

Spring Topdressing and Seeding: Spreading Success



Topdressing programs must be custom-tailored to meet site-specific needs. Variables include field soil type, topdressing mix, weather, timing and application rate, irrigation, equipment, and more.



They seem like such simple processes — spring seeding and topdressing — but often they make the crucial difference in when an athletic field will become playable after winter. They work in tandem and should be thought of, in terms of timing and application rates, accordingly.

There is no single topdressing/seeding formula that works in all situations. Your particular strategy will hinge on a number of variables including turf type, soil type, climate, play schedule, irrigation, and much, much more. Still there are some fundamentals to keep in mind, and here's what the experts have to say.

Build On Basics

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Consider the objectives of a topdressing program in terms of the existing conditions of the field or fields in question, and the goals you wish to achieve. Conditions requiring topdressing will vary with the individual field. Topdressing will benefit turf on a compacted and/or

difficult-to-manage soil. It can help amend or augment the soil profile following aeration or modify the surface layer of soil. It can be used in rebuilding or maintaining the crown of a field, or to smooth an uneven playing surface. Topdressing used properly:

- Protects the crown and lateral roots and shoots of turfgrasses from wear

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and the elements.

- Helps reduce thatch buildup to ensure proper infiltration of water and fertilizers.

- Helps maintain moisture levels.
- Improves the rooting of stolons.
- Protects and insulates germinating seed and seedlings from excess heat and traffic injury.

An effective topdressing program requires light applications of material at frequent intervals, so that there's no development of layers, either of topdressing material or thatch. Proper topdressing will provide an excellent soil on which to maintain the field in the future.

Many errors in topdressing have a minimal short-term detrimental effect, but tend to have the greatest detrimental impact in the long-run.

Most sports turf managers topdress twice a year, in the spring and fall, following core aeration. Using a light application more frequently can be even more beneficial. Lighter topdressing applications can be made as frequently as once a month, depending on the field needs, turf type and condition, and the makeup of the topdressing mix.

Though topdressing offers many benefits, they must be balanced by the understanding of soil and topdressing compatibility. If the existing soil drains poorly and compacts easily, you may not want to topdress with the same soil, even though it would provide the greatest compatibility.

The same level of care when selecting and mixing materials during construction should be applied to the selection and use of topdressing materials. Talk to your local agronomist or consultant to determine the correct topdressing mix for your field needs. Don't just add something to the mix because you've heard it might be beneficial.

Precautions

Using a topdressing with a texture different than that of the existing soil carries a risk of layering. A surface layer can impede the movement of air, water, and nutrients in the rootzone.

Layering has been cited for disrupting decomposition processes in moist soil by creating anaerobic conditions, which result in black layer and other sub-surface problems. Surface water percolates down through a layer of well-textured surface soil to the heavier soil

Topdressing can help amend or augment the soil profile following aeration or modify the surface layer of soil.

below. The sub-soil becomes waterlogged, robbing bacteria and microorganisms of the air they need to properly decompose organic materials.

One way to avoid this problem is to aerify and then fill the holes created by aeration with topdressing material.

Soil/Sand Mixture Considerations

There's a preference to use sand, or a sand/soil-based mix for topdressing. Soil-based mixes may provide a better environment for maintaining adequate levels of desirable soil microorganisms, as well as water and nutrient relationships.

The makeup of soil/sand mixtures can only be identified after the sand content of the soil is identified. First, determine the sand content of the soil portion of the mix. Then the sand content of the entire blend can be determined by including the sand content of the soil with the sand that will be added to the soil. An appropriate mix might contain 80 to 90 percent or more of sand, even though the mix makeup is 70 percent soil and 30 percent sand. The additional sand would already be present in the soil itself.

The critical components of a soil-based mix are silt and clay. Research shows that approximately 10 percent silt, 5 percent clay is appropriate; that is, silt equals 10 percent and clay equals 5 percent of the total mix, which is a 2:1 ratio of silt to clay.

Even when standards have been set for the optimum topdressing mix for your field, test the mix prior to applications to ensure consistency among batches.

Sand Quality

Most agronomists prefer sand in the medium range. About 60 to 75 percent of the sand should be in the range of 0.25mm to 0.75mm. Coarser sand (1.0mm)

should be kept to a minimum. No more than 3 percent of the sand should be in the very fine range (0.05mm-0.10mm).

Generally speaking, the narrower the particle size range, the more pore spaces will be retained by the soil, and susceptibility to compaction will be lower. A sand with nearly equal percentages of each of the sand size ranges will be highly susceptible to compaction.

Sands with high silica content are preferred because they are hard and resistant to the effects of weathering. If possible, avoid using sands that have an appreciable amount of limestone-based materials because of the probability of pH problems.

Consider the particle shape of the sand (sharpness of grains).

Have the sand tested for pH, free carbonates, nutrients (including trace elements) and for the presence of soluble salts and other undesirable components before you buy or use it. Be sure the sand vendor can consistently provide the same size and quality of sand over the long-term. Keep in mind that sand used in topdressing should always be washed.

Straight sand as topdressing can change the existing water and nutrient maintenance schedule. Sand root zones require careful management and close watch on water. A good irrigation system is critical for sand-based athletic fields.

Topdress For Success

There are four prerequisites for an effective topdressing program:

1. Selection of quality sand or mix.
2. Application at the proper rate.
3. Application at the proper interval.
4. Evaluation of results, with adjustments as necessary.

The rate of topdressing application is determined by the time of year, temperature levels, and how quickly the material will be dragged into the field. For frequent, light topdressing, rates should range from 1/32- to 1/8-inch. It is not usually necessary to drag in these light applications.

After core aeration, a topdressing rate of 1/2- to 3/4-inch may be appropriate, depending on the size of the cores removed and the number of holes created by the process.

When topdressing to raise the level of a section of the field, the process should consist of several light applications over

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a prolonged period. For example, a two-inch adjustment might best be handled over a two-year period, with no single application made at a rate above 1/2-inch.

Topdressing success depends largely on the ability to control the amount of the application. Uniformity of application, accuracy, and reliability must all be considered when choosing topdressing equipment.

Sports turf managers should take core samples of topdressed areas regularly to check root growth, moisture, and compatibility.

The Bear Facts

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Chicago Bears*

The winter of 1993-1994 has been hard on turf. Many cool season grass fields have faced extreme cold temperatures and drying winds, long periods of ice and snow cover, or both during alternating periods. Some fields entered the winter already stressed from overly wet or overly dry conditions. To minimize damage and create safe, playable conditions as quickly as possible, spring preparations will need to begin as soon as turf starts to break winter dormancy.

As soon as the soil is workable, core aerify at least two directions to relieve compaction.

If the field's existing soil structure is acceptable, the best seedbed and topdressing material is the same soil. Allow the cores to dry, then use a woven mental drag mat to drag them back in and provide a suitable seed bed. Any thatch debris should be removed from the field.

Pregerminating seed can speed the spring seeding process. For Halas Hall, the Chicago Bears practice facility, we pregerminate a 50:50 mixture of bluegrass and perennial ryegrass in 55-gallon drums. The drums are filled with warm water to which one-half to one pint of high-phosphorous liquid fertilizer has been added. The water is changed every day for five days. The barrels are drained on the sixth day and the seed is spread out to dry on a clean, concrete surface. We use the floor of the garage or, if conditions are favorable, the concrete apron adjacent to the garage. Drying time will depend on temperatures and humidity levels. With ideal outdoor conditions, the seed will dry sufficiently within one-half hour. Indoor drying will take longer.

Proper topdressing will provide an excellent soil on which to maintain the field in the future.

Once the pregerminated seed has been dried adequately, we add a small amount of our standard topdressing mix of calcined clay, shredded peat, sand and native soil to make uniform application easier.

If you decide to incorporate pregerminated seed into your spring seeding program, the next step is to broadcast the pregerminated seed and topdressing combination into any sparse areas of the field.

Follow this with applications of ungerminated seed in your preferred seed mix. Depending on the existing field conditions and the state of your turf entering the winter season, it may be best to increase your standard seeding rate. For example, we'll increase our seeding rate by one to two pounds per 1,000 square feet this spring to counteract damage to the existing turf caused by last fall's prolonged wet conditions. Where possible, use a slit seeder and sow the seed mix in two directions.

Next, apply a starter fertilizer with a high phosphorous content to promote seed development. We prefer to use a fertilizer formula that also has a relatively high nitrogen content to stimulate growth of the existing turfgrass.

As a precaution against pythium (damping-off), consider applying a pythium control product. Treatment for snow mold may also be necessary.

Our seeding process concludes with a light topdressing of our standard topdressing mixture on any areas that show winter desiccation. Because we use lightweight, perforated poly covers to protect the entire seeded area, this is all the topdressing that is needed. The covers act as a greenhouse to speed germination and seed establishment, keep the seed in place, protect the seed and young seedlings from washing out in heavy rains, and help encourage early growth from the existing turf.

For fields without access to such covers, a light topdressing, ranging from 1/32-1/8-inch, may be necessary to provide adequate protection for both the pregerminated and ungerminated seed.

Keep a supply of pregerminated seed available to fill in sparse areas and repair any damage caused by heavy spring rains. Apply a light topdressing as a protective covering over these spot seedings.

Irrigate as needed to keep the seed and young seedlings from drying out. This may require several light watering intervals throughout the day.

Monitor the growth of the existing turf during this period. If may be necessary to mow, following standard mowing procedures, before the new seed is established.

As the young seedlings mature, gradually adjust your irrigation program to the infrequent, deep watering pattern of mature turf.

Germination and establishment periods will vary with the seed varieties selected, the amount of pregerminated seed used, and the weather conditions. Once the young turf is well established, apply fertilizer containing slow-release nitrogen for sustained growth and a high level of potassium to improve hardness. And give the young turf as much time as possible to mature before subjecting it to the pound of play. □

Editor's Note: In addition to his responsibilities with the Chicago Bears' Halas Hall practice facility, their "McBubble" indoor practice facility, and Soldier Field, Mrock is currently a board member of both the national Sports Turf Managers Association and the Midwest Chapter of the STMA. Montague is an active member of the national STMA, as well as the newly forming Minnesota Chapter.

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