acidity or alkalinity is indicated by the change produced in the color of the dye. Complete instructions for its use and a chart for reading the degree of acidity or alkalinity accompany each outfit.

In taking a sample of soil for testing, considerable care must be exercised to insure its being representative of the plot of ground. For this purpose an ordinary auger one-half inch in diameter, with some sort of a handle attached, serves admirably. Each sample should be taken to a depth of 2 to 3 inches, and at least five such borings should be made, about 5 feet apart, and thoroughly mixed, before taking out the small quantity that is needed for the test. Lumps of manure, humus, or vegetable matter should be discarded in taking the sample for testing, and in most cases it will be found advantageous to sift the sample through a sieve of about 20 mesh.

The names and addresses of the companies having the above soil-testing outfits for sale will be given upon application.

Care of Bermuda Greens

By T. L. La Malta, Colonial Country Club, Memphis

When this article appears Bermuda growth will have commenced, and a definite plan for the care of the greens should be formulated.

Please understand that I am not posing as an expert, but rather as a layman who believes in the possibilities of Bermuda grass for putting greens and is trying to learn just what treatment is best.

The experiences related are based on six years of combined observation and supervision of a course located in the extreme western portion of Tennessee.

For the first four years after our course was completed the greens were cared for under what is sometimes called the starvation system. To avoid misunderstanding, I will give in detail the system used during this four-year period.

About December 10 play would be transferred to temporary greens. At this time the permanent Bermuda greens would be thoroughly forked over the entire surface, using a five-prong fork, to a depth of 8 or 10 inches, the supposed purpose being to loosen and aerate the soil. Immediately about 3 inches of well-rotted manure was applied and allowed to remain until about March 10, when it was raked off and a heavy dressing of lime applied. About the time the greens were put into play, usually May 1 to 10, a top-dressing of woods soil and sand was applied. This was repeated about July 1 and October 1. During the playing season the greens were cut once every day very close. At no time was water applied, although water was available at every green.

The first and second years our greens were fairly good, but during the third year the turf commenced to thin out, and by the end of the fourth year the turf consisted only of very coarse runners on top of the ground, making putting simply a matter of luck.

Realizing that something different would have to be done if we hoped to save our greens, we experimented through 1924, and, results pointing to the correctness of our ideas, we formulated the following treatment, which was followed during 1925 and which will not be changed during this year.

When the permanent Bermuda greens are taken out of play for the winter we apply a heavy topdressing about one-half inch thick, equivalent to 2 yards per green of 10,000 square feet. The same material that is used for summer topdressing is used at this time. It is spread evenly with a machine and well worked in with a steel doormat. Note that we do not fork the greens. This dressing does not have to be removed, as the winter rains wash it into the soil. Having been finely pulverized and evenly spread, it does not roughen the putting surface as does rough manure. Having washed into the turf by spring, it does not encourage the growth of early grasses with shallow roots, but does stimulate the Bermuda feeders. No lime is used. About April 1 to 10 we usually have sufficient Bermuda growth to commence cutting about twice a week with the mower blades set to cut about five-eighths inch high. At this time we apply ammonium sulfate, about 3 pounds per 1,000 square feet, and follow with a thorough sprinkling, and the next day a light topdressing of about one-fourth inch. From this time on, as long as growth continues, we topdress once every month, thoroughly water every 10 days (unless rains make it unnecessary), and apply ammonium sulfate again July 1 and October 1. During the summer our greens are cut every day (sometimes twice a day) with blades set three-eighths inch high.

With this treatment we get a luxuriant growth of very rich color, a true surface and one that the ball will bite into.

In watering we use a sprinkler that covers an entire green. This is turned on about 6.30 p. m. and runs until about 6.30 in the morning, which gives the equivalent of one-half inch of rainfall. No attendant is required after the sprinklers are set and started. We use six sprinklers, so that 18 greens are watered in three nights. A word of caution is necessary about watering. Do not water unless you do it thoroughly, as water on the surface only is harmful. If you have watered as suggested, about August 1 you will probably find spots on some greens where the turf looks sick. Immediately investigate, and you will surely find these spots watersoaked to a depth of possibly 2½ to 3 feet. Mark these greens, and during the following winter put in drain tiles well laid and well sloped, open on each end so that if they become clogged they can be opened with a rod or by flushing.

Topdressing should consist of clay loam and material from your compost pile, about three parts clay loam and one part compost. It is impossible thoroughly to mix clay and sand by hand; therefore, explore your surrounding territory and you will probably find a sand pit where you can get clay loam mixed by nature.

Topdressing should be shredded and screened until it is about as fine as cornmeal. To do this will require equipment costing close to $1,000; but our experience is that we save about $600 per year in labor, and probably half as much in material. More to be considered is the fact that the bugbear of preparing topdressing is forever removed, as well as the objection on the part of the players to its application.

In conclusion let me suggest that you study your local weather bureau reports for, say, 10 years past. These reports, with your experience, will enable you to arrive at how much water you should use.

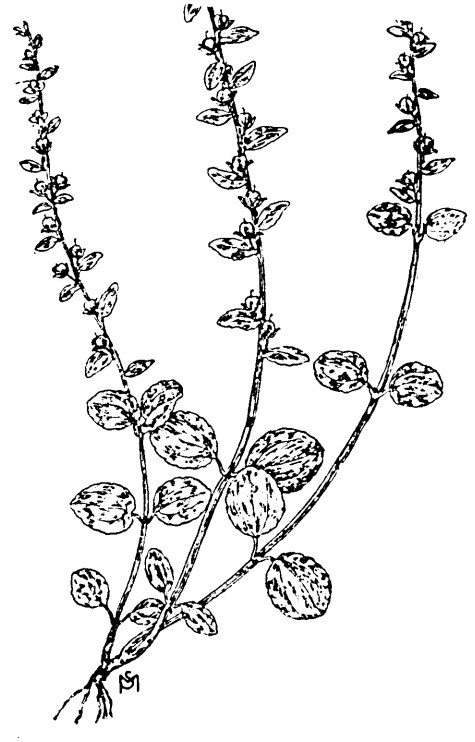
The soil I have been working with is pure clay. If yours is sandy, use clay in your topdressing instead of clay loam.

If your soil is clay, don't roll; if it is very sandy, roll as much as you like, without fear of harm.

[We are glad to get this contribution from Mr. La Malta giving the results of his experience with Bermuda turf at Memphis, Tenn. It is recalled that a contribution on the same subject from Mr. Frederick W. Birchett, Jr., of the New Orleans Country Club, appeared on page 64 of the March BULLETIN. It is evident that opinions differ on some features of the treatment of Bermuda greens. Perhaps these differences are necessitated by local conditions. It is the hope of the Green Section at an early date to summarize the various experiences with Bermuda turf and attempt to suggest some definite recommendations. In this connection, information on the experiences of other clubs in the South would be of material assistance, and it is hoped that additional contributions on the subject may be received.—*Editors.*]

Controlling Thyme-Leafed Speedwell

Thyme - leafed speedwell (*Veronica serpyllifolia*) is a thickly matted, low-growing weed, at times exceedingly troublesome in putting greens especially in Canada and the northern United States, though occurring to some extent also southward. Our illustration shows the habit of the plant in its natural state, but under the close cutting of putting greens it becomes much denser. It spreads rapidly both by rooting along the stems and by abundant seed production. Close cutting only aids in the spread of the plant. Pulling the stalks will simply break the stems from the roots, which will sprout anew. The clumps should be cut out bodily with a hole cutter, spud, or similar instrument, and destroyed by burning. The plant blooms from May until July. The small flowers are whitish or pale blue. If left unchecked, the plant will smother turf grasses, and also likely prove to be an element of danger to players on account of the slippery surface which it presents to the foot.



Thyme-leafed speedwell; stems with flowers and fruit. About natural size.