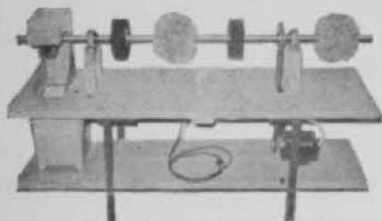


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A full manhour of work can be realized only through the courtesy of a sensitive human being. Each employee has feelings of love, hate, happiness, sorrow, pride, shame, security and uncertainty. One management consultant sums up a basic tenet for supervisory employees in the words: "The most insulting and dangerous thing you can do to another person is to disregard him as if he didn't exist. If you can't say 'good morning' to the fellow who works for you, then you are taking money out of your own pocket." Call your employees by name and learn a little something about each of them. Discuss their problems with them if necessary.

You rise or fall because of your employees. Treat them with dignity and tact and they will help you carry out your plans more perfectly than you ever dared to expect.

Sand, Clay, Organic in Green Mixture

By **MORRIS E. BLOODWORTH**

Associate Professor of Agronomy,
Texas A & M College

Until a few years ago there appeared to be no exact solution to the compaction problem. But recent research by H. L. Howard, R. J. Kunsze, O. R. Lunt and others indicates that compaction can be greatly reduced if proper consideration is given to individual soil mixture ingredients.

In mixtures for greens, sand, clay and organic fractions, of course, are basic. There are many variables involved in de-

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termining what combinations of these give the best results.

As for sand, research at Texas A & M shows that a regular washed, mortar brick sand, from 1 to .1 mm in dia. is desirable. Optimum size is .5 mm. Sizes smaller than .1 mm tend to compact and impair internal drainage. Fractions greater than 1 mm lower the soil's water retention ability, resulting in leaching of nutrients, and, of course, less available water. Larger sizes of sand also don't provide firm footing.

Sand percentage composition that appears to give very good results is around 80. This may seem high, yet many sandy loam soils now found in greens contain from 60 to 75 per cent sand. Indications are that something near the optimum size grain (.5 mm) rather than the percentage cited above is perhaps more critical. But the .5 mm- 80 per cent proportion, mixed with correct proportions of clay and organic material, should provide a most desirable green mixture.

Clay Most Important

Clay, which has been indicated to be the active fraction of the soil, is the most im-

portant component of the green mixture. The optimum size fraction is .002 mm (2 microns) and smaller. It is responsible for supplying plants with nutrients, often controls water availability and determines drainage characteristics to a rather large



extent. The three general types of clay are montmorillonite, illite and haolinite. There is a wide difference in their physical and chemical characteristics and understanding of this is essential before deciding upon a suitable sand-soil mixture. Montmorillonite has tremendous swelling and shrinking characteristics and is extremely plastic when wet. Because of its crystalline structure, the other two types of clay do not have these characteristics.

The amount of clay for a desirable green

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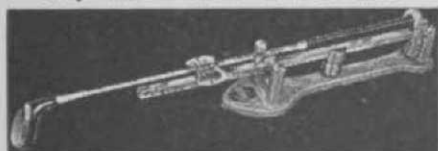
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mixture should range between 4 and 10 per cent, according to H. L. Howard. About 4 to 6 per cent of montmorillonite appears to be correct. According to Howard, it is preferable to haolomite and illite but this is not final. It should be emphasized that the silt content should be kept to a minimum since the silt fraction often contributes to the problems of compaction and poor interior drainage.

Use of Peat

There remains about 10 per cent organic material (peat) to be added. W. L. Garman of Oklahoma State University has found that more than 20 per cent peat by volume is detrimental to the putting mixture. Thorough mixing of the three components is a must.

Although peat is an old standby, consideration should be given to certain synthetics and other new materials now available. They may be more desirable than peat in some cases and certainly warrant testing both in the lab and in the field.

Frank H. Goldthwaite Dies in Ft. Worth Home

Frank H. Goldthwaite, 52, who founded the Texas Toro Co. upon graduation from college in 1928, suffered a fatal heart



attack in his home in Ft. Worth on Feb. 28. Joined by his brother, Howard, in 1929, Mr. Goldthwaite covered the Southwest in the early years after the company's organization selling mowing equipment, sprinklers, fertilizers and turf supplies. He worked out of Ft. Worth until after World War II and then opened divisions in Houston, Dallas and San Antonio, the latter in 1958.

A strong believer in education, Frank helped establish the Texas Turfgrass Assn. in 1947 and sponsored scholarships at Texas A & M and Texas Tech in turf management. He was a member of the GCSA and a dir. of the O. J. Noer turf research foundation.

Mr. Goldthwaite is survived by his wife, Aniela, who will operate the Texas Toro divs. as pres. of the company, two daughters, Mrs. Hugh Pitts and Frances, and a son, Frank, Jr.