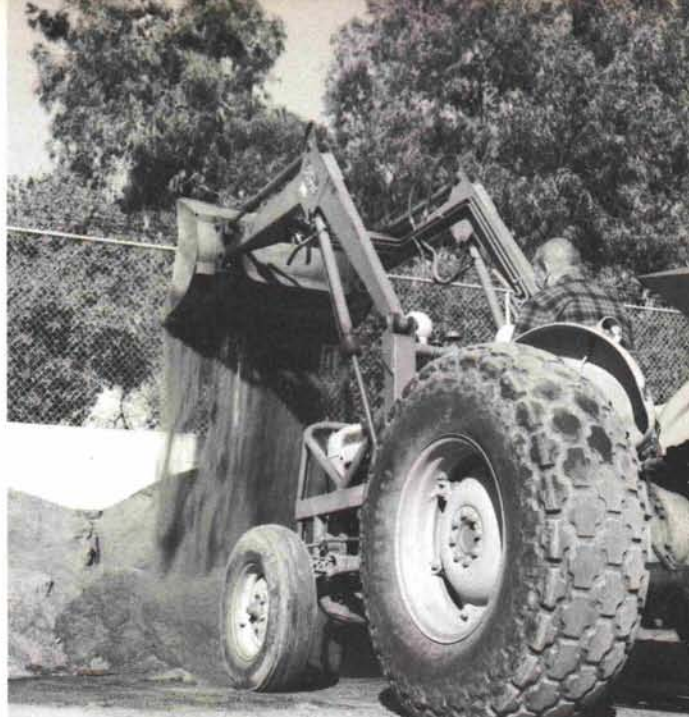


This Year:

## Top-Dress Greens and See the Difference

by WILLIAM H. BENGEEFIELD,

Western Director, USGA Green Section



*"Up, up and away." One method of mixing top-dressing material.*

"The easy way is efficacious and speedy — the hard way arduous and long. But as the clock ticks, the easy way becomes harder and the hard way becomes easier. And as the calendar records the years, it becomes increasingly evident that the easy way rests hazardously upon shifting sands, while the hard way builds solidly a foundation of confidence that cannot be swept away."

Daniel Rand

In this age of science and technology, where man's knowledge is increasing at a great rate, it is still difficult to improve upon some things. Top-dressing greens is one of them.

Last October at the Northwest Turfgrass Conference Dr. John Escritt, Director of the Sports Turf Research Institute, Yorkshire, England, was telling his audience of his observations of turf management practices in the United States:

"Americans," he mused, "seem to want to overdo everything! For example, I feel you are overdoing putting green fertilization. You apply far too much water. You are constantly spraying fungicides and insecticides. You seem forever to be verti-cutting and aerifying greens. But there is one important practice you *should* be doing and are not doing at all: —top-dressing greens!"

Many agronomists in this country will heartily agree. His point is valid. Top-dressing is not easy. It may seem expensive, but properly done it is worth every effort and the

money if your goal is championship putting turf. It is one management tool your golf course should use even though your neighbors have been overlooking it for the past three decades.

In the early days of greenkeeping, the ritual of top-dressing was carried out every few weeks. The old-timers may not have known all the reasons why, but they knew that it worked. World War II put an end to that. Shortages of labor, equipment, and material practically eliminated the practice, and it has never regained popularity. The advent of the mechanical aerifier in the late 1940s further discouraged a return to top-dressing. The soil cores, it was believed, would do the job for us. Only in recent years have the better managed golf clubs returned to sound top-dressing practices.

Why is top-dressing important? How does it work? What are proper top-dressing procedures? Are there really major advantages for today's golfer and course superintendent



*Screening the final product. Top-dressing then should be composted for several months before use.*

in a top-dressing program? There is much to be said on the subject.

### WHY TOP-DRESS AT ALL?

Golf has expanded so rapidly in the past 20 years that the technical advantages of top-dressing have perhaps been forgotten by the old, and never fully appreciated by the new. Ask ten turf managers "why top-dress?" today and at least nine will reply, "to smooth the surface." But the story has far greater dimensions than this.

**"The principles behind top-dressing originate deep in the basic tenets of agriculture, and anyone who manages fine turf would do well to learn the real reasons for the practice," says turfgrass agronomist Bob Wiley.**

More than merely "to smooth the surface," the following amazing advantages also await the top-dressed green:

**Tighter, Finer-Textured Turf:** By following proper top-dressing techniques, the fresh soil material encourages new growth of grass shoots and stems. A dense, fine-bladed turf results.

**Grain Is Checked:** Whether your greens are bentgrass, bermudagrass, or *Poa annua*, certain strains of any grass type are going to be more vigorous, more inclined to lay down than others. Top-dressing encourages upright growth and checks grain development in any type of turf.

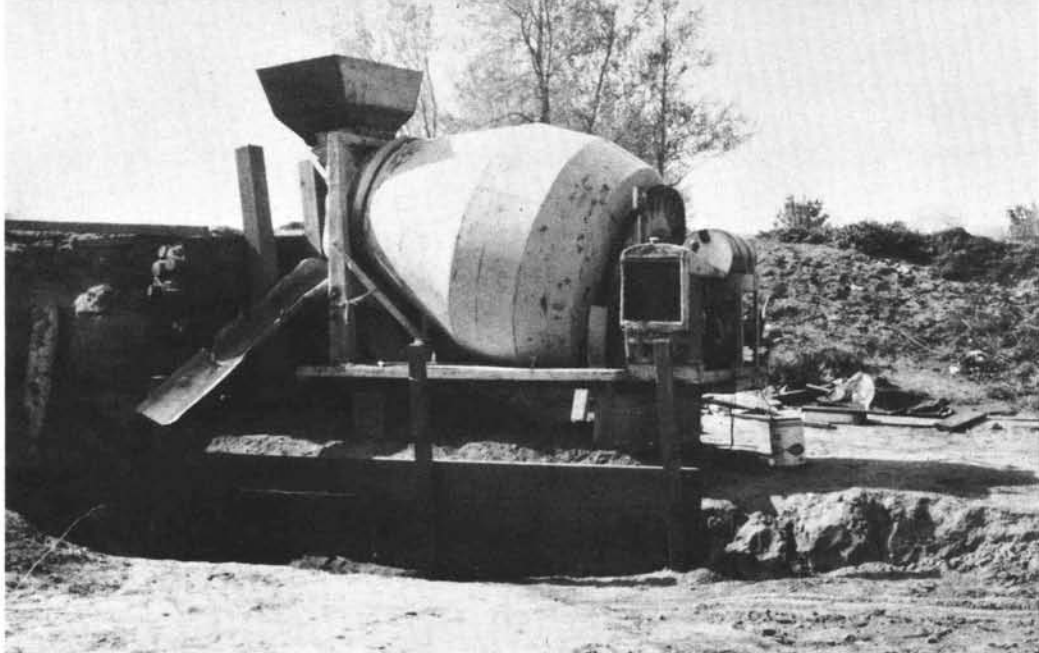
**Thatch Control:** With heavy fertilization, high or infrequent mowing, etc., aggressive grasses soon form a spongy layer known as thatch. Top-dressing checks dense thatch accumulation by intermixing soil materials with plant materials. It encourages new microbiological activity, which in turn breaks down thatch, and converts it into valuable soil humus.

**Less Disease:** Thatch is an ideal medium for disease organisms and insect activity. With thatch under control, this problem is reduced.

**Better Water and Fertilizer Infiltration:** Because top-dressing checks heavy thatch accumulation by actually separating the plant residues, tight turf matting is prevented. The passages for air, water, fertilizers, etc., are preserved in the turf soil profile. Localized dry spot problems are reduced, and better overall irrigation infiltration is achieved.

**Alleviates Compaction:** Top-dressed greens have better "holding qualities" for the golfer. The material physically supports the grass plant and thereby helps it absorb compacting forces. It develops resiliency. On heavily played greens, this point is of particular importance.

**Protects Against Winter Kill:** Years of experience and research have shown that greens top-dressed just prior to the winter have fewer problems from desiccation and



Another method of obtaining a uniform mixture of top-dressing components. This concrete mixer cost the club \$350, including repairs. Note upper hopper for loading components and the lower chute for the mixed material.

winter injury. The crown of the plant is protected from the winter's drying winds and wide temperature swings.

#### **THERE'S A TECHNIQUE TO TOP-DRESSING**

The success of any top-dressing program depends on how well it is carried out. Poor top-dressing procedures are worse than no top-dressing at all.

At the very beginning, the soil material to be applied must be "standardized," that is, made of uniform quality from one year to the next. Turfgrass agronomist Charles G. Wilson put it best when he said, "Each club should require an act of Congress before anyone is permitted to tamper with or alter the soil mixture decided upon, no matter how well-meaning he may be."

If the present soil in greens has a history of success (good drainage, deep rooting, minimum compaction, etc.), the top-dressing material should be of the same general nature, if available. On the other hand, if it is not available, or if greens do not have a good soil, then an additional effort is needed. In this situation, a physical soil analysis (see "USGA Green Section Specifications for a Method of Putting Green Construction") should be made of those materials that are and will be available at a cost within budget means. The physical analysis will determine what mixture of soil, sand, and organic matter is best for your program. This mixture then be-

comes *THE permanent mixture* for all future top-dressings and construction.

The physical mixing of these components is less tedious than it once was. Large quantities can be fairly rapidly mixed with today's front-end loaders, power shredders, screens, and other modern equipment. Time and labor costs have been enormously reduced.

Now two additional steps are needed before this "soil mixture" becomes eligible for "top-dressing" status: sterilization and composting. A weed-free mixture can be obtained by several sterilization methods. Methyl bromide, calcium cyanamid, Vapam, steam, and other techniques have been used.

Finally, there is but one factor that can change a soil mixture into a top-dressing soil:—TIME. It is too often overlooked.

Composting was known even to gardeners in the early 1700s. It remains of extreme value today. Top-dressing material should be mixed and composted for at least eight or 10 months before it is used on a green. The top-dressing soil should be properly stored (soil sheds are best) and kept dry enough to insure free flow at application time.

#### **LIGHT AND EASY DOES IT**

The question of "how much top-dressing and how often" is always good for spirited debate. But with the advent of today's power top-dressing machines, a program of light, but frequent application is recommended, and





*Improper top-dressing techniques of the past lead to soil layers and, eventually, trouble.*

is important. For example, four dressings at  $\frac{3}{4}$  cubic yard each are far more effective than two dressings at  $1\frac{1}{2}$  cubic yards each. Certainly, a top-dressing should never be so heavy as to bury the grass plant.

Depending upon the size of the green and normal circumstances, an optimum schedule might be one of applying  $\frac{1}{2}$  to  $\frac{3}{4}$  cubic yards per 5,000 square feet of green on four occasions spaced throughout each growing season. This 'light but frequent' approach allows each dressing to sift into the turf, mingle with the grass, and carry out its many important functions.

Because of the frequency required and the great need for uniformity of application, a power top-dressing machine is an absolute necessity. It will more than pay for itself in any serious top-dressing effort. Hand spreading is of a bygone era.

The use of flat boards, or the back of rakes are needed for the "boarding" operation. They move the top-dressing more uniformly over the surface. The boarding or matting operation must be done very slowly, carefully and in several directions. If it is done rapidly, it does not move the new material uniformly over the turf. Uneven coverage produces irregular surfaces, rather than smooth surfaces.

#### **AERIFICATION AND VERTICAL MOWING?**

Aerification and vertical mowing are now considered practically synonymous with top-dressing, but this need not necessarily be the case. Certainly aerification will continue to be important for most good putting green turf, but it need not accompany every top-dressing.



*Thatch and mat removal from a Penncross bentgrass apron amply illustrates how a thatch problem can easily develop.*

In fact, two aerifications annually are generally accepted as standard practice today, unless a special problem exists.

Light or moderate vertical mowing prior to top-dressing (as well as regular mowing) is desirable. However, it is not mandatory. The absence of any of these practices should not be used as an excuse for not top-dressing.

#### **IS IT WORTH \$500?**

Is top-dressing worth the expense? Many of this nation's better golf course superintendents and agronomists firmly believe it is. In fact, there is substantial evidence for believing that a good top-dressing program can reduce other costly maintenance practices. At the same time, it will produce better turf on better greens.

Although costs vary, recent figures in California place the total expenditure of top-dressing 18 greens at \$500 per application. This is an average cost of \$4.50 per 1,000 square feet. Labor as well as material costs are included in the figure.

#### **IN SUMMARY**

One might say many things for or against top-dressing. Some may consider it expensive and labor consuming. It does require advanced planning and organization. Although it does not produce immediate miracles, its long-range benefits are undeniable. But the strange and unbeatable fact is that, as of this moment, no substitute has yet been found for it in the production of high quality turf. And today's golfer expects—yes, deserves—just that! This year, top-dress greens and see the difference.