Q&A

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Questions?

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Smooth world

My name is Doug Schryver and I work for the Park District in Sterling, IL. I've been involved with turf management for the past 2 years and I have a question about rolling my baseball fields to smooth them out. I've been reading that soil compaction is detrimental to good turf so what's the best way to smooth out my native soil fields, rolling or something else? It seems that rolling would be contradictive to what the turf needs. Any opinions on the subject would be greatly appreciated.

Like you, Doug, I once was completely afraid of rolling native soil athletic fields because of the potential for excessive compaction. So I became a "closet roller" preaching fear of compaction to the masses while smashing fields flat in some situations because … well, it just made for a better playing surface. And that is the first message, your job as a sports turf manager is to make the field as safe and playable as possible.

Rolling can definitely make a field smoother. At the same time if no one is complaining about field smoothness then there may be no reason for you to start rolling. I'm not alone in this. Professional baseball field managers have shown me several of their tricks to using rollers. They started using rollers to perfect skin areas, where tightening up the soil surface is needed, and then moved to rolling turf when it presented a bumpy surface. Additional references for rolling are provided at the end of the article.

Just so we are on the same page let me try and give a better visual idea using some of the terms we use when discussing this issue. Compaction implies a negative situation where the soil has been compressed to a depth and density that makes the field hard enough to reduce root growth, injure players, cause excessive ball bounce, and limit cleat penetration that alters footing. I'm sure there are other negative examples of field conditions that you associate with compaction.

On the other hand we sometimes use terms like firm, stable, tight, and fast to describe a desirable surface that maximizes player performance. I know it is semantics but what's the difference, it's all compaction, right? For me, the difference between good and bad rolling on native soil grass surfaces comes from how deep into the soil the compression actually occurs. And that is a function of the roller weight, soil texture, and soil moisture. A heavier roller, finer texture, and wetter soil all increase compaction. Desired traits such as firm, tight, and fast can be improved by rolling that impacts only the top inch of the soil profile. This level of compaction can always be quickly loosened if needed with many excellent aerification and spiking machines on the market today.

To summarize, deep compaction bad, shallow compaction not so bad and manageable. We all have experienced those heavily trafficked fields that are so compact that a solid tine aerifier won't even go into the ground. It's a depressing sight and sound to see a heavy aerification machine bouncing across the ground you are trying to grow grass in. Those conditions are not what we want out of field rolling and that fear is what probably keeps many managers from ever considering rolling. Infield dirt areas are different, sometimes we need to use 1 to 3 ton rollers to tighten the ground enough to provide the desired consistent ball bounce and cleat penetration needed for baseball and softball skins.

Specially made turf rollers with rounded edges to avoid gouging weigh in at 300 to 1000 lbs and apply pressure similar to heavy mowers (3-7 lbs/sq in). The maximum size roller I suggest for turf is one ton. If water is squishing out from under the roller then it is way too wet to be rolling. If it is too dry then you are only flatting the grass. The art of rolling is to try and do it when the soil is moderately moist.

I usually start the baseball season by rolling because my high school team begins spring ball in April before grass even begins to grow. The fields are usually a little bumpy from frost heaving and the unevenness of different grass species. I prefer using 100% Kentucky bluegrass because it presents a more attractive, uniform, and smoother surface for the infield mown at a 1 inch cutting height. Clumps of perennial ryegrass start growing sooner in the spring and the roller helps to temporarily smooth them out until enough growth has occurred that repeated mowing evens out the grass surface. I am a big fan of mowers with solid rollers because they also give a light rolling that helps keep the surface smooth. Reel or rotary and riding or walking mowers are available with solid rollers.

Worm casting and ant mounds unnoticed in taller infield grass mown with decks having only wheels often leads to bumpy fields. Large rollers are not an effective way to change surface grade. High and low areas the cause water pockets will not be improved with a roller; grading is needed. Topdressing, coring, and dragging can help fill depressions that make the field smoother. A 16-ft aluminum screed used to smooth concrete is an excellent inexpensive tool to show surface aberrations. Mow the field at 0.5 to 1.0 inches, hand topdress in front of the screed, and level depressions to provide a really smooth surface. That's a lesson from George Toma that gives me 16 feet of absolute truth every time I plunk it down on the field.

Sometimes I find myself faced with just days before the fields need to be used and things are just uneven; lips are higher than I want, grass edge and skin are too uneven, winter heaving has left the skin loose and bumpy, and there is no time to aerify or topdress. I can usually save the day by using a heavy roller, in this case a 1-2 ton roller works best. Roll the skin base paths first and then straddle the grass/skin edge in the center of the roller and just smash everything together. I guess smash is one of those negative words but it works. It makes for a really smooth transition between the grass and skin and so far I have never overly compacted the soil such that it causes turf loss. I like to close my eyes with heels on the grass and toes on the dirt and rock my weight back and forth; it should feel smooth and level.

Putting field "playability" from the coach's perspective, i.e. smoothness, ahead of some of the agronomical practices, i.e. compaction, can help you in other ways. This strategy puts me in good favor with the coach and I never really lose grass or have excessive compaction problems. If you don't have a good aerifier it's always a good time to practice your "quid pro quo." Lay that phrase on your coach, it means this for that, i.e., I will roll your field and suffer compaction if you will help me convince the athletic director to purchase a decent aerifier to relieve said compaction. I've already got a good aerifier so this year for rolling I'm asking to get the guys off the outfield foul line during warm up… they all think they're pitchers and need to toe the line; drives me crazy and makes the foul line look crooked. Give a little, get a little, it smooths out the world.

References: Minner D., "Just Rolling Along," *SportsTurf*, September 2005, p.50. Also, search buckeyeturf.osu.edu/index for "rolling athletic fields." ■