



Topdressing improves growing conditions for existing turf and stimulates the growth of underdeveloped turf. Photo courtesy: Turfco.



Topdressing and Surface Applied Soil Amendments

The Basics

By Monty Montague,
Turfco Manufacturing, Inc.

During topdressing, a relatively light layer of material is applied over the surface of the existing turf. Over a period of applications, the topdressing can help rebuild or maintain the crown of a field, level an uneven surface, augment or amend the soil profile, promote better drainage, aid in the decomposition of thatch, protect the crowns and lateral growth of existing grass, and insulate and protect seed and young plants. This improves growing conditions for existing turf and stimulates the growth of underdeveloped turf.

Topdressing programs vary greatly because every situation is different. The program must be based on the type of grass, the amount of thatch and the composition of the existing subsoil. Grass types will vary by field, and often seasonally within a field. Opinions differ on appropriate thatch levels, but a thatch build-up that is too great hinders pene-

tration of water and nutrients and reduces airflow. To assess the existing subsoil, take soil probe samples of an area and find out what will be required to match it.

The turf manager then faces a series of decisions. What kind of material will be used? What source provides a consistent, reliable supply of this material? When will applications be made? How thick will each application be? How large an area will be covered? How much material will be needed for each application? Is an appropriate storage place available for the material? What type of equipment will provide a consistent, uniform application? What are the projected costs of material, labor and equipment?

The greatest compatibility is achieved with topdressing materials that match the existing soil profile. If that soil profile is undesirable, a topdressing mixture can be designed to improve it. Current trends favor material with a high sand content, such as 80-percent sand and 20-percent organic matter.

Proper material choices and the uniformity of that material are essential.

Select quality sand or sand-soil mixes and make sure that this material is adequately supplied to fill your needs over the long term. Uniform particle size is necessary to enhance drainage and to provide pore space for water and oxygen within the rootzone. Sands selected should fall within the middle range of particle sizes. Sand used for topdressing should always be washed. The topdressing material should be processed through a screen or shredder prior to application.

The thickness of application ranges from 1/32 inch to more than 1/4 inch, with the majority in the 1/16-inch to 1/4-inch range. Rates depend on existing conditions, including time of year, temperature and how quickly the material will be dragged into the field. Additional material will be needed to fill the holes when topdressing follows core aeration.

Because the effects of topdressing are cumulative, multiple applications will be scheduled each year. Many sports turf managers topdress in the spring and fall immediately following core aeration. More frequent topdressing appli-

cations at lighter rates may prove even more beneficial to guard against development of layers.

Application rates should be carefully calculated and materials applied uniformly. To calculate material requirements, use the following formula: area (number of square feet) x depth (number of inches deep) x .0031 = number of cubic yards.

Make the applications at the proper rate at the appropriate interval. One of the most important elements of topdressing is making applications at the right frequency, using the same settings on the topdresser, and having the material applied uniformly and accurately.

Improper topdressing, either in the materials used or in the actual application, will have long-term effects. For example, layers of differing textures may impede water, air and nutrient movement, and limit the decomposition process, thus robbing bacteria and microorganisms of air needed to properly decompose organic matter.

Assess the effectiveness of the topdressing program frequently. Check



Vince Patterozzi, head groundskeeper for the Cleveland Browns, says topdressing is an important element of his overall maintenance program and allows the players to "work on the field without getting down into the soil." Photo courtesy: John Reid/The Cleveland Browns.

core samples for root growth, moisture retention and compatibility and make adjustments as necessary.

In Practice

By Vince Patterozzi,
Head Groundskeeper,
Cleveland Browns

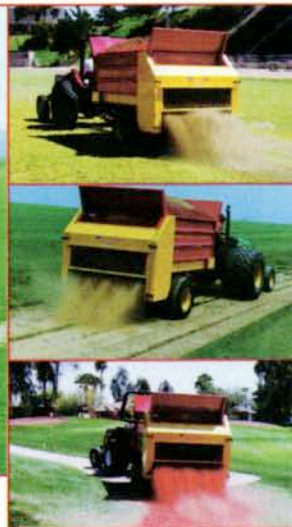
Topdressing is best achieved following core aeration so the topdressing material can work into the soil profile. We sweep

the cores from the field before topdressing. Our general topdressing mix is 80-percent quartz sand (from Best Sand in Cardon, OH) and 20-percent Dakota Reed Sedge Peat. We use from 1/8 to 1/4 inch applied with an LA-2 Turfco topdresser at least twice a year.

Between core aerations and up to three or four times a year we'll use a solid-tine aerator with 3/8- to 3/4-inch tines. Following solid tine aeration, we use a

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Topdressing

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light organic topdressing of 80-percent quartz sand and 20-percent soil, which matches the profile of the practice fields.

The quartz sand is highly angular and thus very sharp. Too much of it on the top of the grass can cause some shearing of the turf if we're not careful. A gang reel mower that makes too tight a turn can "peel off" some turf. We've chosen this sand because of its angularity — the angles keep it from compacting as much as other media and keep the aeration holes open for air, water and nutrient movement.

We've also been working with the relatively new product, AXIS calcined DE (diatomaceous earth). We've tested ten-percent AXIS by volume tilled into the top six inches of the rootzone mix in the stadium field. Growth was good in test plots, with deeper and thicker root growth. Swales at the sides of the practice fields where moisture tends to collect have responded especially well.

In 1994 we reconstructed the stadium field incorporating ten-percent AXIS by volume to a depth of six inches. We placed a two-inch-thick layer of sod on top of the graded soil profile in July.

Because of the scheduled field work, and with our first scrimmage scheduled for 16 days after the sod would be laid, we wanted thick-cut, big-roll sod with as few transition problems as possible. Several years earlier, our sod supplier, Cygnet Sod of North Baltimore, OH, had asked us about our needs — what types of soils we had and what bluegrass cultivars we wanted to use — and had set up a growing field that would fit those needs, so we already had the type of grass we wanted growing on a soil profile as similar to our own as we could get without constructing a rootzone ourselves.

We made arrangements with Cygnet to maintain 12 acres of sod following our own maintenance program. We literally moved our crews onto the field and verticut, removed thatch, watered, mowed to the same height and with the same frequency, and maintained the same fertility program for the field sod as we did on the turf on our own fields. Thus, when the sod was put in place, we didn't have to wait for our program to "kick in."

During 1995 we'll create channels through the thick sod with core aeration and topdress with a mixture of 80-percent quartz sand and 20-percent AXIS.

Heavy seeding goes hand in hand with our topdressing program. Each year, we put down 60 to 80 pounds of perennial ryegrass per 1,000 square feet on our Kentucky bluegrass fields. The sod we laid in July was overseeded during the season with a total of 30 pounds of perennial ryegrass per 1,000 square feet.

The same principle has been used for decades in the South, where bermudagrass fields are overseeded with perennial ryegrass. Though we play on juvenile grass all the time, that young grass protects the bluegrass crowns from damage. I also seek out thatch-producing bluegrass cultivars and maintain a thatch layer from 3/4- to one-inch thick. Our management program is so aggressive that degree of thatch is not a problem.

Unlike baseball, where a lot of play is on the non-grass areas, football is played in the grass. Twenty-two big guys with cleats tear into the turf within a 30-yard stretch up and down the field. With a protective thatch layer and the actively growing young grass, the players can work on the field without getting down into the soil.

In Cleveland the fall window for bluegrass growth hits sometime between September 15 and October 1. After that, divots of bluegrass have little recuperative ability. In the spring, bluegrass displays vigorous growth. Sod lifted in July still has from three to five months of wearability on the fields — if it has a vigorous root system and protective thatch layer.

Mowing can't be stressed enough as a prime cultural practice. From May to September we mow as needed to keep the grass at a uniform height, which may be every other day, every day or even twice a day. The players notice a change. It affects both their traction and their speed. With an aggressive management program, bluegrass can be maintained from 1 1/2 inches down to even 7/8 inch.

Mowing height greatly affects the effectiveness of topdressing. We mow as low as practical. If we're cutting at 1 1/4 inches, we'll cut as low as one inch on the day of topdressing.

Topdressing is a major factor in a

total turfgrass management program because we're basically concentrating on the root mass in the top six to eight inches. Even the soil samples we pull only go down four or five inches.

Obviously, you need good subsurface drainage. We want natural rainfall or the water from deep irrigation to get down to where the roots can get to it. By keeping good subsurface moisture levels, the rest of the water-maintenance program depends on syringing the turf surface for cooling — keeping the right balance in the evapotranspiration process.

I'm always checking out the options — seeing what's new and what's working well on other fields and in testing. If it looks promising, I'll try it on a small scale. If it performs as anticipated, I'll move on to the big scale. That's what happened with the Axis product.

Topdressing Tips

By Ken Mrock,
Head Groundskeeper, Chicago Bears

If the existing soil structure on a field is acceptable, the best topdressing material is the same soil. Core-aerate in at least two directions, allow the cores to dry, then use a woven metal drag mat to drag them back in. This natural topdressing also provides a suitable seedbed, if seeding will be done. Any thatch debris should be removed from the field.

For Halas Hall, the Chicago Bears practice facility, our standard topdressing mix consists of calcined clay, shredded peat, sand and native soil. We also mix pregerminated seed with this topdressing mixture prior to application.

If you have access to a lightweight, perforated poly cover, a lighter topdressing will be needed than for an uncovered field. Even under a cover, a light topdressing, ranging from 1/32 to 1/8 inch, may be necessary to provide adequate coverage for both pregerminated and ungerminated seed.

Keep a batch of topdressing mix on hand to apply as a protective covering over areas where damage has been repaired and pregerminated seed applied. □

Monty Montague, Vince Patterozzi and Ken Mrock are all active members of the National Sports Turf Managers Association. Patterozzi and Mrock have both served as board members.