PENN STATE

CENTER FOR SPORTS SURFACE RESEARCH

From the Field: Proper synthetic turf maintenance maximizes player safety and performance – Part 1

By Tom Serensits, Penn State's Center for Sports Surface Research

Welcome to From the Field - A Guide to Athletic Field Safety and Care.

Throughout this series, we will focus on a sometimes overlooked but critical component affecting the safety and performance for athletes of all ages – the playing surface.

Our goal is to provide you with simple, helpful tips about playing conditions that maximize both safety and performance.

This is part one of a two-part series on synthetic turf maintenance.

A common misconception is that synthetic turf fields are maintenance-free. While routine mowing, fertilization and other upkeep required on natural turf fields are not needed on synthetic turf fields, other types of maintenance are required to preserve and enhance the safety, playability and lifespan of these fields.

If a field is not properly cared for, problems can develop, such as low and inconsistent infill levels, separated seams, degrading fibers and surface debris. These problems can create hazards and accelerate field aging. The good news is that by following a few field maintenance guidelines, you can help protect the athletes using your field and also your investment.

The first step is to familiarize yourself with the field manufacturer's maintenance guidelines. These guidelines provide you with the steps necessary to maintain your field and tell you what not to do in order to protect your warranty.

Many manufacturers recommend that you keep a maintenance log so you can refer to it from year to year and for warranty purposes.

Surface debris removal

The best way to prevent certain types of surface debris from accumulating on your field is to prohibit their use. Items such as food, sunflower seeds, tobacco products and chewing gum should not be allowed on the field. Signs surrounding the field should let field users know what items are prohibited.

Even though these types of items may be prohibited, they still have a way of finding their way onto the field. Fortunately, cleaning products produced specifically for synthetic turf are available.

Be sure to check with your field manufacturer for approved products. Some field manufacturers offer a complete line of cleaning products ranging from gum remover to treatments for oil and organic stains. In most cases, these products should be used as soon as possible after the debris deposit or stain occurs.

Certain types of surface debris – such as trash and leaves – can be removed with sweepers or blowers. Be sure to not blow out or remove the infill material from the field.

A number of synthetic turf cleaning machines and sweepers are on the market and some work better than others. Ask for references and talk to others who have used the models you are considering. It is important that the machines are effective but not overly aggressive so as not to damage or accelerate the wear of the turf.

Large magnets that can be mounted on or pulled by a utility cart are effective at removing metal debris such as nails, screws and bobby pins.

Grooming

Grooming your field helps keep fibers upright and infill evenly distributed across the field. The term "grooming" refers to two maintenance processes that promote field safety and playability. These include brushing or brooming and loosening of the infill granules.

Brushing the field with equipment specifically designed for synthetic turf should be done every three to four weeks during the season. The brush should be set to "tickle" the surface and not so that the entire weight of the unit is on the turf. The brush can be set to a slightly deeper depth when leveling infill on uneven areas.

Depending on the field groomer you have, it may be equipped with spring-tines designed to "rake" the turf. Using this feature helps loosen infill, but depending on the grooming unit, it may be very aggressive. If you begin to remove fibers or damage seams, readjust the unit or do not use this method of grooming.

Aerating also helps loosen infill. Grooming units consisting of vertical star-shaped, non-powered "slicers" that roll through the turf and infill should generally be used no more than two or three times per year.

Again, it is important that you check with your field manufacturer for grooming information that is specific to your field.

Infill maintenance

The infill component of a synthetic turf field helps keep fibers upright, allows for cleat penetration and provides a cushioning effect. Over time, infill levels often drop as small amounts of infill are constantly leaving the field in athletes' shoes, clothing, equipment bags and from other maintenance activities.

Excessively low infill levels can result in accelerated fiber degradation (from both field use and UV light), fiber layover and increased surface hardness. Surface hardness (often referred to as

"Gmax") is an important safety issue and will be the subject of an upcoming From the Field column. Additional information on "walk-off" crumb rubber and Gmax can be found here.

Routine monitoring of infill levels is an integral part of managing a synthetic turf field. In fact, NFL field managers are required to measure infill depth before every game.

You can find out the target infill depth range from your turf manufacturer. If the infill level drops below that limit, additional infill should be added. That means you should have extra infill on site – crumb rubber in most cases.

An easy way to measure infill depth is to use a fire-proofing depth gauge. These gauges are available online and typically cost less than $20. Pay particular attention to heavy-use areas such as goal mouths if the field is shared by lacrosse and/or soccer teams.

If infill is needed in these or other small areas, a few buckets of crumb rubber likely can do the job. Spread a thin layer of rubber onto the area, brush it into the fibers with a broom and repeat until the infill level is within the acceptable range.

For bigger areas, larger pieces of equipment, such as a topdresser, can be used to spread crumb rubber across the field. No matter the size of the area, it is important to use the same size and type of rubber originally installed by the turf manufacturer.

Next month's From the Field column will be Part 2 of "Proper synthetic turf maintenance maximizes player safety and performance". A number of topics including turf repairs, disinfectants, and snow removal will be discussed.