

Pros and Cons of Frequent Sand Topdressing

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Excellent putting greens don't just happen. They are the product of a professional turfgrass manager. Each of us has played on greens which, at the time, were near perfect. Some were constructed of pure sand, some of pure clay. Some were solid stands of Penncross or Seaside, others pure *Poa*. Some are aerated frequently, some only once a year. Some are played every day, and others are open less than 6 months a year. Some are used by few players each day, while others commonly support more than 200 golfers daily.

Because of this great variation in use, existing conditions, and micro- and macro-climates, the answer has to be the professional superintendent. This person must be a problem solver and not just a schedule maker and ramrod of a maintenance crew. It is to the professional and to those working toward that goal that I wish to direct my thoughts and information on topdressing as a key management program to excellent putting golf greens. I have no cookbook formula to give anyone that will guarantee success, but better greens are possible if you can put the pieces together.

There is nothing really new about the concept of topdressing. Since the beginning of golf course management, it has been a natural or common practice. Unquestionably, topdressing is necessary to improve the trueness of a putting surface. It also seems to invigorate and improve the growing condition of grass. In part, this may be due to the fertilizer or aeration, or both,

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which usually accompany topdressing. For many years the standard practice has been to aerate and topdress twice a year. Some courses still follow this practice. Others may aerate six times per year, but few courses have used light, frequent topdressing as a major component of their putting green management programs.

Several factors led us into the study of topdressing as a major management program for achieving high-quality putting surfaces:

- We learned through previous research and field experience that a medium-fine narrow particle size sand made an excellent growing medium.
- These types of sands were relatively noncompactible.
- They produced a stable firm surface.
- They accepted water at relatively high rates.
- They retained moisture in the root zone as well as did most mixes presently used for golf greens.
- Their nutritional problems were no more difficult to solve than those of the various soils and mixes commonly used.
- With the right sand, we had a medium that was easy to apply and to work into the surface of growing grass.
- Because our putting green grasses produced more organic matter than we needed, it was unnecessary to amend these sands to make a topdressing mix.

One major problem with any new program is how to get it accepted if it is likely to increase labor and material costs. To avoid this problem, we decided to eliminate aerating and verticutting from our basic experiments so that the total time expended on green management would remain about the same.

(cont'd. on page 18)

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(Sand Topdressing cont'd.)

We also decided to premix fungicides, herbicides, fertilizer, and bentgrass seed into our topdressing sand. Our management practices for greens, therefore, would consist of mowing, irrigating, and topdressing.

It worked for us, but, for a practical field operation, the premix of chemical and fertilizer posed many problems. Added chemicals and fertilizer were not always needed. During periods of very little growth, fertilizer was needed, but added sand was not. Once herbicides and fungicides were added to a sand, the topdressing material had to be handled, stored, or disposed of under EPA regulations.

A key question to be answered in our research was whether frequent topdressing could effectively control accumulation of thatch. Would it not enable us to get away from the problem caused by buried thatch layers that impede water movement and restrict depth of rooting? Would it not create a uniform growing medium and aid in the breakdown of this organic matter? We need a vigorous renewing turf to have a putting surface. On many greens, vigorous turf also produces excess thatch, which gives an untrue surface, increases disease potential, and reduces the fastness of the green. Frequent light topdressing could, therefore, solve many of our problems in maintaining a high-quality putting surface.

Experimentally we proved what we believed to be true, but the real value of any experimental work is its application to the field. Therefore, let us look at a range of field questions and their possible answers:

Q. Do you tend to build up the depth of the green much faster than typical aerating and topdressing practices?

(cont'd. on page 19)

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A. There is very little difference. At the frequencies that produced our best putting surface, the difference was less than 1/4 inch per year, when compared to standard practice. On golf course, we have not seen an observable difference.

Q. Do you recommend limiting aeration and verticutting altogether once you start a topdressing program?

A. No. The condition of your present green will, in part, govern how fast topdressing can become a major management program. It is best to increase aeration at first to ensure a good transition between your old and new surface. Some courses have found that a double aeration, deep aeration, or both, work best for them. During the first year, some courses have gone from two basic aerations to a maximum of six. Tines of 5/8 inch are used to start, then only 1/2- or 1/4-inch tines. Their topdressing might be much heavier at first, but they are soon on the 1/32- to 1/16-inch application rates. Verticutting may or may not be used, but with present-day equipment many superintendents have found it beneficial.

Q. Once on the program, is aerating completely eliminated?

A. No. But we no longer use aeration as our basic and most effective means of relieving compaction and removing thatch. Once we have a new uniform surface with a depth of 2 to 3 inches, late spring or early summer aeration, or both, may be in order. Even though we do not have a buried thatch layer, we may want to reduce the density or firmness of the surface. Verticutting the plugs on the green will separate the sand from the organic matter. By removing the organic matter and brushing the sand into the green, you will have topdressed without the need for adding extra sand. Some superintendents feel that, of their 12 to 18 topdressings per year, 2 or 3 would be verticutting their aeration plugs.

Q. If you aerate, aren't you opening up the green for greater Poa annua invasion?

A. Yes and no. It depends on the time of year. We recommend only aeration in the late spring and early summer when Poa annua germination is at a minimum.

Q. How long before a topdressing program will make a major difference in the surface of the green?

A. This again depends on the condition of your green when you start the program and how soon you are developing a uniform surface. Considerable improvement has been noticed in greens before the end of the first year. More typically, it takes about 18 months.

Q. Will the golfing membership like the new green surface?

A. Maybe yes — maybe now. If your golfers want a true firm green, the answer will be yes. If they expect a poor shot or an improperly played shot to stick on the green, they will be unhappy. Some players will have to take a few golf lessons and learn how the game is played.

Q. How frequently do I need to topdress to achieve the maximum benefits of this type of program?

A. How fast is your grass growing? It is very likely that 20 applications a year (year-round play) would be too many. Fifteen applications was just about right for our Penncross green. At some periods of the year, topdressing every 2 weeks is just right, but you may well go for 8 weeks between some applications.

(cont'd. on page 20)

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(Sand Topdressing cont'd.)

Q. Will just any sand or topdressing mix give basically the same results?

A. No, for several reasons. Coarse sand particles do not work readily into the surface grass. Golfers do not like to putt on greens that have just been topdressed. Coarse, sharp sands dull mowers and are abrasive to the grass. Sands that are too fine can seal the surface of a green and reduce infiltration.

Q. What type of sands do you recommend?

A. A relatively fine narrow range of particle size. Round sand particles are best. Table 1 gives the particle ranges we presently suggest for construction and topdressing.

Q. Do you mix any amendments with the sand?

A. No. Amendments must be uniformly and evenly mixed if they are to measure up to their potential, and this greatly increases the cost of the topdressing medium. Topdressing is difficult to apply when moist. When dry, mixes separate. Typical sand and organic mixes become thin layers of organic matter and sand by the time they are brushed into the turf surface, and irrigation further separates them. Very fine organic matters can seal the surface, and coarse organic matter does not readily work down into the grass. Most greens already are producing more organic matter than we want, so why should we add more?

Q. Can I apply topdressing too frequently?

A. Yes. It is important to maintain some organic cushion. Excessive turf damage can result from ball marks where sand is applied too frequently, too heavily, or both.

Q. How much sand should I apply at each topdressing?

A. Assuming your only objective is topdressing and not quick buildup of a new surface, you should be applying 1/32 to a maximum of 1/16 inch.

Q. How do I apply such small amounts?

A. It takes good equipment and a skilled operator. Topdressing machines set at almost closed application settings have done a good job. Some superintendents have found broadcast fertilizer equipment to be the answer.

Q. Can these uniform medium fine sands be applied at the higher rates typically used when aerating and topdressing once or twice a year?

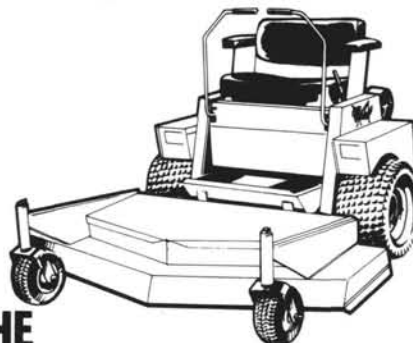
A. No. These finer sands are not as easy to move and push around over the green. If heavy amounts are desired for some reason, it would be best to make several uniform fine applications.

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