

# Tools & Equipment

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## Why reel grinding matters

By Steven Nixon

**Editor's note:** Steven Nixon has been with Bernhard and Company since 2001 and was recently appointed its International Sales Manager, [www.bernhardgrinders.com](http://www.bernhardgrinders.com).



**E**verybody knows a sharp blade makes a cleaner cut. Much to our frustration, we have all used a blunt knife, scissor or razor blade at one time or another and know how it hacks and tears at whatever we're cutting.

When it comes to turf maintenance, surgically-sharp mowers slice through grass blades, severing them cleanly and with minimal damage. Because the grass left in the mower's wake is the same height and uniform in appearance, overall turf definition is improved and the playing surface more smooth, healthy and consistent.

Financial benefits are derived from reduced expenditures on fertilizer, fungicide, chemicals and fuel (for mowing equipment), as well as increased revenues due in part to greater end user satisfaction with the turf.

The grinding process is crucial to maintaining the sharpest blades and, therefore, optimal turf conditions. To help you understand how it works, let's look at the two components of the cutting unit: the bedknife and the reel.

### THE BEDKNIFE

The bedknife is the most important part of any cutting unit. Although it looks simple, it is actually a very complex piece of steel. The bedknife gathers the grass and holds it in position until the reel blade comes around to cut it.

Grinding the top and front faces of a bedknife helps to maintain sharpness. As its name suggests, the "top face" sits on top of the bedknife. It is a negative angle, meaning it slopes away from the unit's point of cut. This allows grass to be directed away from grass coming into the mower. The requisite degree of angle varies depending

on the height and condition of the turf being mowed.

Once this angle wears down, the grass isn't ejected properly so the point of cut gets clogged. This prevents incoming grass from being cut cleanly.

The other angle is known as the "front face" angle. If the bedknife is the most important part of the mower, then the front face is the most important part of the bedknife, making good care of it especially critical.

The front face needs to be flat and even. If the face becomes worn or rounded, which it will over time because turf (and especially topdressing) is very abrasive, then grass will not be presented evenly to the cutting blades of the reel. Keeping the front face in tip-top condition is crucial to optimal turf health.



### THE REEL

Often overlooked are reasons one should also spin grind the reel. Yes, it is to make each blade sharp, but it is also to ensure the reel is cylindrical and even.

There is no point in sharpening all the blades if only every third one cuts because they are not of equal height.

Naturally, a reel that is maintained regularly is going to be easier and quicker to grind than one sharpened only once a year. Sharpening of the bedknife and reel is integral to maximizing their effectiveness and, in turn, turf conditioning.

A dull cutting unit (bedknife and reel) will tear at grass, leaving it uneven. These ripped and ragged blades bleed and lose plant moisture and nutrients. The open tips also leave them more vulnerable to disease from spores such as *Fusarium* and other leaf-spot afflictions. Repairing and regenerating the plants then requires a greater demand for food and fertilizer, driving up costs and impacting budgets.

Agronomically speaking, a reduction in the use of water, fertilizer, fungicide and topdressing is a benefit. Not only is use of these expensive consumables decreased, but also costs associated with handling of the materials, generating electricity to pump water, etc. Mechanically, trials at several training colleges have demonstrated fuel consumption reductions.

Going a step further, one can translate fuel reduction into increased mower life, reduced engine wear, fewer replacement parts—and it soon becomes clear that the benefits are very attractive to your facility's bottom line. Another added bonus? Less fuel use means a smaller carbon footprint.

# Baseball maintenance aided with right equipment and off-field tools

By Jason Kopp

**W**ith the official start of the baseball season upon us, sports field managers all across the country will be preparing their fields for the rigorous season that lies ahead. There are many tools at your disposal to assess your field conditions like the STMA Playing Conditions Index (PCI) and BTF Field Maintenance Guide. After completing either of these forms you may find one of the following conditions on your field raises a concern and needs to be addressed either before or during the season: irrigation, nutrient management, home plate and pitcher's mound repair, skinned surface maintenance, and/or edging and lip removal. These completed forms will help you get a plan in place to address these concerns and to have a successful season ahead.

The STMA PCI assesses your field conditions using a scoring system. The PCI worksheet is broken down into four sections: Resources, Activities, Agronomics Performance of Turf, and Baseball/Softball Specific. Within each section you select your answer that has a corresponding number based on various conditions. Once the worksheet is completed, add up the numbers and place the total score in the box provided—this is your field's PCI. Having a completed PCI on a field could also be a useful tool if you are planning to apply for Field of the Year.

Another useful tool is the Field Maintenance Guide form the Baseball Tomorrow Fund written with Murray Cook, a field consultant of Major League Baseball. When developing a field maintenance plan there are a series of questions to answer that will help in determining needs that will be critical to the overall success of the any field renovation project. The Field Maintenance Guide also provides a checklist for you to ensure you have the necessary equipment in the Suggested Maintenance Equipment section. You will also find in this guide a brief discussion on mowing practices, aeration, irrigation, and several other tasks that are performed throughout the season.

While various topics are discussed in these guides, having irrigation is probably the most critical ingredient, whether for the turf or to aid in moisture management of the skinned area. If you have a system installed already, doing your pre-season start-up will provide you with water needed to get your turf ready for the spring season. Throughout the season having irrigation to supplement insufficient rainfall will also be critical for proper turf care, skinned and clay areas. If you have multiple sites at one location or throughout an entire city, the latest irrigation controllers are an excellent option that give you control through any desktop or laptop computer.

If installing one is in the plans, understanding the soil type, water

service and flow, and field layout will be an essential part of the design process as will understanding the different rotors and nozzles available. Proper selection will ensure all areas get coverage to avoid hot spots in the turf that will come with the summer heat.

Turf concerns learned through these guides could be as simple as applying necessary amounts of nitrogen, phosphorus, and potassium and biostimulants to accelerate growth or it could be more complex like renovating portions of the field. When determining if a renovation project should be done on a particular field the rule of thumb noted in the guide is "if the turf has more than 50% weeds with a large amount of crabgrass or, if in the north, poa trivialis." Fall is the ideal time to do any field renovation which gives you the most amount of time until the start

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of the season for it to become established which can be aided by the use of growth blankets. While renovating the entire field may not be possible due to many factors such as timing, budgets, and sod availability; doing smaller portions can also be effective in addressing field conditions. A youth organization for which I recently did a field renovation was given enough sod to do the entire infield and foul areas up to third and first base. With this portion done we were able to put together a plan to aerate, topdress, and overseed the outfield selecting turf type tall fescue seed, which would match the sod they were given, and with its dark green color and resiliency it is the ideal selection for their climate and situation. Seed rates could vary depending on seed type and establishment rates. With all the new seed varieties on the market and research being done on many others take the time before selecting your variety to do some research. Sites like NTEP.org or your local extension agencies are great resources as are other sports turf managers in your area.

When renovating the infield it is a great time to repair/replace the clay in both the pitcher's mound and home plate areas and check the slope and height of the pitcher's mound. Setting the pitching rubber at the correct distance and height is the foundation to build the rest of the mound off of. Take the time to ensure that all the measurements are correct and the intersect at the center point by pulling a measurement from apex of home to second, first to third, and apex of home to left and right corners of the pitching rubber. The landing areas of the mound are easily gauged with a slope gauge which should be set so every foot out from the pitching rubber the height is dropped one inch. Install your clay bricks in the landing area and cover with a thin layer of mound clay. After tamping this area you can lightly cover with soil conditioner or infield mix. The rest of the mound should have a gradual slope towards the turf edge. Lightly rolling this area will ensure proper footing for player safety. Dig out each batter's box and catcher's box to a depth of 3 inches. Install clay bricks and cover with a light layer of mound clay and tamp. Cover with conditioner or infield mix. Keeping these areas moist and covered with tarps will be important throughout the season to ensure they do not dry out.

With the majority of the work complete on the turf and clay, it's time to get the skinned areas ready. Proper footing and moisture management on these areas will be an important matter for you to ensure player safety and water is able to drain off preventing game cancellations or delays. Most field guides call for a typical grade of .5% up to 1% on the skinned areas and 1-2% for other areas. This will ensure water drainage and a near level playing surface for player safety. If the area is already established as little as 20 tons of infield material could be used to properly grade the area. If it has been neglected or a full renovation is done it could take 80 tons of material. Once the infield mix has been evenly spread and graded it is recommended that you incorporate a conditioner into the soil at a depth of 2-3 inches. Topping this off with another thin layer of conditioner will provide added benefits and give it a finished look.

Edging the turf on the infield can be accomplished with a walk behind edger and rake or a more efficient method is using edger and broom attachments available from Toro and other manufacturers. Edging your field should be done on bi-weekly during the season to ensure player safety and reduce the likely hood of lip build-up. Throughout the season proper dragging of the skinned area and base paths will ensure proper moisture management and keep a level playing surface. Be sure to keep all drags 6 inches from the edge of turf and base paths are raked from home to first and third and not side to side.

With these task completed you can now be sure that you have given yourself the best chance at a successful start to the season. Keep using your checklist which should be updated throughout the season to ensure your equipment is maintained, applications are noted, and you take several pictures will all be resources for you to use to plan for next season as well as have references if any issues arise during the season. Best of luck this season!

Jason Kopp has been in the sports turf management industry for more than 15 years. He currently is providing equipment solutions to customers in the sports turf and grounds industries and serving on the STMA Information Outreach and Chapter Relations Committees. ■

*jasonkopp@turfequipment.com.*





# Evolving waterless soils solve mechanical moisture issues

**A**s I write this, the collegiate baseball/softball season is underway and pitchers and catchers have reported to spring training. Recently, while managing the production plant for Stabilizer Solutions, Inc., an urgent order came across my production board written in all caps, SURPRISE SPORTS COMPLEX- HILLTOPPER WARNING TRACK. Surprise had already received their typical infield mix order much earlier in the winter, and the Pac-12/Big-10 Challenge Tournament was quickly approaching. They wanted their regular warning track to be “waterless” just in time for games to start.

## BACKGROUND

In the 80’s our company conducted research with the Massachusetts Institute of Technology (MIT) focused on moisture and soil interaction. The key breakthrough: no matter the structural composition of a surface, the mechanical properties will change across moisture contents. For ideal mechanical performance, the athlete needed between 4-12% moisture content, or a damp soil consistency. This was related to running track research proving proper firmness increased running speeds *and* reduced injury potential.

The research results showed that Stabilizer infield amendment helped maintain the mechanical properties of soil across varying moisture contents, thus “stabilizing” the soil. This was good news for groundskeepers who could till Stabilizer into their existing infields. We began engineering infield mixes with specific particle distributions; pre-blended with Stabilizer. Stabilized Infield Mix installations now include the American Softball Association Hall of Fame Stadium, TD Ameritrade Park, other collegiate and professional fields, and most Cactus League spring training complexes, including Surprise Sports Complex.

## EVOLUTION OF WATERLESS

On a professional field like Surprise, the warning track takes most of the abuse and receives very little of the water. Removing water altogether seemed like a natural progression. Building upon our moisture research and soil engineering experience, we developed a process that coated soil particles with a waterless polymer coating. The numbers are compelling. Arizona Diamondbacks’ Grant Trenbeath calculated Hilltopper Warning Track saved 500 man hours a year. Our own calculations show him saving 200,000 gallons of water annually. Current users include the Angels, Diamondbacks, Yankees, and Astros. We’ve also seen rapid adoption in college softball infields as the Hilltopper does not freeze.

Usually installation is a much longer process. In this case, there wasn’t even enough time to excavate the existing warning track. Going over the top of the existing track was the ideal short term fix. The process began by removing ¼ inch of warning track using a box blade and grading the track towards the outside wall. Next we dripped polymer onto the track, worked it in with a nail attachment, and later soaked the track with water. We then topdressed with 65 tons of Hilltopper Warning Track Mix and mat dragged. Next we used our spike drum tool to relieve compaction from vehicles and completed a final mat drag.

The unorthodox process helped achieve a “waterless” warning track in just 3 days. Korean League teams training at Surprise have already used the stadium field for practice games. The warning track is performing without water and most importantly, there isn’t any dust, but that’s not really a *surprise*. ■

*-Clay Hubbs, director of operations, Stabilizer Solutions, Inc., Phoenix*



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## Synthetic sports turf groomer

GreensGroomer's synthetic groomer is newly designed for 2014 with brush dimensions and angles to allow grooming in four directions, standing up turf fibers and leveling infill material. The unit has 16 blue brushes set at various angles to the direction the unit is being towed, with balance side to side and front to back, allowing for smooth brushing with no hops. The electric actuator provides almost infinite adjustment control, from wheels down transport to wheels up brushing. Works on all infill surfaces in wet or dry conditions.

**GreensGroomer**



## Deere introduces 4M, 4R series compact utility tractors

"With compact utility tractors, it's all about finding the right machine to match customer needs," said Scott Schadler, John Deere product marketing manager. "Customers told us they wanted to spend less time installing and removing implements, wanted the ability to carry and store more tools, desired a more comfortable ride, and requested the ability to work in low-light conditions." The 4M and 4R models feature powerful, Final Tier 4 engines ranging from 43 to 66 hp to power through tough tasks. The 4M machines are equipped with a hydrostatic transmission with Twin Touch Pedals that provide operators with simple, comfortable-to-use hydrostatic controls to find the right speed for the job at hand.

**John Deere**



## Software provides digital irrigation mapping

Groundskeeper Tech introduces their mapping software SprinklerMaps, developed by Mike D'Ascanio in response to a pressing need he identified while working as a head groundskeeper.

As an alternative to ineffective paper landscape maps, SprinklerMaps gives users the ability to plot their irrigation and utility systems with pinpoint precision on a live satellite map. Additional features include a square footage estimator, Sprinkler Radius Viewer, GPM tallies, and the ability to "flag" markers for repair. Coupled with the built-in communication tools that iPads already provide, SprinklerMaps is pioneering the future of technology in the landscape industry.

The benefits of the SprinklerMaps solution includes greatly increased efficiency for maintenance workers who use the tool to locate and document repairs.

**Groundskeeper Tech**



## New topdresser from Earth & Turf

Earth & Turf Products, LLC, announces its Model 60SP, an economical, very maneuverable, self-propelled topdresser, ideal for spreading dry or wet compost and sand, plus a variety of other materials. It features easy loading into its 6.7 cu. ft. hopper. Maximum load weight is 650 Lbs. (296 kg) Optional loading chutes will increase capacity for lighter materials such as compost. A wide-spread beater produces an even spread pattern up to 42 inches wide. The 60SP is powered by a 190 cc Briggs & Stratton, 875 series, 6.5 HP engine. Drive is by CV belt, forward and reverse. This extremely economical self-propelled topdresser is the latest example of Simple, Well-built Products from Earth & Turf Products, LLC.

**Earth & Turf Products, LLC**



## Turfco's New Torrent blower & wireless controller

Turfco's new patent-pending Torrent Blower delivers high-velocity, high-volume airflow with a new level of control for year-round productivity. You now have greater command over air speed, air direction, noise management and fuel consumption. Turfco developed a new wireless, handheld controller to adjust blower functions and multiple air-speed settings. The controller allows the operator to dial in the exact nozzle direction for unprecedented precision. Faster nozzle rotation speed dramatically increases productivity, because operators won't need to slow down to wait for the blower at the end of each pass. The controller is also equipped with a unique idle/resume button enabling users to idle down the machine when bystanders are near and quickly resume operation at their original setting when the area is clear.

**Turfco**



## Beacon tarp cart with tarp pin holders

This cart is a great addition to your grounds crew. Designed to store and transport up to four area tarps and your field weights or tarp pins. Conveniently keep rolled up tarps and pins together for easy transport and storage. Perfect for stowing area rain tarps, weighted tarps, infield protectors, sideline turf protectors, track protectors and growth covers. The cart may be manually pushed along in wheelbarrow fashion or towed by a utility vehicle.

**Beacon Athletics**