replanting and in some cases, not planting harvested acreage at all. Who really knows what or when anything is going to happen, but with even a small increase in sod acres planted in 2010 this may lead to a very tight supply of Elite Kentucky bluegrass seed.

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Using salt to kill weeds on paspalum

IT'S A WARM SPRING DAY in Central Florida. A group of young men suited up for football practice are sprawled out on the bright green turf of the football field. But they're not resting after their workout. They're picking something up off the turf and putting it in their mouths. What is it? It's the rock salt the maintenance crew has spread onto the field to kill weeds and the kids are eating it.

Chuck Pula, Parks & Recreation Director for the City of Winter Springs, FL, always laughs when he tells this story. Just goes to show how weird teenagers can be, eating anything they find on the ground. But even weirder, that the rock salt was there in the first place. Or is it?

Pula is among a growing number of parks and rec directors and sports field managers, along with their golf course colleagues, who have grassed their fields and facilities with Seashore Paspalum grass, which is highly salt tolerant, rather than using herbicides to kill weeds. Many professionals are now using salt to zap broadleaf weeds, crabgrass and goosegrass, and even to knock back, (but not kill), common bermuda.

Seashore Paspalum, (*Paspalum vaginatum*), originated on sand dunes, hence its tolerance to high salt levels. A warm-season turfgrass, it generally can be used anywhere one might consider using bermudagrass. It requires as little as half the water of a bermudagrass, and may be irrigated with a wide range of water quality, from potable to effluent, even seawater under prop-

er management. Certain cultivars, especially Aloha Seashore Paspalum, developed by the University of Florida, exhibit speedy grow-in rates making it very appealing for sports turf managers looking for a grass that will heal quickly from sports-related wear.

Several parks under Pula's direction feature fields of each of the three varieties mentioned. He said his team has used a granular salt, applied with a spreader, to control weeds.

University-developed paspalum

Here are several cultivars used on sports fields, commonly available as sod or sprigs:

Aloha is a joint release from the University of Florida and the University of Hawaii. It is a semi-dwarf, marketed by Environmental Turf and its network of licensed growers. In university tests, Aloha was shown to have a faster grow-in rate than other varieties tested, and also shows some resistance to the sod webworm and green bug aphid.

SeaDwarf is the only dwarf cultivar of Seashore Paspalum and features a finer texture than other paspalum varieties. It can be mowed below 1/10 of an inch.

Sealsle-1, a semi-dwarf variety, was developed by the University of Georgia; their tests show good wear tolerance.

During the cooler months, Pula said he has overseeded his fields with ryegrass to retain winter color. He said surprisingly the salt was a valuable tool to aid in the spring transition out of overseeding.

"It was incredible how fast it took the rye out of it," Pula said.

In Charlotte County, on Florida's southwest coast, Mike Reber is sports field foreman on more than a dozen football, soccer, baseball and softball fields grassed with Aloha, SeaDwarf or SeaIsle-1 Seashore Paspalum.

Reber said rather than applying the salt dry as they do in Winter Springs, he makes a slurry of water and salt and applies it to his paspalum through a 25-gallon sprayer that he attaches to the back of one of his Gator vehicles. Though Reber has tried the salt in nearly every form, from granulated to rock salt to table salt, he said he finds the finer the grains of salt the better. His recipe of one cup of salt per gallon of water, he said, works well on broadleaf weeds and crabgrass, though it is important to keep the mix agitated so that the salt doesn't settle to the bottom of the sprayer.

Both bought the salt they used for their facilities at the local hardware store.

Though it's difficult to get actual figures on how many sports turf managers are using salt to kill weeds on Seashore Paspalum

sports fields, on the east coast of Florida, Erik Thor, technical sales representative for The Kilpatrick Company/Howard Fertilizer says he's seen a marked increase in the number of his golf course superintendent customers who now buy salt to kill weeds on their courses. Five years ago, he sold about one ton of Morton's Fine Solar Salt to his customers with Seashore Paspalum grassed golf courses. In 2008, he sold about 25 times that amount.

Morton's Fine Solar Salt comes in 50-pound bags, wrapped 56 bags to a palette. Thor said if applied through a spreader, 200 pounds of salt will treat about an acre, at a cost of about \$420 to \$430 per ton.


To treat crabgrass and goosegrass, Thor recommends creating a salt solution in a 5-gallon bucket, mixing until the amount of salt reaches the point where it will no longer dissolve. Pour the contents of the bucket into a sprayer and make three applications of the salt mix, 5 days apart.

Though salt is not the only solution for treating weeds on paspalum, Thor said he feels there is a place for it, "especially if you're going environmentally friendly." ■

Stacie Zinn is president of Environmental Turf, Avon Park, FL, www.environmentalturf.com.

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Infield skin maintenance: Use your resources wisely

Editor's note: During a panel discussion on infield dirt care at last month's STMA Conference, Gary Vanden Berg, CSFM, director of grounds for the Milwaukee Brewers, said a few years ago Atlanta Braves manager Bobby Cox reminded him, "80% of baseball is played on the dirt." Maintaining your infield skin is as important as any task you do because its effect on playing the game safely and fairly is enormous.

What is an infield mix?

All soils consist of sand, silt and clay. The infield mix is the combination of these components plus any conditioners or additives. To understand how your mix works you need to understand the components.

One hundred percent sand is loose, free flowing and drains well. On its own and dry, sand will produce an unstable and unpredictable surface. However, with the right amount of water it will be firm and playable but forgiving, allowing for sliding and clean ball hops. Consider a beach where the water meets land. This area would make a very playable surface.

Silt and clay have opposite issues compared to sand; Too much of these and you have poor drainage. Also, when clay and silt get too dry they become rock hard, often cracking, and create dangerous hops and possibly injury. These issues can be greatly compounded when clay and silt get compacted due to heavy traffic. If kept at the right moisture level, and properly groomed, clay and silt are very stable and wear resistant making them ideal for high impact areas.

All three components are necessary to attain a safe and playable field that is easy to maintain. WATER MANAGEMENT IS CRITICAL TO PROVIDING A SAFE AND PLAYABLE FIELD NO MATTER THE SOIL MIX. Knowing the makeup or composition of your infield mix will



Doug Gallant of the Cincinnati Reds, courtesy of Profile Products



help determine a baseline from which maintenance practices can be developed. A sand, silt, clay analysis can be performed on your field in two ways:

Submit a sample of your infield mix (1 pint baggie) to your local distributor, soil testing lab or your local Ag Extension service. Ask them to perform a sand, silt, clay or particle size analysis. There are reasonable costs associated with this option.

Or, fill a straight sided jar half full of your infield mix. Fill with water and shake vigorously until the soil is suspended in the water. Set aside and let it stand until the mix has fully settled. This will take from 1 hour to overnight. The sand will settle out first and will be at the bottom, the silt next and the clay last and at the top layer. Measure each layer and divide it by the depth of the total mix in the jar. This will give you the percentage of each component.

Proper soil sampling technique: Remove the top ½ inch of infield mix. Take several samples from around the infield at a depth of ½ inch and 3 inches. Mix these samples in a container to get a well-mixed sample. Use this mixed sample to do your jar test or send out for testing. If certain areas of your field stand out as significantly different, sample and test these areas individually.

How much do I need?

Most mixes consist of a minimum of about 60% sand to a maximum of 70% sand and the balance silt and clay. In locales where the particle size of the sand is fine, sometimes called “sugar sand,” a higher percentage of sand is utilized in the mix. With most infield mixes, the calcined clay recommendation is 1 ton (40 bags) of product per 1,000 square feet of skinned area incorporated with a Rototiller, into the top 4 inches of the infield mix. This equates to 10 tons for a high school, college or professional field with 90 foot base-lines and grass infield.

The variable in mixes besides sand particle size is the amount of clay. Some products combat the negative effects of

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clay by preventing compaction and maintaining appropriate moisture levels. Therefore, as the percentage of clay increases in a mix so does the amount of material required. For higher clay content mixes (60%+) we recommend 1.5 tons (60 bags) per 1,000 square feet incorporated into the top 4 inches of the infield mix or 15 tons for a high school, college or professional field with grass around the mound. If the infield is completely skinned, double the amount is recommended.

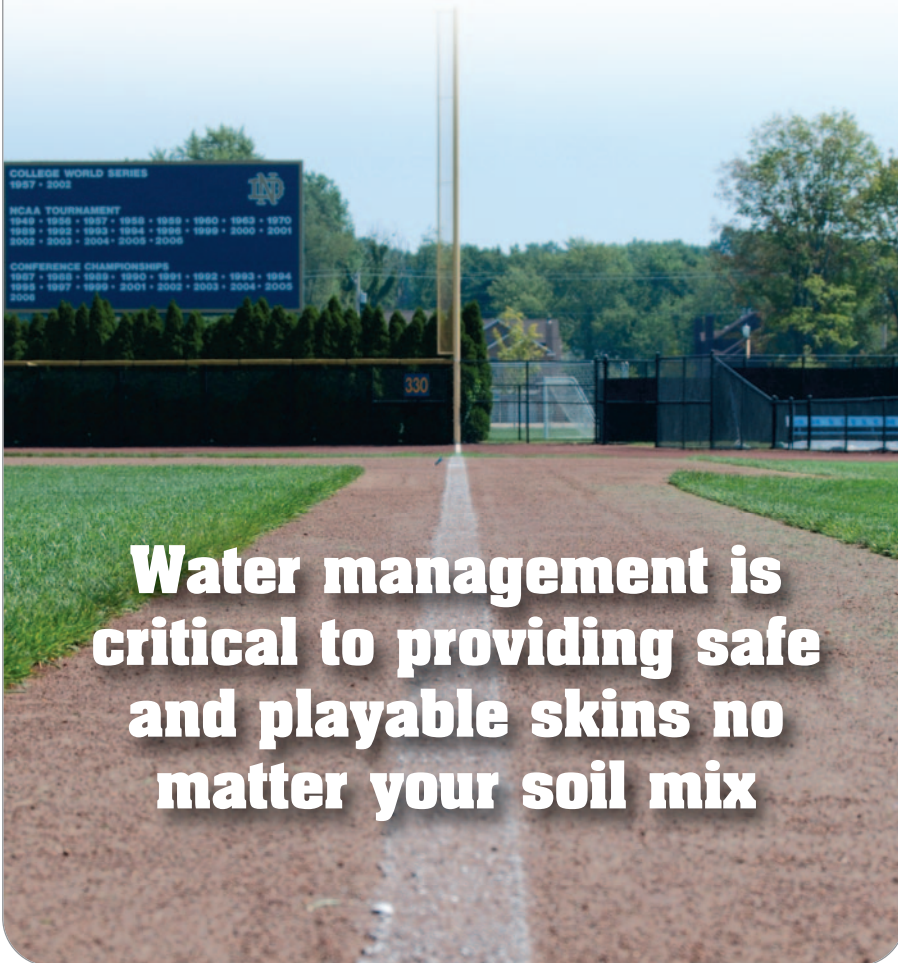
Incorporating 1 to 1½ tons per 1,000 square feet into the top 4 inches of the skinned area is identified as “full rate” or “complete renovation.”

Thanks to Profile Products for this information. Turface is their best known product. www.profileproducts.com

The basics of infield care

To create an ideal infield skinned area, you must have a good knowledge of the following:

- Infield mixes vary from region to region. The published ASTM standards include an ideal range of what a good infield mix should be and place infield soils into certain criteria as closely as possible. Before building or renovating an infield area, you must conduct a textural analysis to determine the amount of Sand/Silt/Clay in both existing and potentially new materials, along with particle sizing, to make sure that they will bond together and create an ideal infield. You will determine if the infield mix is appropriate for your specific field. Dark red color has long been the standard for ball fields, but do not allow color only to be



Water management is critical to providing safe and playable skins no matter your soil mix

Silt necessary ingredient for infield skin

By Grant McKnight

The ideal ratios of sand, silt and clay in your mix can put you on the path to fewer rainouts, lower maintenance costs and a better playing field. There are many infield mix suppliers across the nation and most sell mixes containing a two-to-one ratio of sand to clay. Among the higher profile infield mixes, the inclusion of silt is found at levels below the clay content.

When Natural Sand Company entered the ball field market with DuraEdge infield mix, I was told a number of times that the ideal mix contains no silt. With my background in construction materials and mining, I found this concept to be very peculiar. All soil is composed of sand, silt and clay. Without silt, there is nothing to bind the larger sand particles to the smaller clay particles. A mix with 3-5 percent more clay than silt virtually eliminates “chunk-outs,” increases the amount of moisture the dirt can absorb and provides firm footing in what is normally unplayable conditions.

In light of the fact that many infield mixes contain little or no silt, we created FieldSaver to amend fields lacking the correct ratio of sand, clay and silt. Through this program, “chunking-out” is no longer an issue for our clients.

Natural Sand Company recently used this program with Mike Boekholder of the Philadelphia Phillies and Bill Deacon of the New York Mets to help them increase their fields’ playability. In both cases, the infields were “chunking-out” consistently during games no matter how much water was applied to the surface. We added FieldSaver in an effort to balance the silt and clay ratio in each infield. The results of correcting the infield mix composition were outstanding. Nowhere was this more apparent than in game five of the 2008 World Series in Philadelphia. After a run was scored and the game was subsequently halted, the conditioners on the surface were removed and Mike was surprised to see a relatively uncompromised clay surface.

Grant McKnight is the owner of Natural Sand Company, www.naturalsand.com. ■

the overriding reason for adding a particular type of infield mix.

- Sand Particle Size is an overlooked element in the success or failure in the infield skin material. A high percentage of coarse sand particles equals weaker stability, while a high percentage of fine sand particles equals hard and slow percolation rate.

- Soil Amendments vary in color, granulation sizes, absorption qualities and texture. What your current mix consists of, and what your final goal is, should help determine what soil amendment you choose. There are many products from soil conditioners like calcined or vitrified clays to percolation products (crushed aggregates), it really comes down to your personal preference and your needs for the infield.

- Nail drags/scarifiers are vital tools for your infield. They allow you to keep that ¼ to ½-inch of fluff on top, but yet also maintain a firm surface. Using a nail drag is recommended as often or more than a finishing drag to eliminate any divots, ball marks, cleat marks or the chicken scratch from the infield.

- Water Management is the most important part of a groundskeeper's job. As Trevor Vance for the Kansas City Royals says, "We are not groundskeepers, we are moisture managers." Groundskeepers deal every day with how much water to put in our clay, when to add water, when to not add water, is it going to rain,

is it hot and dry, etc. If you can control the amount of water on your field, it will make the job to a better infield easier. If a poll were taken of all groundskeepers, the number one thing that we check daily is the weather. Determining what the weather will be for the day determines how much water to add to your infield or not to add. Watering before the contest is good, but not ideal. Water needs to be added the day before to ensure that it is throughout the entire infield mix profile and will be consistent for the contest. Infields play the best after the removal of a tarp because that is when the moisture content is consistent and the weight of the water on top of the tarp has created a firm infield.

- Dragging Patterns can determine a good or bad infield. You want to avoid creating lips around the edges of your infield that can cause bad hops or unsafe conditions for the players. These can be eliminated by brushing your edges, using a stiff drag around the edges, washing the edges occasionally when needed or if necessary removing them by cutting them out with a sod cutter.

In dragging your infields, you need to follow some basic practices: vary patterns daily; smooth drag the opposite way you nailed dragged. If you naildrag in circles, smooth drag in a long pattern. Do not drag faster than you can walk. Stay at least 1 foot away from edges.

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Minute Maid Park, Houston, courtesy of Dan Bergstrom

- Leveling Fields is important. This should be done after adding infield mix to your field or as a process of yearly maintenance. This will keep your fields level and remove any birdbaths that have been created over time.

- Using a ½ Ton to 4 Ton Roller is possibly the best kept secret in maintaining a really good infield skin. Periodic rolling will pack the infield soil making the infield mix firm and consistent.

Thanks to Bill Marbet and Glenn Lucas of Southern Athletic Fields for this information. MuleMix field conditioner is among many infield products they offer, www.mulemix.com.

How much moisture can your dirt handle?

Tarp or no tarp? How much water should be applied to the skin? How long will it take for the field to reach consistent levels? The infield skin can provide unlimited frustration for turf managers. By identifying the composition of the infield mix, you can predict how the amount of surface moisture and the clay content of the playing surface will interact. When you know your infield mix ratio, you can answer the question, “How much moisture can your infield skin handle?”

Infield mixes can be made from native soils, designed mixes, or crushed aggregates, or a blend of them all. These materials all originate from nature and require a large proportion of very fine particles to provide enough cohesiveness to knit together to form a firm playing surface. Although necessary, these same fine particles can reduce drainage and act as binders when they dry out creating excessive hardness.

Turf managers wanting to achieve a consistent playing surface capable of taking in large amounts of water while remaining playable should do three things: test the composition of your current infield mix, add an amendment to balance your silt and clay content and then record your results in games played throughout season.

“A groundskeeper’s main mission is to manage water effective-

ly. Water is your best friend and your worst enemy,” says Clayton Hubbs of Stabilizer Solutions (www.stabilizersolutions.com). “The right amount of water keeps your turf lush, maintains the perfect playing consistency of your skin, and keeps your mound firm, yet malleable. Too much water or too many rain delays and you might be out of a job.”

If Mother Nature is the culprit you can count on a postponed practice, game or even tournament, but is postponement necessary? Hubbs’ product, Stabilizer, is a 100% natural soil enhanced with polymer. That polymer essentially replaces water and can protect the soil from the elements by repelling water and never freezing, allowing northern managers to get practices started earlier in the year.

Hubbs says managing water can help balance your budget, not only by reducing irrigation costs but also time and labor costs. Grant Trenbeath, head groundskeeper for the Arizona Diamondbacks, calculated that his warning track featuring Hilltopper has saved him 500 man hours each year, says Hubbs. EP Minerals, makers of Play Ball! Conditioner (www.epminerals.com) recommend applying your conditioner and nail drag an inch or two deep for fast playability, or work it 4 to 6 inches deep in new construction or renovation. Incorporating deeper treats 10 times more soil than surface treatments and provides an opportunity to address soil interfaces or layers that are causing poor drainage. When filling low areas, the company recommends mixing your conditioner into the infield mix before placing. If the filling is sizeable, consider regrading and refreshing the entire infield soil by applying the proper amount of conditioner by incorporation.

With regard to infield conditioners, the book “Sports Fields” by Jim Puhalla, Dr. Jeff Krans and Dr. Mike Goatley, says, “One real benefit of calcined diatomaceous earth products is that they allow the maintenance staff to rake (infield) soil out of the grass, which is just about impossible with other conditioners.” And “[infield