

*Keeping athletic field professionals in the game*

# **SPORTSFIELD** MANAGEMENT

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# SPRING MEANS BASEBALL



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# Infield Maintenance 101

Seventy percent of baseball and softball takes place on the infield — for the safety of the athletes and top playability, a well-planned and consistent maintenance program is a must

By Suz Trusty | CONTRIBUTING EDITOR

101

## Back to Basics

A year-long series of *advice from the experts* focusing on various areas of turf maintenance.

### Next Up...

In Part Five of **Back to Basics**, we'll cover Mowing 101.

## NAIL DRAG

is the most aggressive and is used to scarify the dirt.

## DIGGING IN

✓ “Infield” is a term unique to the sports of baseball and softball. In baseball, the infield refers to the diamond, typically a combination of turfgrass and “dirt” (another word for the infield mix or “skinned area”). In softball, the infield is typically all dirt. However, a baseball infield could be all dirt and, while less common, a softball infield could be a combination of turfgrass and dirt. And that’s just the beginning of the complexity of these two sports, from a turf management perspective.

## PRECISE MEASUREMENTS

✓ The infield layout is determined by the governing body

for the sport at the specific level of play.

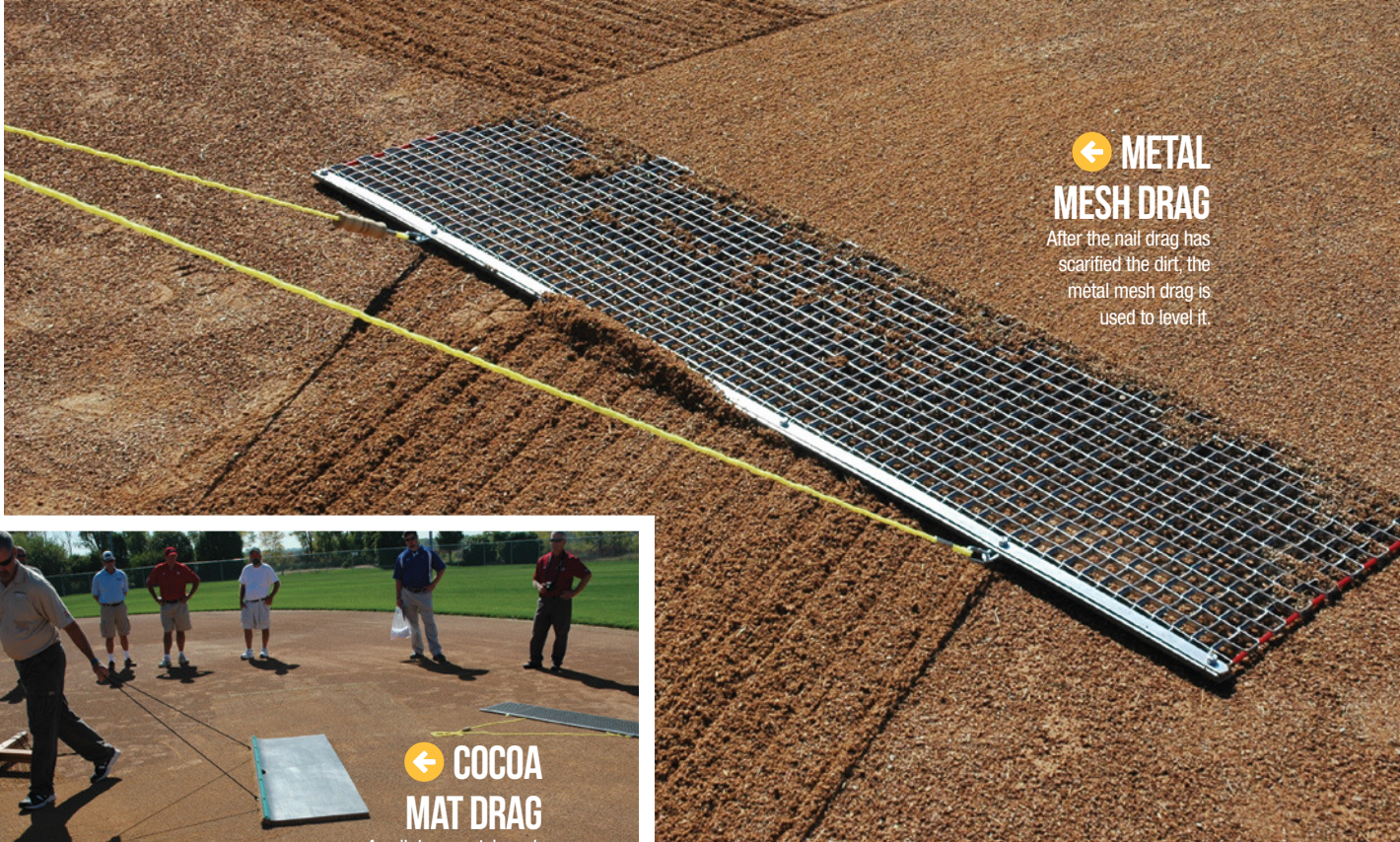
✓ In baseball, a raised mound is stipulated. Softball infield dimensions not only vary by level of play, but also vary for male and female players within those levels.

✓ Softball infield regulations stipulate a flat pitching circle rather than a raised pitching mound, with the pitcher’s plate and home plate always level with each other.

## INFIELD DIRT

✓ The infield dirt is the most complex and maintenance-intensive component of athletic field surfaces. It consists of various combinations and percentages of sand, silt and clay based on the regional weather conditions; construction of the field; amount of field use; preferences of the sports field manager, players, coaches and facility owners; and always — the budget.





## ← METAL MESH DRAG

After the nail drag has scarified the dirt, the metal mesh drag is used to level it.



## ← COCOA MAT DRAG

A nail drag, metal mesh drag and cocoa mat drag all play a role in maintenance of the infield skinned area.

## MANAGING MOISTURE

✓ Many consider 60 to 70 percent sand, 30 percent clay and 10 percent silt the starting point for the majority of the infield mix, recognizing that particle size within each of those components also impacts performance. Water holds the components of the infield mix together. The sand component enables moisture penetration into the infield mix and percolation through it, with a higher percentage of sand allowing playability during wet conditions. The clay and the silt components retain moisture, affecting playability during dry conditions.

✓ A harder mix is required in the areas that are most heavily used: the starting and “landing” section of the pitcher’s mound and circle and the batting area of the batter’s box. Pitchers and batters tend to abuse these areas, digging and kicking the dirt to shape the surface to their liking, which creates depressions and holes. Typically, the infield mix for these areas will be about 40 to 50 percent clay, 10 to 20 percent silt and 40 percent sand. Both types of infield materials are available from commercial suppliers packaged in bags or, for the harder materials, in pre-moistened bricks.

✓ Some field managers add another component to infield mixes with lower percentages of silt and clay, a conditioning amendment such as calcined or vitrified clay. They work this into the top 1 or 2 inches of the mix to help bind the clay and stabilize the infield. These amendments, or alternate products such as brick dust, often are applied as 0.125 to 0.25 inches topping to help manage moisture levels within the skinned area. They can help keep the dirt from drying out and prevent players from picking up wet clay on their spikes.

✓ An in-ground irrigation system with a zone that only waters the infield clay is one way to deliver volumes of water quickly.

✓ When water patterns are diverted in windy conditions, hand watering will be required to reach the places missed. Quick-connect outlets behind the mound and home plate, or at the infield corners behind first and third base in the grass, provide access to hook up a water hose.

✓ Choose the hoses and hand-nozzle sizes best matched to your number of fields and crew size, knowing you’ll need to apply water both for the initial soaking and repeated light misting to maintain the desired moisture level.

## GENERAL DAILY MAINTENANCE

✓ Walk the infield to find and remove any hazards such as rocks or sharp debris.

✓ Repair and replace divots and damaged turf.

✓ Mow properly, keep mower blades sharp and rotate mowing patterns.

## MOUND, PITCHING CIRCLE AND BATTER’S BOX MAINTENANCE

✓ Player safety requires repair of depressions and holes users have created. Load a wheelbarrow or utility vehicle with tools

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and equipment and tackle each area individually. Start by using a broom to sweep away any conditioner or loose dirt on the surface. Use a watering can to lightly moisten the clay surface you've exposed. Scuff up the damaged area with a shovel, hoe or rake.

✓ The repair process is the same as that used in construction, working in approximately 1-inch layers with "balls" of your harder material just moist enough to adhere to the material below them. Use a hand tamp (a flat piece of metal attached to a handle) to compact each level. Wrap the metal piece with a towel or strip of landscape fabric to keep it from sticking to the clay.

✓ Measure the height with every addition of clay using a transit and laser, or a string line. Pitching mound regulations for professional, college and most high school baseball programs stipulate a slope at the front of the mound beginning 6 inches in front of the pitching rubber, with a fall of 1 inch per each foot. You can purchase a slope board (or make your own with 10-foot two-by-four) to help measure and maintain this precise degree of slope.

✓ Once repair is completed, lightly rake those areas and rake away all debris from the remainder of the pitching and batting areas. Top with a layer of soil conditioner, if you opt to use it.

✓ Use a hose to water the entire mound, pitching circle or batter's box. Allow that area to dry to the point you've predetermined and then cover that area with a tarp designed specifically for it (or one you've cut from a previously used larger tarp) to maintain the proper moisture level.

## WORKING THE MIX

✓ Remove the bases and insert the base plugs. Rake away excess dirt and level each base area. Remove grass clippings and any other debris. If the skinned area is not already moist, water it in preparation for nail dragging. This is the most aggressive of the drags, and you'll want both a light and heavy nail version, to loosen (scarify) the skinned area and create better moisture penetration.

✓ If you're incorporating soil conditioner into the top 1 or 2 inches of the dirt, add any additional as needed. Drag the infield again, this time using a steel-mesh drag, which moves the dirt to create a level surface. Drag a final time using the least aggressive, natural fiber drag to create a smooth surface.

✓ You can pull the drags by hand or use a small mower, utility vehicle or golf cart. Another option is the field rake, available from multiple suppliers, designed specifically for this task and equipped with the attachments needed to complete it.

✓ Follow different routes when driving equipment onto the field to reduce compaction issues. Transport the drags to the field and drop them at different spots each day. When working the field, keep attachments, drags and screens 6 inches away from the grass at the edges of the base path to avoid formation of a ridge (lip) where the dirt meets the grass.

✓ Use a variety of dragging techniques, continually altering your patterns and incorporating circular spirals and figure eights. Go slow, especially in the turns, to keep material off the grass. Pick up pulled drags while on the skinned area to transport them from the field, rather than dragging them across the grass.



Ideally, all baseball and softball fields would have sharp edges and no lips, like this field.



Mound and batter's box repair clay should be just moist enough to adhere to the clay directly below it.



After daily mound repair and preparation are completed, covering it with a tarp helps maintain proper moisture levels.



A slope board is a useful tool in maintaining the 1-inch fall per foot mandated for professional, college and most high school baseball mounds.



✓ Top the skinned area with soil conditioner, if desired, and apply the water to soak the dirt starting the moisture management process.

## MARKING THE FIELD

✓ Mark the field prior to play. Regulations stipulate the precise field markings for the level of play. Chalk, unslaked lime or paint may be used.

✓ Match the application equipment to the type of material. Use string lines for accuracy.

✓ Templates for the batter's box and catcher's box, chalk boxes and a variety of walk-behind and ride-on applicators are available from multiple suppliers.

## THE LIP ISSUE

✓ When hand raking, always rake up and down the base path, not across it, to avoid creating lips. If possible, clear the infield material from the grass edges with a fan rake or stiff-bristled broom after every practice and game.

✓ With limited time and labor, at least once a week use a high-pressure blast of water from a hose to flush the infield mix from the grass edges. Allow sufficient time afterward for the

infield dirt to dry down before field use.

✓ As needed, set up a sting line and use an edger to cut away a strip of grass along the edges of the skinned area to remove any lip buildup. Fill in the depression with new infield mix, tamp it down well and then test the edge with your foot. You should feel no transition between grass and clay. The ball can react to even a slight difference with a hop.

## WORK THE MAINTENANCE CHECKLIST

✓ Once you've established your daily maintenance routine, create a checklist to make sure all steps are covered. You can also use the Baseball/Softball Field Safety and Maintenance Checklist available from the Sports Turf Managers Association (STMA.org), which covers the turfgrass and facility components along with the skinned areas. **SFM**

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