

HISTORY OF TOPDRESSING

Topdressing is not something new to golf maintenance. Old Tom Morris began to topdress greens with sand in 1875 to make them firm and smooth. With golf developing in America, topdressing began as a process of composting the greens at the end of summer accompanied with seeding South German bentgrass. Piper and Oakley (1917) in their book "Turf for Golf Courses" state "In case sand or sandy soil can be secured cheaply and in abundance, it is an excellent plan to use it to topdress very clayey fairways. Not only does the sand make a better surface for golf purposes, but also it helps the grass by absorbing the rainfall much better and by preventing baking in hot dry weather."

WHY DO WE TOPDRESS?

Thatch control, drainage, correcting compaction, and smoothing surface irregularities are four of the primary reasons for topdressing. What others say: "Topdressing is the practice by which a thin layer of soil is applied to an established turf or new turfgrass planting" (A.J. Turgeon, Turfgrass Management, 4th Edition, 1996). Dr. James B. Beard (1982) in his publication "Turf Management for Golf Courses" writes "Topdressing is usually not practiced on fairway turfs due to the immense volumes of material needed, the high labor demand, and the slowness of operation translate into an extremely high cost relative to what can be accomplished." In his most recent publication, Dr. Beard states "Topdressing usually has not been practiced on fairway turfs in the past. However, situations do exist where topdressing is used increasingly for root zone improvement, smoothing, and enhanced drainage to maximize playing time". "No other practice but topdressing has such an immediate and positive impact on the health of the grass." "As the topdressing particles filter down between the grass blades, the plants get a welcome reprieve from the pounding feet of golfers and the sheering action of the mowers", Gordon Witteveen and Michael Bavier, "Practical Golf Course Maintenance" (1998).

QUESTIONS TO ASK IF YOU ARE CONSIDERING FAIRWAY TOPDRESSING

Are embedded balls a constant problem? After a hard rain, is the course closed, or are carts restricted for an extended period of time? Are there problems of mower tracks on fairways? If the answer is yes to one or more of these questions, consider yourself a good candidate for fairway topdressing. Try to apply 1 to 1½" of sand per year for three to four years for a total of 3 to 6" of sand over that period of time. In many circumstances, topdressing can be greatly reduced or terminated once a desirable level has been reached.

FACTORS TO ADDRESS BEFORE TOPDRESSING FAIRWAYS

Does your soil currently provide adequate drainage? Have the fairways received regular aerification to remove thatch and incorporate soil back into the thatch? Have the fairways been deep tine aerified? Have problems with trees been addressed? Has adequate in ground drainage been installed? Topdressing fairways does not make water go away, it creates a buffer zone for the water to sit in before it works its way down to the heavier soil beneath. A firmer surface is created because the water is not sitting up on top and you are able to play the surface and maintain the grass.

BENEFITS OF TOPDRESSING FAIRWAYS

Thatch control, firmer playing surface between drain lines, and leveling and smoothing of the playing surface, and you will be able to mow fairways lower without scalping undulations as long as they are not severe. Another added side benefit that has been observed in the Pacific Northwest is worm control. Larry Gilhuly, Director USGA Northwest Region has said “For the past 16 years, golf course superintendents in the Pacific Northwest have been reporting significantly reduced earthworm populations when they conducted regular sand topdressing programs on their fairways. Complete removal? No, but populations are reduced enough to eliminate the topic as an issue. Courses where ½ to 1” of sand has been applied annually show noticeable reductions in earthworm populations. Worm populations are greatest in light and medium loam soils. Smaller populations of earthworms are found in heavy, poor drained clay soils and in course sandy soils. Sand is abrasive and susceptible to drought influence – two factors antagonistic to worms.”

HOW MUCH DOES IT COST?

The three areas where there is cost involved with fairway topdressing are equipment, material, and labor.

Equipment:

I list four brands of topdressers:

Tycrop MH-400 – 4 cubic yard capacity. Tractor requirements 27 hp or larger.

Hydraulics 6 gpm.

Dakota Turf Tender 440 – 4.2 cubic yard capacity. Tractor requirements 40 hp or larger. Hydraulics 6 gpm.

Turfco Mete-r-Matic LA4 – 4 cubic yard capacity. Tractor requirements 45 hp or larger. Hydraulics 6 gpm.

Bannerman Turf Topper – 3 cubic yard capacity. 27 hp or larger.
PTO on tractor required.

For the equipment we purchased the cost is as follows: Tycrop MH-400 topdresser \$17,000. John Deere tractor model 5210 (42 horsepower) \$19,379. These items were purchased in 1998.

Material:

Material used is Waupaca root zone sand (GM#1) at a cost of \$16.75 / ton.

Sand = 1 cubic yard = 1.3 ton.

1/16" = .0625" = .0052 ft.

1 acre = 43,560 square feet, $43560 (.00521) = 226.94$ cubic feet / acre / 27 = 8.4 cubic yards x 1.3 = 10.92 ton / acre to get 1/16" sand $10.92 (16.75) = \$182.91$ / acre.

Chicago Golf Club = 35 acres, $35 (\$182.91) = \$6,401.85$ / application.

A total of eight applications have been made since the fall of 1998 for a total of 1/2" material applied to the fairways.

Labor Cost:

Total man-hours to topdress 35 acres of fairways = 60. 60 hours (\$10.50 / hr.) = \$630 / application (\$18 / acre) / application.

Total Cost:

Labor / application = \$18.00 / acre.

Material / application = \$182.91 / acre.

Fuel / application = \$.25 / acre.

Equipment cost / application = \$.42 / acre.

Total = \$201.58 / acre / application.

SAND SELECTION

Be sure to choose quality sand for topdressing. Make certain that the sand you are using is washed free of silt and clay contamination. Sand that is too coarse will result in conditions that are droughty. Sands that have excess fines are even worse and simply do not address the excess moisture issue. Choose the right sand even if the cost results in less area being topdressed.

Positive results have occurred for years from green and tee topdressing programs. Fairway topdressing is an extension of those programs to larger areas. Make sure that you have enough storage area for the sand. The delivery trucks are large averaging 21 yards of material each. You need to have adequate space to store the sand where it will not become contaminated.

There are many attachments available for the topdressers. These include a 2-way conveyor, a swivel kit for the conveyor, and twin spinner attachments. The topdresser/material handlers can replace some of the work trucks perform resulting in greater efficiency and less damage to sensitive areas.

When topdressing, each pass is approximately 40' wide. Be sure to overlap slightly on the previous pass of sand. The material can be incorporated into the areas during aerification. Heavier applications can be made in the spring and fall when smothering is not a factor. When dragging the material, it is no different than brushing other areas that have been topdressed such

as tees and approaches. A steel drag matt or brush works well to knock the sand into the turf. In some areas, hand brooming will be required for excess overlap or heavy accumulations of sand. Be sure to have spare reels for your mowers, and be prepared to grind your reels following topdressing. The sand in some instances will dull the blades of mowers if it has not been worked into the turf thoroughly or if a heavy application has been made.

GUIDELINES FOR STARTING

Begin in a small area with 5 to 10 acres. Once you start, don't stop, apply sand to the turf consistently. The program lasts for three to four years until the desired level of sand has been applied to the area. Fairway topdressing is not a panacea; good drainage to the area is essential prior to beginning the program. Localized dry areas will be created with topdressing fairways as a dry profile is being created.

WHAT HAVE WE LEARNED?

Core aeration can be detrimental to the building of sand on the fairway unless the cores are removed. Heavy soil should not be mixed in with the sand if a sand cap is desired. Enough money must be budgeted in order to make a wide scale commitment. Fairway topdressing is a costly undertaking and the costs need to be addressed up front prior to embarking on the project. If the earthworm population is large enough, they will dilute the sand that is near the surface unless you are religious with applications. It would be helpful to have multiple staging areas throughout the golf course to reduce the amount of travel and wear associated with the topdressing equipment. Be sure to disperse the travel patterns of the equipment, as wear will appear.

OUR PRESENT PROGRAM

Initially, topdressing occurred four times a year with 1/16" of sand being applied per application. Due to the heavy earthworm activity, sand that was applied has been diluted with soil. We budget \$33,000 a year for topdressing material to cover greens, tees, approaches, and fairways. This is not enough to apply sand to all of the fairways at the 1/2-1" rate that is recommended. Presently, we are focusing on six of the wetter fairways with heavier applications of sand in the spring and fall where 1/4" of material is being applied per application.