

On account of the persistence of the plant, it seems impractical to eradicate it from putting green turf. While trying to get rid of nut grass the desirable turf grasses would also be destroyed. It has been said that the only way to get rid of nut grass is to die and leave it. The Delta station has been experimenting on its eradication since 1926. Every weed poison known has been tried, with but few favorable results. There are many sprays, gases, and salts which will kill the tops of the plants, but the reserve strength in the nuts is sufficient to produce new growth in a very short time. As much as an inch of growth may be formed over night. Of the many chemicals tried, common table salt, calcium chloride, and sodium chlorate have given best results. Any of these three chemicals should give favorable results in sand traps. The table salt or the calcium chloride should be applied at the rate of 1½ to 2 pounds to the square foot. Sodium chlorate should be applied in a solution of 2 pounds to 1 gallon of water, with a pressure sprayer, both the plants and the ground being completely saturated with the solution. About three applications at intervals of two to three weeks should be sufficient to eliminate most of the nut grass in the sand traps or other places where all vegetation may be destroyed. Care should be exercised in handling sodium chlorate, because organic matter or dust mixed with the chemical makes it highly inflammable. Clothing, wood, or other organic matter when soaked in a solution of sodium chlorate may be easily set on fire by friction.

In view of the grave condition presented when nut grass has gained a foothold in a putting green a word of caution must be sounded to greenkeepers in the nut grass regions to be on guard at all times to prevent the introduction of the weed. It is especially liable to be introduced in soil used for top-dressing purposes. A green free from nut grass may be quickly ruined if top-dressing is used which contains viable tubers of the grass.

### QUESTIONS AND ANSWERS

All questions sent to the Green Section will be answered in a letter to the writer as promptly as possible. The more interesting of these questions, with concise answers, will appear in this column. If your experience leads you to disagree with any answer given in this column, it is your privilege and duty to write to the Green Section.

While most of the answers are of general application, please bear in mind that each recommendation is intended specifically for the locality designated at the end of the question.

**Organic fertilizers for fairways.**—I have been a reader of the Bulletin for several years, but do not recall that you have urged strongly the fertilizing of fairways each winter with manure, a practice which has been observed consistently on many courses. Do you recommend a liberal top-dressing of fairways with manure each winter or spring? (Illinois.)

**ANSWER.**—There are several reasons why we have not strongly urged the top-dressing of fairways with manure, while at the same time we have not condemned the practice. Manure is yearly becom-

ing more difficult to procure in many golf centers. Due to its scarcity we think clubs may be well advised to use to the best advantage such manure as they may procure; and it may be used to the best advantage in the making of compost. There are other organic fertilizers, possessing higher fertilizer content, which may be used more economically for top-dressing purposes, such as pulverized poultry manure, activated sludge (Milorganite), and cottonseed meal. The nitrogen content of manure is about 1 per cent, so that 1 ton of manure would contain only 20 pounds of this most important fertilizing element; while 20 pounds of nitrogen may be obtained in about 300 pounds of any of these other three organic fertilizers, which also contain phosphorus and potash, as does manure. It is the greater bulk of organic material contained in manure which makes it especially useful for mixing with soil in that it improves the mechanical texture of the soil. If manure is spread directly on established turf, much of its organic content is lost, since it can not be expected that such light, strawy material will work its way into a heavy, dense soil in this manner. Another objection to the use of manure for top-dressing purposes is that it frequently contains considerable weed and clover seed which, upon germinating, may be detrimental to fairways, whereas the other organic fertilizers to which we have referred do not contain weed seeds. Fertilizers for top-dressing turf should be purchased largely on their nitrogen content, since this is the most valuable element for turf fertilization. In this connection attention is invited to the Bulletin for June, 1928, which contains a list of plant food material contained in the various fertilizers.

It is preferable to fertilize fairways in late summer or early fall, since the summer weeds are then beginning to disappear and turf grasses are recovering from the heat of summer and are in excellent condition to make good use of fertilizers. It is sometimes objectionable to apply manure to fairways at that time of the year, and therefore when manure is applied to fairways it is usually applied in the winter just previous to the spring thaws. The manure lying on frozen fairways over winter, however, does no good, and it may be that a great deal of fertilizing material is lost by being washed from the frozen ground.

**Compost and commercial fertilizers.**—My attention has been called to a product called \* \* \* which is advertised to take the place of the compost we have been using for top-dressing purposes. What advice can you give me on this point? (Michigan.)

ANSWER.—The product you mention is a good fertilizer. However, there are many other good complete fertilizers on the market. For golf turf maintenance it is especially necessary to provide a relatively large amount of nitrogen in fertilizing material. We therefore advise purchasing fertilizers primarily on a nitrogenous basis. If a complete fertilizer is required there should be some phosphoric acid and potash added. As far as this product's taking the place of compost is concerned, that would be possible if the compost were used only for the purpose of providing plant food for the turf, but when compost is employed for adding organic material to the top soil to keep the soil texture in good mechanical condition and to assist in maintaining a true putting surface, like results could not be obtained by any such commercial fertilizer.



**Nothing will ever be attempted if all possible objections  
must be first overcome.**

**Samuel Johnson**

