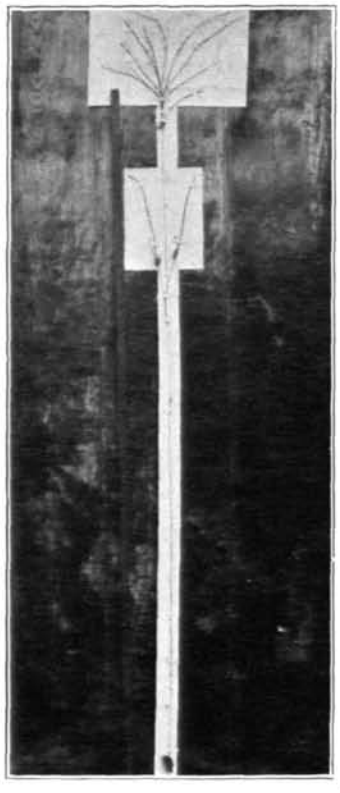
garden. The growing of the various leading putting green grasses in close proximity to each other is very helpful. The most important thing of all is the fact that the garden has become a meeting place for those who have the care of golf courses. We have also had a few gardeners visit the plots. Such an undertaking is useful in direct proportion to the interest shown in it, and I feel that our garden has been well worth while.

Control of Coco or Nut Grass on Southern Golf Courses

By Roy Kuykendall
Delta Branch, Mississippi Agricultural Experiment Station



A single plant of nut grass which developed from a tuber buried 6 feet in the soil. The original tuber from which the plant developed is seen at the base of the stem. About three-fourths up the stem a pair of underground rootstocks have developed, each bearing a tuber. It required 18 months for the upward growing stem to reach the surface of the soil.

In the South, coco or nut grass is one of the worst weeds in golf course turf. It is found in all the States bordering the coast line from New York to Texas, also in southern California. It does not seriously infest any of the inland States except Arkansas. It is objectionable in turf because of its characteristic growth, which interferes with the true rolling of the ball on a putting green. It is also objectionable in sand traps.

The character which makes nut grass so very pernicious is its habit of tuber production. Each of its tubers is capable of producing from 1 to 50 plants. The tuber normally sends up a slender thread, at the top of which a new plant is formed. As the plant matures, it usually enlarges at the base, forming a basal tuber, which in turn sends out lateral threads or rhizomes. Each of these rhizomes may form a new plant directly, or it may grow deeper into the soil, swelling at intervals, thus forming the chain of nuts so characteristic of the grass. Each of these new nuts may germinate and form new plants the same season, or it may remain dormant until the following season and then germinate. At the Delta branch experiment station, Stoneville, Miss., one nut planted in a 2-foot tile produced more than 1,100 nuts in a single growing season. The tip of the burrowing thread or rhizome is very sharp and is capable of piercing potatoes, dahlia bulbs, and similar growths. Nuts have been known to germinate and force their way through ordinary tar roofing paper, form a new plant, and continue to grow. At this station one nut buried 6 feet deep in the soil germinated, sent a long slender thread upward, reached the surface after 18 months, and produced a strong, vigorous plant.

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-dresing 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-