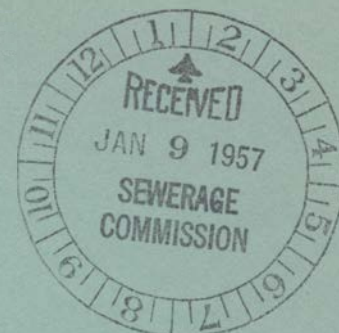


UNITED STATES GOLF ASSOCIATION
GREEN SECTION
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TOPDRESSING MIXTURES

Topdressing and Soil Modification--An Old Agricultural Practice.

Agriculturist during the first century A.D. recognized the value of topdressing grasslands with manures and mixtures. Early agricultural writers favored certain materials just as superintendents today have their preference for this or that mixture. Most seemed to agree, however, that mixing together different kinds of soil was beneficial. "Clay on sand and sand on clay", has been a favorite saying.

In order to maintain good turf grasses and satisfactory putting surfaces, golf courses have found it necessary to modify soils in most areas. Good topdressing has been obtained, in some cases, by trying various mixtures over a period of time.

Avoid Changes of Mixtures and Layers.

Changing from one mixture to another, however, has in many cases been the cause which resulted in unsatisfactory putting greens. This is especially true where layers of different textured materials occur in putting greens. A sand layer in a finer textured soil (loam) restricts the downward movement of water, decreases the movement and amount of air in the soil, encourages compaction, and results in shallow root systems. Soils or mixtures which are susceptible to compaction, produce the same conditions. Thus, we might say that four of the major causes of unsatisfactory putting greens are:

1. layers of different materials
2. the use of improper soil mixtures in building greens or topdressing
3. compaction, and
4. overwatering resulting from the above conditions.

To help insure the successful production of good greens in renovating, building or topdressing the problem is, then, to use a soil mixture which will resist compaction, drain well, and hold enough nutrients and water to require only a reasonable fertilization and irrigation program.

What mixture to use?

The United States Golf Association Green Section has always been very interested in the problem of putting green soils. Since 1920 many recommendations for the modification of soils to be used for putting greens in various sections of the United States have been made.

In a national survey conducted during 1947 it was found that most golf courses were using a 1/3 soil, 1/3 sand, and 1/3 peat mixture. Such mixtures were not satisfactory in many cases because of the local variations in soil and sand.

Research and Experience Point the Way.

During 1947 and 1949, however, data was reported by workers which began to lay the foundation for later research. Recently, two research workers and one private organization, each working independently, have proposed the use of similar soil mixtures for putting greens. The mixtures have proven successful under experimental and actual playing conditions.

Tips from Research and Successful Builders of Greens.

1. The use of more sand is the trend. Eighty (80) to eighty-five (85) percent sand is generally suggested. Commercial concrete sand approximating the following analyses may be used.

<u>Size of Sand in Millimeters</u>	<u>Percent</u>
5 - 2 mm	19
2 - 1	13
1 -.5	27
.5 -.25	34
<.25	7

Of course, there are more desirable sizes of sand than the commercial mixture. Research indicates that sand sizes in the range 1.0 mm to .25 mm are more desirable while .5 mm to .20 mm size sand is still an improvement.

2. It is suggested that not more than 20% peat by volume should be used.
3. The clay content should vary between 5 and 10%. Best results will be obtained when using clay if it is treated with a soil conditioner (Krilium) before preparing the mixture.
4. Thus, mixtures for topdressing or building greens should consist of approximately 80% sand as discussed under No. 1, 5 to 10% clay, and 10 to 15% peat.
5. To obtain such a mixture from a loam soil use 60% sand, 25% soil, and 15% peat. For further suggestions on the amounts of various soil types to use in making a mixture see page 29, USGA Journal, Nov. 1955., and page 29, September 1956 Journal.

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