Bacterial Inoculation Useless For Growing Grass

By K. F. Kellerman

Alluring advertisements of bacterial inoculants of bacterial fertilizers for quickly and cheaply stimulating the growth of grass and other plants have become rather frequent recently. Because scientific studies have shown that every good soil owes its productive quality in part to certain groups of bacteria, and because inoculation, with nodule-forming bacteria, of clover and other leguminous plants has improved and increased their growth, the advocates of these new products claim that any kind of plant may be benefited by inoculation with other special kinds of bacteria.

These theories have been carefully investigated for many years, and more recently tests of these bacterial inoculants or fertilizers have been under way. The results of this thorough work all point the same way: Except for the special case of clover and other plants able to develop nodules of nitrogen-fixing bacteria on their roots, no benefit to plant growth on either good or poor soils is secured by adding cultures of bacteria no matter what kind of bacterial preparations are used.

Usually these bacterial preparations urged for stimulating the growth of grass or other non-legumes have been found to contain appreciable quantities of phosphates, lime, potash, and animal manure, compost, or other forms of humus. These substances in themselves have a fertilizer value, and if relatively large quantities of the product are applied in small plot tests apparently beneficial action is noted. This benefit is not the result of the special bacteria in the inoculant, however, for any bacteria that may be present will exhibit little if any effect when added in pure culture to soil that is deficient in these bacteria. The reason for this is that no agricultural soils in any part of the country are entirely devoid of the desirable groups of bacteria which are found in such large numbers in unusually fertile soil. If the proper food supply and satisfactory conditions of moisture and tilth are provided in the poorer soils, the desirable bacteria multiply very rapidly. On the other hand, if the conditions for the growth of these bacteria are very unsatisfactory, the addition of the comparatively small number contained in these preparations will not result in any appreciable change in the total number present in the soil or in the general productiveness of the soil.

Controlling Ants

Mr. Earl B. Kent, of the Highland Country Club, Attleboro, Mass., writes that they are driving ants from their greens by sweeping up the hills each day and watering all night. Treating the individual nests with carbon disulfid he finds expensive.

Sweeping and the use of carbon disulfid are the best methods thus far developed in the control of ants. In using carbon disulfid the hole in the ant hill is enlarged with a sharp instrument and two or three drops of carbon disulfid are injected into the hole by means of a spring-bottom oil can. The hole is then at once closed by plugging with earth. As great care must be exercised in the use of carbon disulfid as in the use of gasoline, as it is equally as explosive. In using
the sweeper, a special sweeper is generally used, such as illustrated on page 89 of the BULLETIN, Vol. III. The ants and other litter swept up are burned by treating the pile with gasoline.

Constant attention to ant hills is necessary where the insects are abundant. When once killed or driven out they are certain to return. In any case, if the hills are swept or washed away each day the damage to the turf should be negligible.

**Growing Grass Turf and Raising Crops**

By C. V. Piper

It seems to bother a lot of green committeemen to be told that principles and practices used by farmers in raising crops do not apply equally to growing turf on a golf course. Particularly is this true in regard to soil treatments. Perhaps a few simple statements on the reasons for certain farm practices will clarify matters and indicate why general agricultural treatises are poor guides for golf course management.

First, it is to be borne in mind that farmers grow most of their crops in rotation, which usually involves plowing the fields once or twice a year. Clearly such a practice is not desirable on a golf course; so the tillage methods used and the fertilizers applied to the different crops bear little if any relation to golf turf culture.

Lime is used by farmers primarily because it has such a marked effect on clovers and alfalfa. A good clover crop commonly insures a good corn crop following. But clover is not particularly desirable anywhere on a golf course, and corn crops are not ordinarily raised on golf courses. Lime also has a marked tendency to favor weeds, a thing the farmer well knows; but to him a good clover crop is of far more importance than the additional weed trouble.

The meadow grasses used by farmers are those which, under their conditions, will give the best crops of hay. They are practically all different grasses from those used to produce turf. If maximum hay crops are desired on the fairways or in the rough, the farmer's methods may well be followed; but golfers usually feel irritated if even the rough is a sort of hayfield. There is no reason to believe that the methods which will grow the best hay crops will also grow the best fairways.

Farmers use cultures of certain bacteria to apply to seeds of legumes in order to be sure that the nodules will develop on the roots, as these have much to do with the growth and yield of the crop. For any other purpose as regards crops, cultures of bacteria have never been found useful. At the present time golfers are being urged to buy bacterial cultures, touted as being wonderful stimulants of turf. This game has played out with the farmer, as abundant investigations and experience show these cultures to be worthless.

Permanent pastures are the only fields on the farm that in any way resemble a golf course. Indeed, the game of golf began on such pastures. The results of pasture investigations do have a direct bearing on golf course management, but unfortunately less research has been devoted to pastures than to any other phase of farming. However, some of the findings in pasture investigations are perfectly clear:

1. In any given region some permanent pasture grasses are much more valuable than others; thus bluegrass and white clover on rich