

the distinctively southern flora. The typical trees of this region are the willow oak and water oak, the former a valuable tree, the latter good when young but comparatively short-lived and with no advantages over the willow oak. Other good trees are the red, Spanish, laurel, Darlington, and pin oaks; tulip; sweet gum; American elm; red and Norway maples; and ginkgo; with the same flowering trees as region 10, with the addition of crape myrtle, the southern mock orange or evergreen cherry, and evergreen magnolia.

Region 12 is the land near the coast from Wilmington, N. C., to the Mexican border, exclusive of the southern part of Florida. Good deciduous trees for this region are the willow, laurel, Darlington, and Spanish oaks; tulip; sweet gum; sycamore; London plane; American elm; and the staminate form of the ginkgo. The honey locust, red or scarlet maple, Norway maple, and the hackberries are not so good. The live oak is the characteristic tree of this region and is the pride of those who have it; it is an excellent evergreen tree, with large, spreading, and open top. The palmetto and palms thrive, as also the evergreen magnolia.

Region 13 consists of the southern part of Florida. The deciduous trees suitable for this section are the willow, Spanish, and southern red oaks; American elm; Mississippi hackberry; and in the southern half of the region the Poinciana. Evergreen trees are better suited to region 13 than to any other portion of the United States except possibly southern California. Among the best are the live and laurel oaks, evergreen magnolia, camphor, rubber, silk oak or grevillea, and casuarina. Eucalypti are planted to some extent in Florida, but the climate is such that only on the drier grounds of the interior are they likely to succeed, and even there they are not to be compared with other excellent species of trees that may be cultivated successfully.

Care of Creeping Bent Greens

By O. B. FITTS

For some reason, probably because of misinterpreted information, a great many people have the idea that the bent grasses are fool-proof: that a good turf for putting greens may be produced from them regardless of whether or not proper methods are used. This is a great mistake, and is no doubt the cause of much neglect, which invariably results in poor greens. Bent grasses, in order to make and maintain good putting green turf, generally require the same care and attention as other fine turf grasses. While the necessary treatment may vary in some of the minor details, all bent greens call for constant and thoughtful attention, especially through the playing season; and the fact that, when properly cared for, creeping bent produces a denser turf than the other turf grasses, is no reason why it should be expected to give such results without getting the same thoughtful consideration and care required by other grasses. Creeping bent will not crowd out crab grass or *Poa annua* after they are once established; but, owing to the density of the turf, the crab grass and other undesirable plants have much less chance to gain a foothold than in thinner turf. If a good turf is expected, these foreign plants should be picked out as soon as possible after they appear.

A good putting turf of bent, as likewise of other grasses, can not be maintained at its best without frequent and close clipping. In most cases the putting green should be cut daily during the growing season when weather conditions are favorable, and as closely as can be done without cutting into the crowns of the grass. This method of daily close clipping has shown much better results from both the golfer's and the greenkeeper's standpoint than where the grass is allowed to grow long. It gives the greens a uniform and true putting surface, and gives the greenkeeper a better chance to detect disease and other unfavorable conditions of the surface in time to prevent serious injury and overcome many troubles that would be hidden by long grass.

Some golfers have been known to object to closely clipped greens for the reasons, as they believe, that such greens are too fast and that the grass is too short to hold the ball to the surface, resulting in the bouncing and jumping of the ball, which on the contrary should roll. Almost invariably these conditions are due not to the closely clipped grass but to a hard and uneven surface, which feature, like many other objectionable features, such as bare spots, thin turf, and sickly looking grass, can be overcome in no better or more effective way than by proper top-dressing and watering. Long grass will only serve to spoil the best features of the putting surface, and will not cover up the undesirable conditions. It will tend also to make the greens slow, but will not overcome the bouncing and untrue movements of a pitched or putted ball. The fast and bumpy green will show much improvement after one or two light top-dressings are applied and the greens receive the proper amount of water. Through this process the closely clipped green may be made to hold a ball as well as could be wished, and at the same time have the smooth and true putting surface with the necessary life and resiliency and adherent quality for that uniform "roll" and "hold" which makes putting and approaching a test of skill and judgment instead of mere guesswork.

A light top-dressing of about 1 cubic yard of material to each 6,000 square feet of green, applied at intervals of thirty to forty days throughout the growing season, will be found to give excellent results and at the same time will not gum up the turf. Heavier applications interfere with play for several days after they are applied. For bent greens, 25 pounds of ammonium sulfate to each 6,000 square-foot green, thoroughly mixed with the top-dressing material, will add greatly to the beneficial results obtained. The proportions of the materials for top-dressing, such as compost, loam, and sand, should be determined to suit the composition of the soil of the greens. In other words, for a heavy clay soil, a mixture of compost, loam, and sand, with the sand predominating over each of the other ingredients, would be advisable; and for sandy soil, more clay should be used. The percentage of sand or clay should depend on the presence or absence of such ingredient in the soil of the greens.

The principal reason for such a mixture for top-dressing is that it will aid in establishing the proper physical condition of the soil for turf growing and will at the same time furnish the plant food required by the grass. However, top-dressings serve many other purposes in the maintenance of putting green turf. A top-dressing fills in the low places, making an even surface; it covers up the undesirable runners and rough crowns of grass, leaving only the young and fine foliage on the surface; it continues the building up of the turf foundation, which otherwise would soon thin out from the constant wear; and it is an aid to the draining and moisture-holding capacity of the greens, as it covers any crust that may

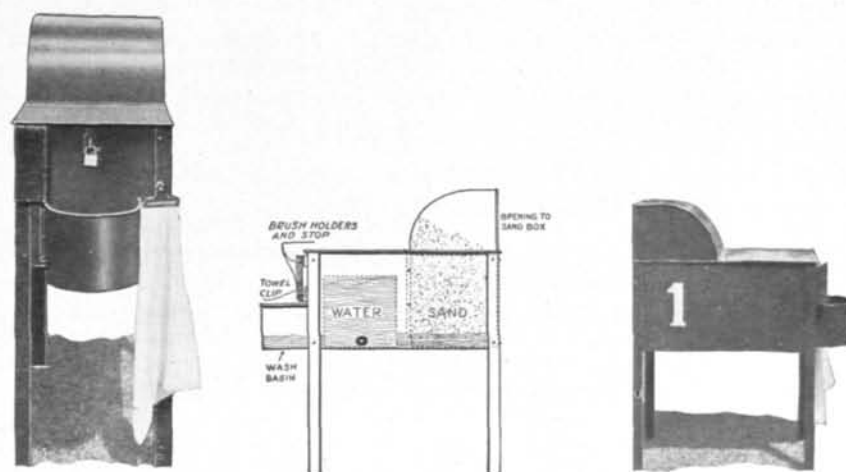
have formed on the surface of the soil, making a new and fresh absorbent layer which readily takes up moisture. It is very necessary that putting greens be top-dressed, even if plain, ordinary soil is the only material available; but the mixtures above described will be more beneficial.

The greens should never be allowed to dry out to such an extent that the surface becomes hard, but they should have plenty of water at all times, to keep the surface of the soil moist, not soggy. A moderate sprinkling each day—early in the morning, if possible—will give good results.

The brown-patch disease, which is one of the most common enemies of bent grass, may be controlled to an appreciable extent by following the method of care above suggested. The experience at the Arlington turf garden has shown, in each instance where light and frequent applications of top-dressing were made and daily watering early in the morning was practiced, that the brown-patch disease caused so little injury at any time that the turf would recover very promptly; whereas when this treatment was not given, even turf on the same series of plots was injured considerably by the disease and the grass was very slow in recovering.

Regardless of the kind of grass grown, it is necessary, in greenkeeping, to be on the job and to let nothing get by unobserved which might in any way be helpful in the way of learning the requirements of each green. And after learning what the greens need in the way of care, see that they get it.

New Members of the Green Section.—Eugene Country Club, Eugene, Oregon; Short Hills Country Club, East Moline, Illinois; Pocasset Golf Club, Boston, Massachusetts; Du Pont Country Club, Wilmington, Delaware; Wenatchee Golf and Country Club, Wenatchee, Washington; Governor's Island Golf Club, Governor's Island, New York; Green Brook Country Club, North Caldwell, New Jersey.



A new, patented tee box, which it is claimed will automatically keep the sand at a uniform degree of moisture. The capillary attraction of the sand on the water is the effective principle employed.