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Ilten aerates 7 days a week to surmount the side effects of reclaimed water and resist black layer on more than a million sq. ft. of turf.

Below: THE SAN DIEGO PADRES' Luke Yoder uses this walk-behind (rather than a pull behind) on the infield, foul territory and edges to lessen the impact on an already heavily trafficked area.





about aeration

Editor's note: This article was written by Brad Aldridge at John Deere.

DO YOU AERATE ENOUGH, too little or too much? Could you be aerating faster or cheaper? Using less crew? Or would a little more time today yield long-term turf health tomorrow?

Even in the best soils, aeration is vital for turf health. Compaction from foot traffic prevents root penetration and is a major factor in poor drainage, leading to poor turf quality. Aeration relieves compaction by pulling cores or using solid tines to simply place holes in the turf to open up area for the water and nutrients to penetrate, forcing the roots to go deeper to attain them.

While many sports field managers see aeration as

a necessary evil (perhaps a dreaded chore that thankfully comes only in the spring and fall), aeration is actually one of the key basics of turf management that can optimize the health of your turf in the long run. Knowing when to aerate, what equipment to use and how to do it can help keep your turf in topplaying condition throughout the year.

Determining your need

While dreaded by some, it is definitely worth the investment to devote a little time to aeration, despite the fact that it can be a long and labor-intensive process, requiring users to stay off the field for



As you create an aeration schedule and customize your techniques, there are a few key mistakes to avoid:

• Aerating when it's too wet. This can actually worsen conditions.

 Not aerating enough. While it might tie up equipment and manpower, Minnick advises never going more than 3 weeks without aerating a field under heavy traffic, like soccer and

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football fields or those with extra events like concerts.

• Aerating when it's too hot. This is particularly important for cool-season turf as it loses roots in the summer.

• Aerating too early on new sod. Aeration can disrupt the turf's establishment process.

• Aerating too deeply. Always start shallow, and adjust the aerator to deeper depths as

conditions permit. Many users automatically set the aerators up to their deepest depths, only to run into hole quality issues due to the soil profile being too firm underneath the turf surface.

 Not adjusting your schedule and approach from field to field or facility to facility. Take a water and soil sample whenever you start at a new facility. Finally, if you can't aerate on the schedule you want, don't be afraid to get creative. Even with constant aeration, Minnick has instituted such measures as limiting play during the week (since weekends see 20+ hours of play) and changing the field dimensions (allowed in soccer) to give certain turf areas a rest.

"With proper aeration, the turf will take far more than you give it credit for," said Minnick.

Warning sign illustration courtesy of istockphoto.com

an additional period. The needs of the turf should dictate your aeration schedule.

"My goal is to have an aerator going all the time," says Jerad Minnick, sports turf manager for the Maryland Soccer Foundation at the Maryland Soccerplex. Such a goal may seem daunting, but is just a part of the routine for Minnick's 22-field facility that hosts 350 games a weekend and sees around 1.5 million people a year. He notes that it takes about 2 weeks to aerate all the fields once.

When designing an aeration plan, several factors should be considered:

• The goal of the field (type of sport and level of traffic)

- Weather and climate conditions
- Soil and turf type
- Frequency of watering and mowing

A soil sample can reveal compaction; so can divots, indicating the need for aeration.

Shaun Ilten, turf and grounds manager at The Home Depot Center in Carson, Ca has such a heavily used facility that he has one dedicated employee whose sole job is aeration. "He aerates eight to 10 hours a day year-round," said Ilten. "We aerate each field more than 30 times a year." From football and soccer teams to concerts and ESPN's X Games, The Home Depot Center encompasses 125 acres of grounds including 1.2 million sq. ft. of turf and 10 practice fields, in use 12 months of the year.

But for Ilten, the reclaimed water he uses for irrigation is also a primary driver of his aeration schedule. "Due to the water's inconsistency, you never know what you're going to get," he said, noting fluctuating nitrates and sodium levels. "As a result, we're constantly working to avoid black layer and disease and flushing the turf to reduce salts." He relies on aeration to help open up the turf and flush those salts.

Minnick also advocates a proactive approach to aeration. Knowing the dedication of teams at the Soccerplex, he wasn't surprised when they continued play despite the driving rain one late spring day. "I knew there was heavy rain in the forecast, so we aerated a few days before," Minnick said. "It rained ¾ inches during the game, but we had no puddles and no divots. In fact, it rained 12 inches in May, 21 days of rain, yet we only had four rain-outs on native soil."

Luke Yoder, director of field maintenance for the San Diego Padres, schedules his aeration around his professional team's practice and game schedule. That's usually five or six times per season, and with a small crew, he often jumps in to assist in the time-consuming task.

He also noted that aeration is a task he can greatly reduce in the off-season, since the turf isn't undergoing the stresses of baseball. "However, the venue might be used for rugby, concerts or soccer," Yoder explained. "If the turf gets really beat up after one of these, we sometimes re-sod the whole field before baseball season begins, so our off-season aeration schedule changes from year to year."

How to use it

What sort of aeration you need will vary depending upon the individual field. Creative

The equipment

Running at slow ground-speeds is one of the toughest challenges when aerating. John Deere has created Flexi-Link technology as standard equipment on its entire line of tractor-mounted and walk behind aerators, which allows faster speeds without sacrificing hole quality, the company says. The system uses a series of rubber dampeners to absorb the forward motion of the machine, resulting in tines that spend more time perpendicular to the turf, aiding in healing times.

Choosing the equipment you need should be determined by the same factors that influence your aeration schedule: soil profile, traffic and the field's purpose, weather, and staff and other equipment on hand.

Yoder uses a tractor-mounted aerator for his outfield, but "coddles" his infield, foul lines and edges with a walk-behind aerator because it leaves less of a footprint.

Before you buy, examine your other equipment. If you are planning to attach an aerator to a tractor, ensure that the tractor has the proper hitch, ballast and sufficient PTO horsepower and lift capacity to do the job.Tractors with gear transmissions or electronically-controlled hydrostatic pumps with cruise control will make the job easier.

John Deere offers tractor-mounted aerators in 37.5, 57.5, and 77.5 inch coring widths, and the 31 ½ -inch walk-behind Aercore 800 is for smaller areas.

The patented verticutter attachment offered by John Deere for its Aercore 800 walk behind can be used as a stand alone verticutter at a depth up to 1.75 inches, or can be used in combination with aeration to aerate and verticut in the same pass. timing around game and event schedules is key, since the field needs time to rest after aeration. Ilten explained that he generally needs 2 days for his fields to recover.

Minnick admits that some trial and error may be necessary when working a new field, but recommends aerating a few days in advance of a big game or event. "Then if the soil is too loose and coming apart, you can firm it up by putting water on the turf and running a roller over it," he said.

When aerating, the speed, angle and direction generally vary by personal preference. Your speed should be based on how many holes you want—the faster you go, the fewer holes you make. If you're working in seed, you should go slower for tighter hole spacing, particularly for worn areas such as field centers or edges.

Climate and turf type can also influence aeration techniques. For instance, Yoder, who has managed sports turf on both coasts, treats his current field differently than when he was the manager of field maintenance for the Pittsburgh Pirates.

"Here in San Diego, before we aerate we scalp the Bermuda from 5/8 to 3/8 inches because it makes cleanup easier, encourages the Bermuda grass to take over and also allows us to keep the mower off the field for several days," he said.

"But cool season turf wouldn't withstand that scalping," he added, explaining that in a city like Pittsburgh, timing is much more important. "If we tried to aerify on a 95-degree August scorcher the Bluegrass might have a hard time recovering. But we couldn't aerate too late in the season because we didn't want to leave the field open and exposed to the cold as winter arrived.

"Here, you can beat up Bermuda in the heat of summer, and it just loves it," Yoder added.

Yoder also advises turf managers to pay special attention to the areas around irrigation heads. "We aerify those by hand," he said. "It's one of the most important locations to aerate since the water tends to sit around the heads and black layer can develop." The aeration process allows the water to move through the turf, preventing anaerobic conditions around the irrigation heads.

Yoder primarily core aerates and tines only occasionally, while Ilten and Minnick place their emphasis on tine aeration. Regardless of your turf type or climate, core aeration should be done at least twice a year to relieve compaction, though even that schedule may pose a challenge for heavily used fields. Some professionals prefer to leave cores on the turf for a day or two and pulverize them if possible, working them back in with a drag then topdressing with sand. However, if you have a black layer or desire to change your soil profile, you may want to collect or sweep the cores off of the turf surface and topdress with a more desirable soil to fill in the aeration holes.

Brad Aldridge is a product manager with John Deere Golf.

