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How Texas Club Builds Sand Greens That Satisfy

IN COMMON with golf courses in this section of the country, where rainfall is inadequate for the maintenance of grass putting greens, our club, being unable to install a sprinkler system, was confronted with the problem of the proper construction of sand greens. The sand greens as first built were very unsatisfactory, because the heavy rains churned up the sand, washed it off, and floated the lighter fuel oil out of the sand on to the fairways. This not only interrupted play, but necessitated a continuous outlay for labor and material in replacing sand and oil. In the winter of 1926 the sand greens were rebuilt, and we now have no trouble from the loss of sand and oil by wind and rain.

Our course is located on a high ridge or divide with headings of small draws or valleys leading out from the ridge. The soil on the ridge is rather poor, with layers of stone underneath, and the grass is poor.

Here is an article taken from Golf Monthly of Edinburgh, Scotland, telling how the Live Oak G. C., located at Weatherford (near Fort Worth), Texas, builds its sand greens. The author of the article is Wright D. Taylor, green-chairman of Live Oak.

Our sand greens are 42 ft. in diameter and are built on the native soil. In rebuilding them 3 barrels of rather heavy fuel oil were first put on the base and allowed to soak in for a few days in order to kill the vegetation and to help keep the base from absorbing the oil out of the sand on the green. The base is tamped smooth and almost level, leaving the top of the cup about $\frac{3}{4}$ in. higher than the outer edge

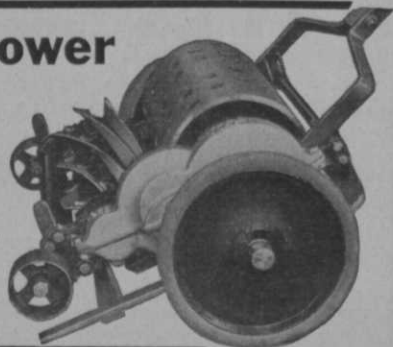
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of the sand green 21 ft. distant. The purpose of this slight rise is to keep as much water as possible out of the cup. It really helps rather than retards good putting.

Cup holes, which are 3 ft. deep, are filled to the bottom of the cup with small stones so as to permit quick drainage of any water in the cup.

For about a foot around the cup the hard base is levelled with the top of the cup, so that in play the sand can be dragged on this to a depth of $\frac{1}{8}$ to $\frac{1}{4}$ in., sufficient to permit a ball to run true if struck true. This also prevents the players creating a saucer-like depression of several feet around the cup resulting from their dragging sand away from instead of toward the cup and dragging the sand too firmly. This hard ground around the cup also, to a large extent, prevents sloughing of the side walls of sand into the cup and creating a hole at the top that is much wider than the regulation $4\frac{1}{4}$ -in. cup.

In our case we obtain a mixture of limestone gravel and sand washed into ravines. We first screen out the rough particles through a screen of eight meshes to the inch, and then screen out the dirt and very fine sand through a screen of 24 meshes to the inch. It is this dirt and very fine sand which, in our opinion, is the chief cause of sand greens becoming packed by rains and play. The portion of the material saved for use is about 20 per cent of the whole.

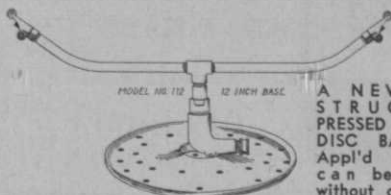
This is then thoroughly worked in a mortar box with heavy oil or residuum until the sand has absorbed all the oil it can. At first thought this amount of oil might seem to be too much; but after the sand is spread, much of the oil will pass down into the base, and that on the surface dries out to such an extent after a few days that it will not stick to the players shoes. The screening of and working oil into the sand should be done when the material is thoroughly dry, as it can be done much better when in that condition and at far less cost, the process being a tedious one at the best. As this residuum is a rather heavy oil, it can not well be worked into

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the sand in cool weather. In this case it should be well heated or thinned with a very small amount of light fuel oil.

The sand is spread only 1 inch deep on the green, because only a light smoothing of the surface is required to permit a ball to run true, and it is deep enough to cause a ball to stick to the sand green if it hits the near side from a good distance—up to about 50 yds. in case of a mashie shot of fair height. A few weeks later, after rains and play tend to pack the sand, the surface will need to be regularly roughed up to a depth of about $\frac{3}{4}$ in. and dragged with a mat. We use light drags made of two pieces of half-round $1\frac{1}{4}$ -in. moulding nailed together, with a flat handle of about $\frac{1}{4}$ by $1\frac{1}{4}$ ins.

Our sand greens have sodded dirt rims and are built sufficiently high to accomplish their purpose of keeping outside water off and washing rains from removing sand and needlessly floating the oil. To facilitate play the rims are tapered several feet outward to a feather edge, leaving the surface a rather gentle swell. Rain water on a sand green is drained off through one or two 2-in. gas pipes set into the rim of the green, which, after rain, quickly drain off the water, soon putting the sand green in a condition for play.

Prior to July 1930 we had not begun to remove the dirt and fine sand from the material used on the greens, which we consider to be the chief cause of packing. The old sand greens, prior to that time, had nevertheless gone a long time without requiring re-oiling and were splendid greens when properly roughed up and dragged with a mat. The sand greens we reconstructed in July 1930 by removing the dirt and fine sand, appear after two years as good as they were the day they were finished, which is certainly enough to satisfy anyone.

We attribute the satisfactory results we have had with our sand greens largely to the coarser sand which we use, but especially to the heavy residuum from oil refineries or cleanings from old fuel-oil supply tanks of steam users, which we use in place of the ordinary light fuel oils. There is a little oil in the residuum to dry out and float off, and it serves its purpose of holding the sand together. Our sand greens will not need to be re-oiled more often than once a year, and probably less often.