

TARGETING TOPDRESSING

While the jury is still out on its ability to suppress disease, topdressing can contribute to a healthier soil profile.

Developing a sound topdressing protocol, matching it to specific course conditions and needs, and developing a system of monitoring it to insure optimum results can lead to healthier turfgrass. Whether topdressing can influence disease resistance is a matter of debate.

DISEASE SUPPRESSION

Straight sand is the predominant topdressing

material applied today, whereas mixes containing sand, loam and organic matter have been used in the past. Many superintendents have transitioned to a light and frequent approach, topdressing throughout the growing season instead of at increased rates in the spring and fall.

These more recent trends are well suited to managing organic matter accumulation without layering, improving infiltration rates and

increasing surface firmness. An additional benefit just may be disease suppression, says Dr. John C. Inguagiato, assistant professor in residence, turfgrass pathology at the University of Connecticut in Storrs.

“At one time, sand topdressing was believed to wound turfgrasses and enhance diseases like anthracnose,” Inguagiato says. “However, recent research has demonstrated that routine topdressing can reduce anthra-

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cnose.” For example, recent Rutgers University studies evaluated several sand topdressing rates and intervals ranging from none to 4 cubic ft. per 1,000 sq. ft. applied every seven to 42 days throughout the summer to determine their effect on anthracnose severity. These studies showed that various combinations of rate and interval can effectively reduce the disease. The most effective topdressing programs were those where sand was applied at 1 cubic ft. per 1,000 sq. ft. every seven days or 2 cubic ft. per 1,000 sq. ft. every 14 days. Alternatively, 4 cubic ft. per 1000 sq. ft. applied every 21 days was also effective, but it took longer to develop disease resistance.

The diminishing of anthracnose severity due to topdressing has been proposed to be a result of sand accumulating around the base of tillers resulting in a more favorable environment for turf growth and increasing the effective height of cut, Inguagiato explains.

The effect of topdressing on other diseases is not as well understood. Reports on the effect of topdressing on dollar spot have been inconsistent. However, Inguagiato adds, sand topdressing appears to have little effect on dollar spot severity. Further research on the type of material used, rate and application interval are needed to determine the effect of topdressing on dollar spot and other diseases.

Superintendents should be cognizant of several factors when topdressing.

“From topdressing research conducted for anthracnose, it is evident that an accumulation of sand in the canopy is required before disease reductions should be expected,” Inguagiato says. “In the first year of these studies, topdressing enhanced the onset of anthracnose, although as sand

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continued to be applied disease was eventually reduced. Topdressing rates and intervals which accumulated sand most rapidly were the first to reduce anthracnose compared to non-topdressed turf, and provided the greatest level of suppression.”

Therefore, when beginning a topdressing program it is possible a brief increase of anthracnose may result, Inguagiato says. Although continuing to topdress at rates and intervals sufficient to accumulate sand around the base of tillers and maintain this beneficial layer will reduce anthracnose severity in the long term, he says.

Proper topdressing methods can indeed suppress disease, says Scott Johnson, CGCS at Shadow Glen Golf Club in Olathe, Kan. “Topdressing is one of our many cultural tools that we have to improve putting surfaces and influence growing conditions for the turf,” he says. “If you provide a favorable growing environment, then the grass is hardier and able to withstand some disease pressure. The frequent addition of sand to the putting surface allows sand to migrate down to the crown area of the plant. As the percentage of sand particles increases, it’s reasonable to assume that air porosity would increase. And as air porosity increases, prolonged wet conditions within the canopy can be shortened, which reduces the duration of favorable conditions for disease outbreaks.”

Michael K. Fabrizio, CGCS, director of grounds and golf maintenance at The Daniel Island Club in Charleston, S.C., isn’t certain whether “disease suppression” is the appropriate term, but he says topdressing does create an environment that promotes healthier turf by improving water infiltration and oxygen in the soil. “Having healthier turf will make it less disease susceptible,” he says. “Increasing

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water movement, so turf can dry out faster during rain events, and allowing more oxygen in the root zone should promote healthier roots and turf.”

Turfgrass diseases are, of course, somewhat relative to the area of the country a course is located. Roy McDonald, superintendent at Hobe Sound Golf Club in Hobe Sound, Fla., says although his region’s native soil is very

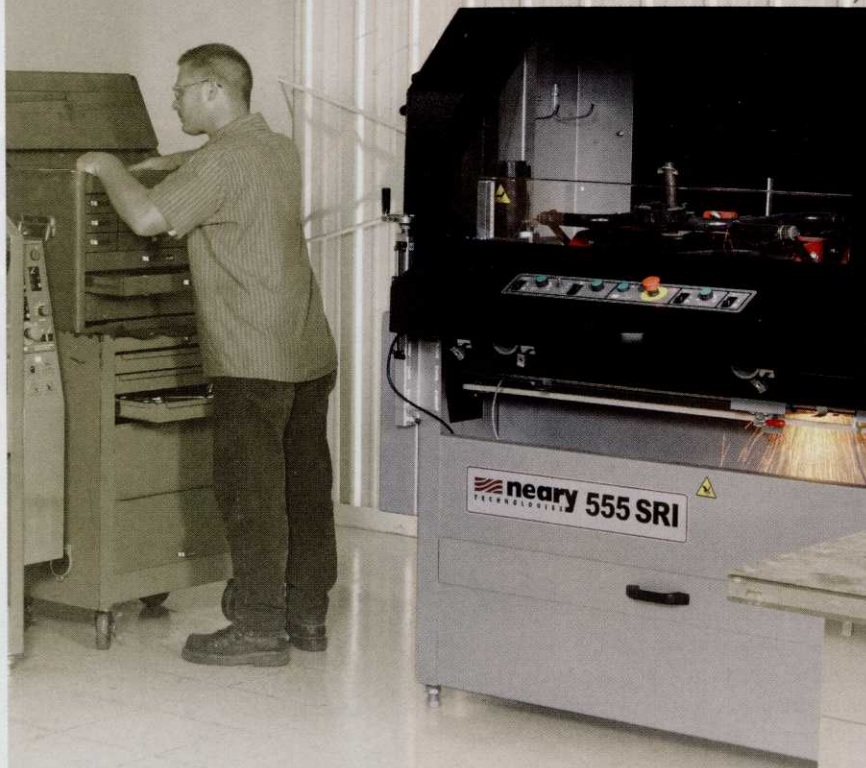
sandy and he has very little disease problems on his greens, he believes proper topdressing methods lead to healthy turfgrass, and healthy turfgrass is more disease resistant.

“I could see a benefit with topdressing if you have poor base soil on your greens,” he says. “The benefit of topdressing when having poor soil would be to ultimately improve your soil profile and cut down on disease. Too



Proper topdressing makes the thatch layer on turfgrass less of a problem by allowing water, fertilizer and chemical infiltration.

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much topdressing can damage reels, which give you poor quality of cut and weakened turf and could lead to disease.”

There are several factors to consider when topdressing, especially if you want to suppress anthracnose, move water off the top of the ground and avoid damage to the turfgrass, says Brad Sparta, superintendent at Ballyowen Golf Club in Hamburg, N.J. “You can bury your crown and kill your plant. There is more of a chance causing damage by over brushing or dragging. And I believe with certain mixes it could lead to increased disease. But with straight sand, I don’t think it could.”

Proper topdressing makes the thatch layer on turfgrass less of a problem by allowing water, fertilizer and chemical infiltration. As a result, it creates a healthier medium for the plant to grow in, a better and truer putting surface and more disease resistant plant, says Bryan Barrington, superintendent and general manager at The Golf Club at Oxford Greens in Oxford, Conn. But over topdressing or infrequent heavy topdressing can result in layering in the mat/thatch layer, he says.

“Ideally, one wants to topdress with enough material to match the growth of the plant throughout the growing season,” he says. “Improper topdressing, such as mentioned above, can lead to ineffective control of protectants and nutrients by ineffective control of thatch, thatch will hold up nutrients and protectants, and the plant becomes susceptible to more disease issues.”

In cases when topdressing is applied too infrequently, or at rates insufficient to keep up with the growth of the turf, thatch will accumulate at a faster rate than sand is being applied. As a result, Inguagiato says many of the benefits of topdressing will not be



achieved. Anthracnose outbreaks believed to be associated with topdressing may in fact be a result of too little sand being applied to effectively modify the canopy.

Additionally, once a topdressing program is initiated it is important to remain consistent to avoid layering in the profile, Inguagiato says. Root-zone layering impedes uniform drainage and can contribute to disorders, such as black layer, and could enhance diseases like pythium root rot.

TECHNIQUES

Superintendents employ various methods of topdressing, usually sticking with techniques that have worked well and produced good results. But they are flexible enough to change on the fly when need be. For example:

- J. Ryan Bentley, superintendent at North Ranch Country Club in Westlake Village, Calif., established a fairway topdressing program six years ago. "The first three years we topdressed at 20 tons per acre, once in the spring and once in the fall," he says. "We have modified that and we now topdress four to six times a year and 10 to 12 tons per acre. The major goals of our topdressing program are to firm the surface for improved maintenance and playability, and to improve the soil physical properties for better turfgrass quality and health."

- Juan Maldonado, superintendent at Glendora Country Club in Glendora, Calif., has for the past eight years blown the sand into aerification holes using push blowers after two passes with a drag mat. Light topdressing is dragged in only once. Blowing the sand in the holes after just two drags has always worked well, he says, adding a coconut fiber mat is very good for either application.

- Fabrizio has been topdressing greens with the standard light and frequent – every two to three weeks – method with a No. 55 grade sand, which is slightly finer than Daniel Island's greens construction. "This light method is necessary because it is difficult to work the sand in with the dense mat on ultra-dwarf Bermuda greens, and to minimize sand pick up at mowing heights of .09 to .115 inches," he says. "In addition, we have been on an aggressive fairway and approach topdressing program for almost seven years with a medium/coarse grade sand to amend our muck/clay/ gumbo soils. This has helped with consistency of nutrient and water requirements, drainage, and earthworm management, which is one of our biggest pest problems."

- Sparta used to lightly topdress every third week, but now he goes every week. "We don't put out much but it keeps your thatch layer diluted and keeps the greens smooth," he says.

- Barrington has switched to kiln-dried straight sand topdressing, which allows him to go out more frequently and lightly topdress with no disturbance to the golfer.

- Brandenburg has changed his methods to coincide with the installation of new ultra-dwarf turf. "Now, I'm topdressing much more frequently with lighter amounts and it is working well," he says. "We try to match topdressing amounts with vertical growth/nitrogen applications, and we throw in Primo applications."

Topdressing programs should be monitored carefully for best disease suppression results, Inguagiato says. "Programs should be monitored regardless of whether your objective is to manage thatch accumulation or suppress diseases, such as anthracnose," he says.

Recommended topdressing rates and intervals are only a starting point from which to develop your own site specific programs. The goal of your topdressing program should be to match sand accumulation with the growth of the turf stand. This can be difficult to do, although examining the surface profile for the presence of sand when changing cups can give you an indication of whether more or less sand is required.

Determining the volume of topdressing applied per area is a more accurate record keeping method, Inguagiato adds. This can be done by making a pass over a known area, collecting the material and measuring it in a container graduated in cubic inches. **GCI**

John Torsiello is a freelance writer based in Torrington, Conn.

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