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Strategies for Managing Heavily-Used Fields

Article written by Thomas Serensits, Penn State University

Managing a heavily-used athletic field can be a daunting task. While you may do your best to limit the number of events, the reality is that many times your field will host more activities than it can handle under your normal maintenance practices. As athletic field managers, we must remember that fields are meant to be played on and we need to do everything in our power to provide the best possible field conditions regardless of intensity of use. Here are four keys to successful management of heavily-used fields.

4 Keys to Success

Mowing

- Mow often.
  Mowing 3 times per week during the growing season will improve turf density and enhance overall field conditions. Be sure to vary your mowing direction so you spread out the compaction from the mower wheels.
- Do not remove more than 1/3 of the grass blades per mowing.
  This will eliminate scalping and unsightly clumps of clippings. Mowing frequently will ensure that you do not remove more than 1/3 of the blade.
- Mow at the proper height.
  Cool-season grasses should be mowed at 2 to 3 inches. Common bermudagrass should be mowed at 1.5 to 2 inches and hybrid bermudagrass should be mowed at 0.5 to 1 inch. If you have irrigation, mowing at the lower end of the recommendations will increase density (turf mowed at lower mowing heights requires more water). However, mowing too low will decrease your field's wear resistance.
- Use sharp blades.
  Whether you are using a reel or rotary mower, mowing with sharp blades will result in a clean cut and a healthy plant. Dull mower blades stunt growth and tear leaf blades, weakening the turf and opening it up to pests.

Mowing with a dull mower blade tears the turf (left), while sharp blades produce a clean cut (right).

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Fertilization

- Test your soil.
  Send a soil sample from each of your fields to a certified lab for nutrient testing. You will receive a report detailing the nutrient levels of your soil and you can then adjust your fertilization program based on those results. Testing should be done on a yearly basis at the same time each year.
- Apply ample nitrogen for growth and recovery.
  For unirrigated, cool-season turf, apply a minimum of 4 lbs of nitrogen per 1000 ft2 each year. The amount of nitrogen can be increased to 5 to 7 lbs of nitrogen per 1000 ft2 on irrigated fields. Warm-season turf fields should receive a minimum of 1 lb of nitrogen per 1000 ft2 each month of the growing season.
- Fertilize during the proper time of year.
  Cool-season grasses should be fertilized in the spring and the fall (for irrigated fields, fertilizer can be applied in moderation during the summer). Warm-season grasses should be fertilized in the late spring, summer, and early fall.

Overseeding

- Seed often.
  Use a rotary or drop spreader to regularly overseed your field in order to reduce thin and bare areas. Start seeding after the first game and continue to seed before and after each game. Seed that is spread before the game will be worked into the soil by players' cleats. You will build up a "seed bank" that will continually replace ripped-out plants with new seedlings. The more seed you put down, the more turf cover you will have. Best results occur when at least 30 lbs of seed per 1000ft^2 per year is applied.
- Seed with the right species.
  Perennial ryegrass is the best choice for in-season overseeding because it germinates and matures quickly. Kentucky bluegrass should only be overseeded when there is sufficient time for the plants to mature (several seasons without field use). Under most circumstances, high-use fields should be seeded with perennial ryegrass. Information on the performance of many perennial ryegrass varieties (along with other species) can be found on the National Turfgrass Evaluation Program's website (http://ntep.org).
- Focus on high-wear areas.
  Spread the majority of the seed on high-wear areas such as between the hash marks on a football field or goal mouths on soccer and lacrosse fields. You do not need to treat the entire field the same way. Give more attention to high-use areas. This also applies to fertilization and aeration.
- Include seed in divot mix.
  After each game, fill in divots with a mix of sand, organic fertilizer, and perennial ryegrass seed. An easy way to make divot mix is to cut a 55-gallon drum in half and pour in sand, organic fertilizer, seed, and enough water to wet the sand. Then, give it a good mix with a shovel and continue mixing once per day. This will start the seed germination process so when you fill the divots, it won't take as long for the seed to germinate. New divot mix will need to be mixed each week because if the seed germinates in the drum, it is no longer viable for field use.

Aerification

- Aerify frequently to relieve compaction.
  Compaction increases surface hardness, reduces pore space, limits root growth, and slows water infiltration. Aerifying several times per year will help combat these problems, making your field safer and healthier.
- Get the most out of aerification.
  Using hollow tines is the most effective way to aerify. Select tines that remove the largest size cores (3/4" is typical) and set the spacing on the machine as close as possible. Large tines combined with close spacing will give you the best results.
- Use several aerification methods.
  While hollow-tine aerification is best, it also causes the most amount of surface disruption and your field will need time to recover before

it can be played on again. If your maintenance time-window is short, use solid tines. Solid tines do not remove soil cores so compaction is unaffected, but using solid tines does increase oxygen levels and water infiltration. You can also use a deep-tine aerator, which penetrates to depths of up to 16 inches and fractures the soil below the surface, increasing soil oxygen. Other methods of aerification include verticutting, slicing, spiking, and water injection.

- Pay attention to soil moisture.
  Aerifying when it is too dry will limit tine penetration into the soil and if it is too wet, the sides of the aerification hole can glaze-over and seal-up. So, it is best to avoid extremely wet and dry conditions. Deep-tine aeration is an exception. The soil should be dry so that the soil fractures easily.
- Manage your cores.
  After you hollow-tine aerate, cores should be dragged back into the soil using a drag mat. Going over the field with a rotary mower also breaks up the cores (remember to sharpen your blades after you do this). If you plan to topdress with sand, the cores must be removed prior to topdressing instead of being dragged back into the field.
- Spread compost before you aerify.
  Spreading 1/4 inch of quality compost onto the field before you aerate and then incorporating it into the soil through aeration is an inexpensive way to improve your field. Compost increases nutrient retention and microbial activity along with improving soil structure. Yearly compost applications will improve your field's turf density and color, increase root growth, and reduce the need for fertilizer and irrigation. Do not use compost on USGA sand-based rootzones.
- Combine fertilization and seeding with aerification.
  After you drag in the cores or topdress, it is a great time to fertilize and seed. Then, if you have irrigation, give the field a good, long soaking. If you don't have irrigation, try to time this process before rain is expected.

Managing a heavily-used field is not easy. However, by improving your mowing, fertilization, aerification, and overseeding practices, you can overcome many of the challenges brought about by field over-use. So, when it seems like your field is being used all day, every day, don't throw your arms up and walk away. Take on the challenge and make your field the best it can be.

Aerification with solid tines is a great way to improve conditions during the season because it causes minimal surface disruption but it should not be used as a substitute for hollow-tine aerification.