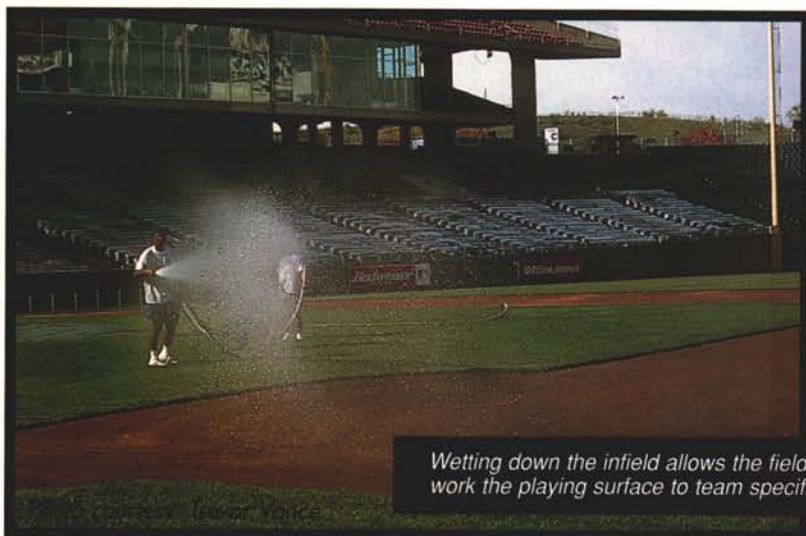


Infield Maintenance and Grooming



Wetting down the infield allows the field crew to work the playing surface to team specifications.

by Trevor Vance

The skinned area of the infield is the most important part of the baseball field. Sixty-six percent of the defense and 100 percent of the offense is played there. It's where the game is won and lost. Safety is the top priority. After that, you could have turf rivaling the greens of Augusta, but if your infield isn't good, you won't make it as a baseball groundskeeper. The infield dirt is where you gain the players' respect and they gain confidence in your field. They want to play on the same field from the first to the 81st game. Your goal is to provide the

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consistent surface that allows that.

There are several "right" methods of maintaining an infield. Those methods must be based on your labor power, time, budget and the number of infields you maintain.

At Kauffman Stadium in Kansas City, Mo., home of the Royals Baseball Club, we do all our work by hand. Though some people call us dinosaurs for doing it that way, we know we're providing a consistent field day in and day out. By the time we have pulled the spike board and the mat drag by hand, we will have walked every square foot of the infield and know where any loose spots or hard spots are.

The Basics

The first element of infield maintenance is understanding what the material consists of in proportions of silt, clay and sand. I recommend having your infield material analyzed by a soils laboratory to obtain the specific information. The percentages of material content impact traction. Too much sand produces a very "loose" infield and players get no footing; too

much clay produces a "hard" field. Knowing what you're working with will tell you what kind of water it needs; how it will react to heat, rain, humidity, etc.; and what equipment might be needed for maintenance, such as rollers, etc.

You determine the percentages you want and are comfortable working with and make the necessary adjustments to obtain that percentage. Oriole Park at Camden Yards has 60 percent sand. Kauffman Stadium's infield mix is approximately 40 percent sand, 30 percent silt and 30 percent clay. While our infield could get sloppy if it rained, we have the resources to tarp it. For high schools or parks and recreation departments with multiple fields and limited resources, the mixture should have more sand than silt and clay. Find a reliable supplier to provide a consistent supply of your infield material and fast, dependable service.

Managing Infield Conditions

It's important to understand the changes your maintenance practices can make in the game. To produce a

slow infield, spike it deep to soften it. A ball landing in the soft infield "dies" on the dirt. To produce a faster infield, provide a harder surface. Roll it, and then let it bake and get hard. While this is an advantage to your offense, it's a disadvantage to your defense. I have a coach who wants a consistent field that lets the players decide who wins the game.

To achieve consistency, you have to adjust your maintenance practices for two factors you can't control: weather and field schedules. You have to monitor things constantly to make the call for today's maintenance program and plot how you're going to attack tomorrow's conditions.

Ballplayers are your best friends. If you respect what they do, they'll respect what you do. As they gain confidence in you, they'll understand you may make temporary deviations in field conditions to manipulate better conditions and consistency at game time. For example, there are times we don't wet down the field because of incoming rain.

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Daily Maintenance

With Kansas City's fast changing weather, constant monitoring is essential. We rely on our DTN system for daily weather information covering the counties in the state and information from our local weather service focused on conditions at Kauffman Stadium. The relationship I've developed with the weather service personnel includes phone contacts should something happen that could affect the field.

Once we know the conditions we'll be dealing with that day, we can fine-tune the maintenance program. The processes may be different, but the end result is the same consistent playing conditions.

The amount of water applied each time is critical. If the sun is out or it's windy, we apply more water. If skies are cloudy and overcast, or if humidity levels are high, we cut back on water. With rain imminent, we may water lightly every half hour to avoid moisture build up.

In a perfect world, after a night game, we dress the field to get it back to 90 percent playability. We pick up



Infield conditioners help eliminate weaknesses in the skinned area and create an infield that suits the strengths of the team.

all chalk. We repair the mound and home plate, pack them well, water the mound and cover it. The tarp remains on the mound until batting practice and the mound is always

tarped when the team is out of town.

We rake the infield skin in one direction and mat in a second direction.

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Generally we'll use the steel mat. If the moisture level is higher, we'll use the cocoa mat instead. If conditions are too wet, we'll rake and forego the matting, letting the air dry it down. We keep the basepath firmer than the rest of the infield since that's the section that gets chewed up the most by players' spikes.

We wet down the infield if weather allows, but not if there's a chance of rain. The moisture soaks in overnight. The next morning, we wet it down a couple more times before we start to work it.

Once we hit the moisture level we want for maximum workability, we take a spike board or nail drag around the horn (from first base to third base and back again) and up and down (from the infield to the outfield and back again). By working the infield dirt in two different directions we will have walked the entire surface. If we find a hard spot, we put on a little more water and spike it to loosen it. If there's a spot that's too soft, we back off on the water.

Our nail drag is a standard three feet by three feet of 2-by-4 lumber with six rows of 20 penny nails spaced with 2-



Edging eliminates or reduces lips and provides a sharp, defined edge.

inch centers offset to create a 1-inch gap. For additional weight to sink the drag deeper, we'll use a 2-by-4, 2-by-6, or 2-by-12 cut to the same width as the spike

board and placed on top of it, or we'll add a sand bag on top. The depth depends on how hard we want the under layer, with deeper equaling softer.

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Next we use the mat drag, starting in the opposite direction of the last direction used with the spike drag. We also mat drag in two directions. With the mat drag, we always stop exactly where we started to avoid changes in the surface level. Because we're manipulating the soft surface material, we pull away a little dirt from the area when we start the process and we'll deposit a little material when we stop.

During the morning session of working the infield, we stay two or three inches away from the turf edges. On the final pre-game mat drag we go right up to the turf edges to get a smooth finish. We have 20 minutes after batting practice to put the field back into condition. We may rake lightly to let the infield air out and drop the moisture level slightly. We want a firm base covered with a soft 1/4-inch topping. This is our last opportunity to hit that perfect consistency before the game begins.

Tackling Transitions

The transition from the grass to the

skinned area is critical for safety and playability. Clay will build up in the turf from the wind, a ballplayer's kick, or a slip in maintenance.

We sweep the edges after any on-field activity. We use a soft-bristled broom (also called a corn broom or witches broom) because, on our bluegrass turf, we can do more damage with aggressive sweeping. On the tougher bermudagrass, you can use a heavy bristled broom. We prefer sweeping over raking or blowing the edges to reduce the number of grass clippings on the skin and avoid disrupting the skin edge.

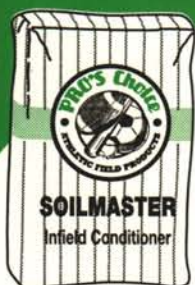
We power wash the edges when the team is out of town. We point the nozzle of a one-inch hose at the edge of the turf, with the water pressure on medium to low, and with the water shooting toward the skinned area. It's a quick process that, done carefully, doesn't damage the grass. It also deep waters the turf at the edges where the least water is applied during regular irrigation cycles.

We remove any lip buildup before every home stand. We measure the edges using a tightly stretched string,

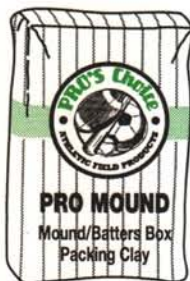


Sweeping the grass along the skinned area gets clay out of the grass and back on the infield. A soft-bristled broom should be used on bluegrass, while a heavy-bristled broom is appropriate for bermudagrass.

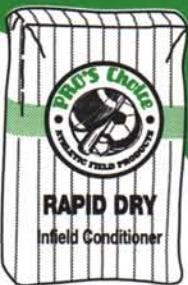
cut along the string with a power edge, and use our regular infield mix to fill in any spots where turf was removed. We also use the same power edger process around the pitching mound before every home stand. This gives us approximately 13 edge jobs a year.



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Sod removed during the season may range from two to eight inches. When the amount removed reaches eight inches or more at the end of the season, we add a strip of sod. We cut out a section of old sod with a sod cutter, prepare the base for the new sod and fit it in place tightly. This process eliminates any lips.

Working the Tarps

Tarps are tricky to use in the Midwest with bluegrass turf. A short stretch under the tarp can stress the turf. If left on too long, it could burn or even kill the infield grass, so we minimize tarp time.

Our tarp is 170 feet by 170 feet and covers the infield and 10 feet around the outside of the infield. We'll track an in-coming storm and pull the tarp just prior to rainfall, even if it means coming to the ballpark at midnight or 3:00 a.m. to do it. We'll get the tarp off before the sun hits it.

If rain threatens, generally we'll opt to cover the field the night before the team comes in town and any time during a home stand. We may pull and replace the tarp four or five times a day, taking advantage of even a 20-minute window in the weather to get some air to the turf and help the skinned area dry. We welcome rain when the team is out of town and never tarp then.

If the infield skinned area becomes too wet, generally the combination of wind, radiant heat and working it with the nail drag will dry it down. If extended rainy periods, high humidity levels and no air movement make standard procedures ineffective, there are solutions to be used only in emergency situations. If time and budgets allow, a helicopter hovering overhead can serve as a giant fan. A labor-intensive alternative is removal of the upper portion of the skinned area and installation of a new surface.

Game Maintenance

We have a 20 minute window following batting practice for all remaining pre-game maintenance. First, we chalk the field using a board template about 15 to 20 feet long and 4 inches wide with a screen on the bottom. Done properly, it provides a laser-like line. We rake and mat the baseline and home plate area. A team of two mats the infield. That leaves me approximately five minutes to wet down the infield surface before play begins.

We monitor the weather throughout the game to keep the umpires informed of any pending problems.

The fifth inning drag allows us to adjust conditions. If the infield is holding moisture, we may switch from the standard steel drag to a cocoa mat drag and just smooth the surface. Unless rain makes tarping an issue, once the fifth inning drag is completed we're on hold until post-game maintenance starts the cycle again.

As groundskeeper, you want the field to come into play only one time: when everyone walks into the stadium and sees how great it looks.



Trevor Vance is head groundskeeper for the Kansas City Royals Baseball Club. He has served on numerous Super Bowl and other high-profile field preparation teams and as a speaker at turf-related conferences.

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