

Topdressing Putting Greens

A Panel Discussion

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Director, Northeastern Region, USGA Green Section

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Moderator: Gentlemen, our panel today will deal with one of the most important management operations that can be performed on putting green turf. Our panelists represent the entire country. Their comments on topdressing are of national significance.

The first question therefore is, why are putting greens topdressed?

Hoos: There are many reasons to topdress greens:

1) Fresh topdressing encourages new growth of grass shoots and stems to form a dense, fine-bladed turf.

2) Thatch control. Under heavy fertilization or high or infrequent mowing, thatch becomes a major problem. Topdressing checks dense thatch accumulation by mixing soil particles with plant materials which, in turn, encourages microbial activity that breaks down thatch and converts it into valuable soil humus.

3) Reduced disease and insect activity.

4) Alleviate compaction. Topdressed greens usually have better holding qualities for the golfer. The material props the grass plant and helps it to absorb compacting forces. It develops resiliency when a high quality topdressing is being used. This point is of particular importance on heavily-played greens.

5) Weed control. Most weed seeds require light to germinate. Regular top-

dressing buries the seed and thus reduces the potential for weed invasion.

6) Protection against winter injury. In regions where this is a problem, topdressing applied late in the fall helps to insulate the turf against winter desiccation and helps to reduce the severity of winter turf diseases.

These benefits are in addition to the improved putting green quality usually achieved because of the smoothing, firming and speeding of the putting surface that topdressing provides.

Moderator: To the Golf Course Superintendents on the panel, please explain the topdressing program you use on your course.

Knapp: At Tuckaway Country Club we are presently topdressing our greens with 100 percent sand. During the first year of our program, the greens were topdressed five times during the year. Now they receive applications during June, August and late October. We have been applying a total of 20 cubic feet of sand through the season with the heaviest application in late October. Under our conditions, three heavier applications seem to do the best job of truing the putting surface. This is something the golfers want and appreciate, even though there are some complaints for a time after the topdressing has been applied.

Until this year, we have been using a drop spreader to apply the sand. In 1980 we plan to use a centrifugal spreader because of increased efficiency.

After five years of 100 percent sand topdressing we have noticed a tremendous reduction in thatch and a general increase and improvement in the water infiltration rate of the greens. In fact, last year there was only one day when we could not mow after a rainfall. This program is working well for us.

Berarducci: When I came to Skokie Country Club two years ago, I inherited a situation where three different topdressing mixtures were used. Twelve greens received a 6-2-2 blend of sand, soil and peat, three greens built to USGA Green Section specifications received the same 80-20 sand/peat mixture as was their original construction blend, and three problem greens located next to the woods were on 100 percent sand topdressing. After some study I found that in our situation all three topdressing materials were unsatisfactory for various reasons.

The 6-2-2 blend created an impervious layer on the surface of the greens due to the high silt content of the mixture, and the grass suffered no matter what amount we applied.

The 80-20 topdressing material was supposed to be the same mixture that the greens were constructed with origi-



A rotary broadcast spreader in process of applying topdressing.

nally, but over the years this material (delivered by an outside supplier) varied to a point that laboratory testing proved it contained unacceptable amounts of silt and clay. This silt and clay formed an impervious surface layer that caused problems.

Our three greens near the woods received sand topdressing for three years and, during this time, one of them, a long, uphill par 3 became too firm for the type of golf shot required to hold the green. We experienced *Poa annua* loss over the winter on the second hole, while the third, built entirely of clay, tended to accumulate water during the summer in the upper, sandier soil profile.

These greens, located in shade, were not well constructed initially, and our sand program simply did not work well for us. None of the materials were entirely satisfactory.

We are now developing our own topdressing mixture to achieve what we feel are the properties we want for all greens. We are looking for good infiltration rate, resiliency and moisture retention.

We feel this can be achieved, under our conditions, with a laboratory tested 70-30 sand/peat topdressing mixture. We believe we now have the right blend.

Moderator: Topdressing programs are designed to meet specific criteria so there are some differences in topdressing programs. We will now call on our Green Section Agronomists who, as a result of their concentrated schedule of Turf Advisory Service visits, observe many topdressing programs.

White: Sand alone has recently emerged as the primary topdressing material in the Southeast. Sand topdressing has been most successful in improving the rootzone structure and in increasing the uniformity and playability of the playing surface. We generally see light, frequent vertical mowings followed by a light topdressing of approximately $\frac{1}{8}$ to $\frac{1}{4}$ cubic yard per 1,000 square feet. This practice encourages upright growth, minimizing grain on bermudagrass, bentgrass or winter overseeded greens.

Hawes: The number of golf course superintendents on a light, frequent sand or high-sand content topdressing program similar to that reported by Dr. Madison in the May, 1974, issue of the GREEN SECTION RECORD is increasing. In the Mid-Continent Region, golf courses are noted for fast, relatively firm greens with decreasing problems maintaining good turfgrass on greens through the summer stress period. This applies mainly where good materials for topdressing exist.

Unfortunately, in areas of my region, suitable materials are difficult to find. Quality topdressing materials are expensive to import from other parts of the country, so the frequency of topdressing is often twice per year in conjunction with regular spring and fall aeration. Regrettably, the decision is based primarily on costs rather than on soil and agronomic requirements.

Hoos: In the Western Region we see a wide variety of topdressing programs. They vary from twice yearly with aeration, to more frequent programs of

applying light amounts of material on two- to three-week intervals for a total of up to 15 to 18 topdressings per year using high percentages of sand.

In the arid and semi-arid regions, rainfall occurs only during the winter. This creates a less-than-favorable condition for the natural breakdown of thatch. For this reason, the light, frequent topdressing program has been very effective in helping to reduce thatch by creating better air exchange and more favorable environment for good turfgrass growth. The popularity of this program is increasing each year.

Most golf courses that follow this program apply topdressing every three to four weeks during the active growth periods. Approximately 1/4 to 1/3 cubic yards of topdressing is applied for average size greens. The cartster mounted topdressing machines or rotary fertilizer spreaders are the most common methods of application.

Many golf courses still use prepared topdressing mixtures. In the Western states, we have a problem finding good sources of organic matter. Often, decomposed bark products are used. Many courses now use a mixture of sand and organic matter. When organic matter is used, it is best to compost the mix for several months before spreading it.

Coupled with the lack of good organic amendments is the lack of quality sands. Many sands contain too high a percentage of very coarse sand and gravel. These sands do not work into the thatch layer well at all, and they are objectionable to the players because of the need to putt through gravel and to the golf course superintendents because of the need to regrind bedknives frequently. I'm sure this is one reason why golf course superintendents avoid topdressing if they are forced to use sub-quality material.

Courses using 100 percent sand for topdressing now pay a premium price for high quality sand imported from other states. Now the standard application rate is in the neighborhood of 1/13 to 1/9 cubic yard per 1,000 square feet on a three- to four-week interval.

Snow: In the Northeast, quite a few clubs use commercial topdressing blends or their own mixtures, ranging from 60-90 percent sand with the remainder made up of soil and peat. These mixtures vary greatly in quality, especially the home-brew blends. We attempt to encourage tests of these mixtures so that they conform to the Green Section specifications for putting green construction. In our position paper on top-

dressing (November, 1977, issue of the RECORD), the Green Section recommends that materials used for topdressing should meet the same vigorous specifications for soils used in new construction because, after all, topdressing is the addition of a new well-structured soil on top of an existing soil. Therefore, it is sensible to have these topdressing mixes correspond to the same high quality specifications that you would use to build a new green. Response has been gratifying, including reactions from companies that offer commercially blended products that meet or very closely match our specifications. This offers the superintendents a choice of quality materials.

As in other regions, topdressing with sand is becoming increasingly popular. As with any topdressing, these sands need testing to make certain they fall in the proper particle size ranges. This can be done locally or at a nominal charge through our USGA soil testing laboratory at Texas A&M University, Soil Physics, Soil and Crop Sciences Department, Texas Agricultural Experiment Station, College Station, Texas 77843. We are fortunate in our area to have many good sands available, usually at reasonable cost.

Moderator: Up to now we've talked about topdressing mostly in positive terms. When have you seen topdressing *not* work well?

Hawes: We sometimes see it in Kansas, in the spring when the fields are being worked and it is windy. Nature topdresses the greens with a silty wind-blown material forming a problem layer on the putting green surface. One course we know improved its problem by reducing the cultivations of adjacent fields and erecting a hedgerow as a windbreak.

Berarducci: In my case, too much silt and clay was in our topdressing mixtures. This created a surface layer problem. Where the sand was used on one of my clay-based greens, there understandably arose a situation where too much water began to accumulate at the surface. This should correct itself in time as more quality topdressing is applied.

Snow: When the wrong material is used, when there is too much silt and clay in the mix, when too coarse a sand is used, when topdressing is applied too heavily or infrequently, when topdressing mixes are continually changed; these are examples where topdressing will work against you.

White: Tifdwarf bermudagrass will not tolerate heavy applications of topdressing as well as Tifgreen will. Therefore, a more controlled program must be exercised on those courses growing Tifdwarf.

With the tremendous differences in sand sources, it is important to have the sand laboratory tested. The wrong sand will cause problems.

Knapp: The principal negative aspect of my sand program is the slow recovery of greens damaged by vandalism or winter injury. Seed germinates very slowly in a high sand topdressing due to its low moisture retention capacity. We use sod now to repair such damage.

Hoos: Let me add that the amount of topdressing that is applied should match the growth rate of the grass, always striving to maintain enough cushion to reduce the impact of wear on heavily played greens.

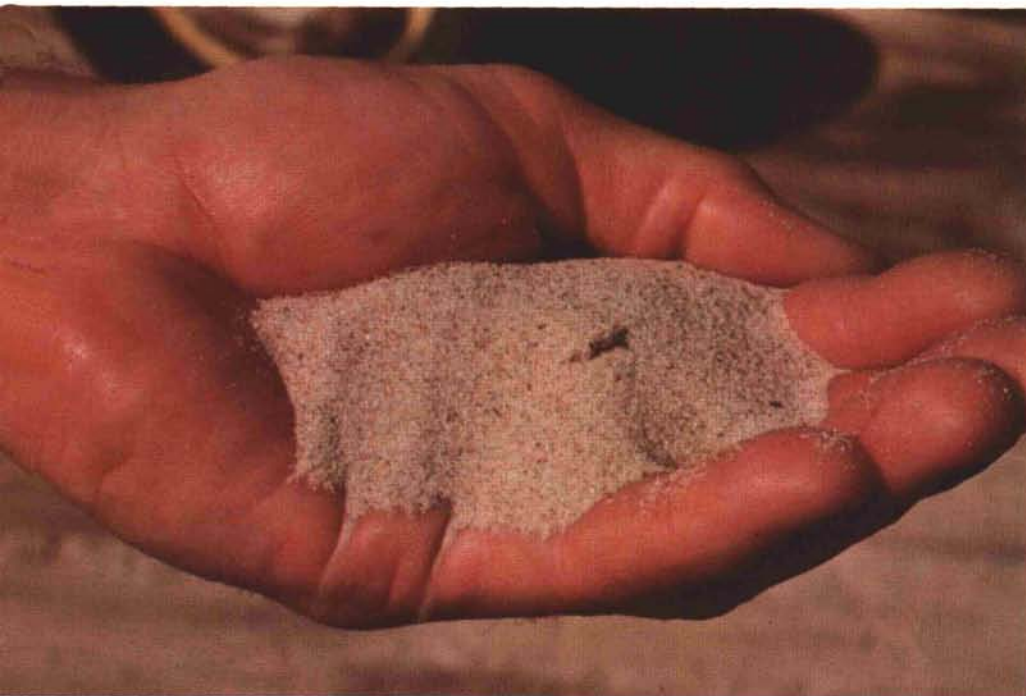
Moderator: What do you all feel is the future of topdressing in the 80s?

Knapp: In the 1980s I feel the future looks bright for sand topdressing. When good high-quality tested sands are used, the overall greens maintenance program can be simplified and yet still give the golfers a fine playing surface.

Hoos: I believe more and more golf course superintendents will adapt and use the light frequent technique of applying topdressing and will move away from the old practice of heavy applications in conjunction with aeration, even though this practice is still effective on some golf courses. As pesticide and fertilizer costs escalate, more emphasis will be placed on management programs that get the maximum benefits from the material used. Topdressing, with its recognized benefits in disease, insect and weed reduction will be a part of future programs. The major drawback in the West may be in finding suitable materials at a reasonable cost. If they were more readily available, I'm certain that Western courses would topdress more frequently.

Hawes: I agree that the future of topdressing is bright where good topdressing materials are available. The successful programs that have been properly carried out are well-documented. As new, more efficient methods of applying topdressing are used, more superintendents will be encouraged to use topdressing more frequently.

White: As renovation and rebuilding costs escalate, topdressing to amend problem soils should remain popular.



Preferred sand to use for topdressing greens — with particle size distribution ranging from 0.11 mm to 1.0 mm.

A time and labor saving method of filling the spreader.



Soil amendment through topdressing can be effective over a period of years, but it can never be as effective as totally rebuilding a poor rootzone.

Snow: In the future, we should know more about the long-term effects, if any, of straight sand topdressing. Every attempt should be made to use a tested sand that meets USGA specifications for particle size distribution and infiltration rate, preferably one that contains a small percentage of silt and clay. Apply it lightly and frequently, and never again go back to a heavier type of topdressing material.

Berarducci: Topdressing should continue to be an important part of progressive golf course management in the 80s when playability and soil needs are taken into account. The information on what to use is available. The turf manager must decide which topdressing will perform best on his course, then use it wisely. It is a decision that requires a lot of study.

Moderator: Thank you panelists for an interesting and informational discussion of "Topdressing Putting Greens."

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Financial support by the American Society of Golf Course Architects and the Toro Company through the USGA Green Section Research Fund made this Literature Review possible.