conditions obtaining locally. Fairways and tees should be fertilized once or twice a year and in the case of one application it should be done in the early spring. If two applications are to be made the second should be in the late summer. The rate of application should range from 300 to 500 pounds per acre annually.

The methods of applying fertilizer have a very important bearing on the results obtained, especially in the case of putting greens.

Much has been written in recent years about various methods of applying fertilizer but little has been said about the importance of where it should be applied. Naturally, broadcasting over the surface is the method generally used. In some instances the fertilizer is mixed with compost, in others it is applied alone either in a dry state or in solution. Either of these methods is satisfactory provided the treatment does not stop here.

Correct Placement of Fertilizer

In the writer's estimation, the most important factor in the matter of fertilizer application is to get the fertilizer where it is needed before leaving it, and by this I mean, get it down in the soil where the roots can make use of the plant food without having to come to the surface for it. We are aware of the necessity of a mass of roots near the surface which form an important part of the turf, but, we are also aware of the need for deep root growth to aid the grass to withstand the hardships to which it is subjected under golf turf conditions. Therefore it is good practice to provide a feeding ground for the roots, not only near the surface but ranging downward to a depth of several inches.

As stated above, the roots of grass are foragers and naturally their tendency is to grow in the direction best supplied with the food for which they are searching; hence the importance of getting the fertilizer well distributed through several inches of the top soil. The question arises as to how this may be accomplished. On light sandy soil or on the average lawn where trampling is prohibited the problem is simple. The fertilizer should be applied when the ground is fairly dry. It should be distributed as evenly as possible and immediately watered in thoroughly. If the fertilizer is of a readily soluble nature it is taken up by the water and the open pores of the soil readily receive the solution and allow it to pass freely down through the surface layer and be distributed within convenient range of the feeding roots of the grass. The plant food is deposited in the form of a film over the particles of the soil and is taken up by the plant as needed.

On the average putting green, however, the surface becomes so closely packed as a result of constant trampling that it is practically impervious to both air and water and in such cases it becomes necessary to employ some artificial means of opening the soil so as to provide for the reception of water, air and plant food. To do this job successfully the surface layer should be closely perforated and the perforating instruments should penetrate entirely through the compact layer which usually ranges from one and a half to two and a half inches depending on the type of soil and the amount and character of usage. Regardless of the effort necessary to open up the soil it will pay in the long run for it serves other purposes of importance than that of receiving fertilizer, one of which is the aeration of the soil. Provision for air circulation through the portion of the soil containing the grass roots is very essential to the health of the plant; first, because a certain amount of oxygen is taken in through the roots, and second, because it carries off the toxic gases thrown off by the roots which if confined in the soil will ultimately result in a toxic soil condition that is extremely detrimental to turf.

To sum up the matter of successful turf fertilization one must first know what is best suited to the requirements of turf grass. When in doubt get the information from some recognized authority on plant food requirements. Familiarize yourself with the best practice in the matter of rate and frequency of application for your local conditions and then be sure to put the fertilizer where the grass can make the best use of it.

U. S. G. A. Rules on Sand-Wedge Types

THE following rule recently adopted by the Executive committee of the U. S. G. A. clears up questions of legality of niblicks intended for the "sand-wedge" class:

> *"Club faces shall not embody any degree of concavity, or more than one angle of loft."*