Bermuda Grass

(*Cynodon dactylon* or *Capriola dactylon*)

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Bermuda grass is the most important grass of the southern States for pasture, as well as for lawns. On rich lands a good deal is cut for hay. It is originally native to India and perhaps other tropical and subtropical areas of the Old World, but now occurs in every region of the world where it will survive. As would be expected from its wide distribution, it has numerous names; in India, *doob* and *hariali;* in Virginia, *wire-grass;* in Europe, *dog's-tooth-grass;* in the West Indies, *Bahama grass* and *Scotch grass;* in Australia, *couch-grass;* in California, *devil-grass.* The name *Cynodon* means *dog's tooth; Capriola* comes from the Latin word for goat, therefore *goat-grass.*

Bermuda grass was introduced into the United States early in the nineteenth century. A story still current is that it first appeared back of a store where packing rubbish was scattered. The same story is also told in reference to other introduced plants, and therefore is to be regarded with suspicion. As a matter of record, there are authentic accounts of Bermuda grass being well known in the South in 1807. Bermuda grass now occurs generally distributed from the southern line of Pennsylvania westward to central Kansas and south to the Gulf of Mexico; also in Texas, New Mexico, Arizona, and California. (See map.)

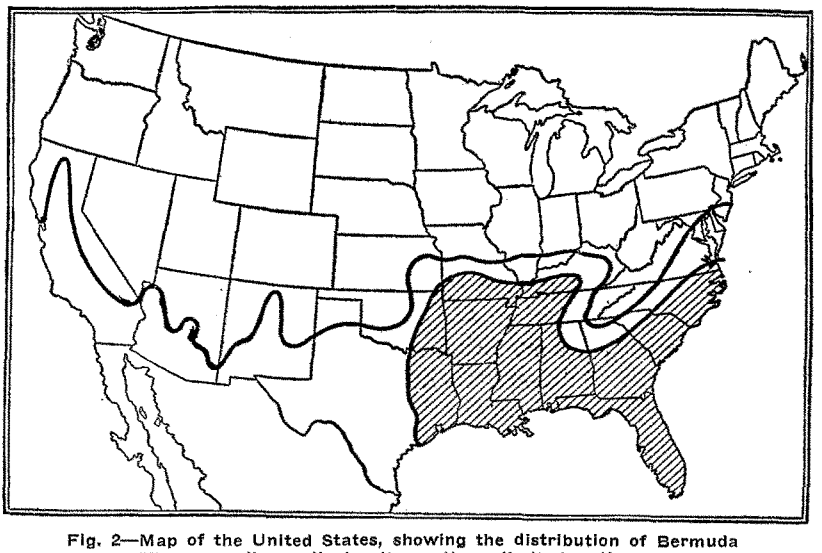
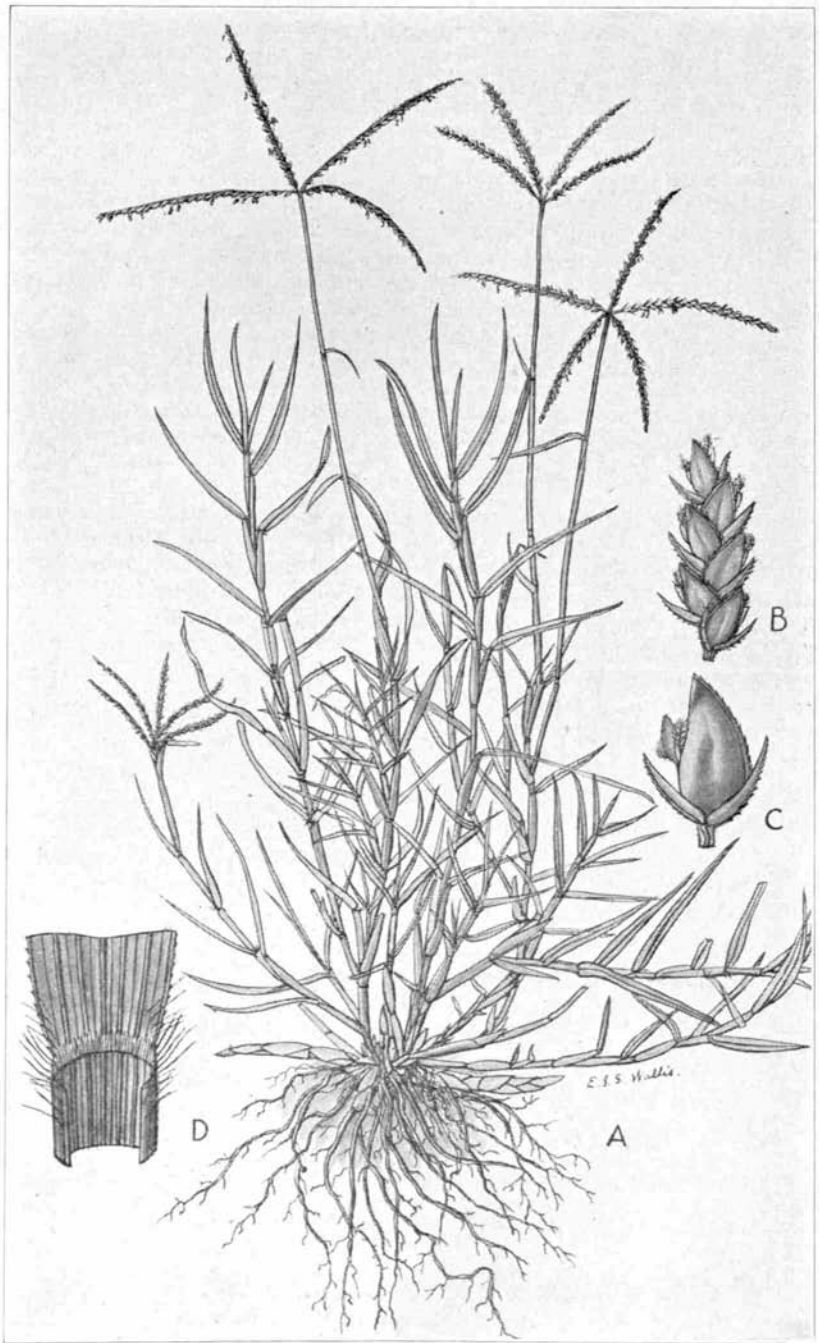


Fig. 2—Map of the United States, showing the distribution of Bermuda grass. The upper line indicates its northern limit, but the grass is of most value in the shaded area

Bermuda grass is peculiar in that the stems often appear as if they have two to four leaves at each joint. There is really only one leaf at each joint; but very commonly several adjoining joints are very short, so



Bermuda grass. Cynodon dactylon (Linnaeus) Persoon; Capriola dactylon (Linnaeus) Kuntze. A, Entine plant showing habit; B, Part of a flowering branch showing the arrangement of the spikelets; C, Spikelet much enlarged; D, Junction of blade and sheath, showing the character of the ligule

the leaves are crowded. The short joints are succeeded by two or more long joints one to three inches long, which, in turn, may be followed by several short joints. This arrangement of alternating short and long joints is very common, but by no means uniform.

Bermuda grass prefers clay or loam soils. It will grow in sandy soils, but never makes so dense or so vigorous growth. It does best in well-drained land, and rarely thrives in wet soils or where the water is too near the surface. It will not grow at all in shade; it must be exposed most of the time to the sunlight. With the first touch of frost the leaves turn whitish and growth ceases until the weather again becomes warm.

At the base of the leaf-blade is a circlet of long hairs on the inner side, one of the conspicuous "earmarks" of Bermuda grass.

Common Bermuda grass has abundant jointed underground stems or rootstocks. These are white and as large as a goose-quill. At the tip they sometimes come to the surface, and then become leafy creeping stolons, which root at each joint. Similar stolons arise from the base on the surface of the ground. In one variety of Bermuda grass there are no rootstocks; this form is called St. Lucie grass, but it is tender and grows only in Florida.

Of ordinary Bermuda grass there are numerous strains, some of which make much finer turf than others. About twenty of these have been tested for putting-green turf. The best of all is Atlanta Bermuda grass, a form abundant on several golf courses about Atlanta. It is a paler green color with much denser turf than the ordinary forms and does not produce many surface runners or stolons. This variety alone should be used for putting-greens.

In the south Bermuda grass rarely produces seeds, and so farmers generally plant it vegetatively. Usually the turf is cut into small pieces and placed in furrows in plowed ground or simply scattered on the surface, which is then rolled. Practically every piece takes root and grows.

For putting-greens for golf courses the best plan is to have a nursery of Atlanta Bermuda grass and treat it exactly as described for creeping bent.* This method will insure a uniform turf of the most desirable strain.

In dry countries Bermuda grass produces abundant seed. The commercial supplies come from Arizona and Australia. The seed should be broadcasted on a carefully prepared seed bed at the rate of 10 pounds per acre, and then rolled. It must not be buried deeply. The seed may be sown at any time from corn-planting time until August. Later sowings are not desirable, as the grass will scarcely have time to make a sod before cold weather. It must never be sown during the cool or cold seasons.

On clay or clay-loam soils most excellent putting-greens of Bermuda grass may be secured, but it is almost impossible to do this on loose sandy soils. On the clayey soils the sod will become very dense; on sandy soils it inclines to remain thin. Bermuda putting-greens require much care to maintain a high quality of turf. The surface runners continue to be produced, and these are often thick enough to deflect the course of a putted ball. This difficulty is easily prevented by frequent top-dressings. Disking the green both ways to cut the runners off, and then raking the green, is good treatment to precede the top-dressing. Watering should be reduced to the minimum necessary to keep the grass green and growing. Moderate use of fertilizer is to be preferred. In no case should a Bermuda green

* See THE BULLETIN, Vol. I, pages 124 to 126.

be top-dressed with sand, as the loam or clay-loam soil is by all odds the best.

The average quality of Bermuda grass greens will be enormously improved when clubs build their greens with loam or clay-loam soils for the surface six or eight inches, and use only the Atlanta strain for planting.

In regions where frosts occur the Bermuda grass becomes unsightly in winter. A good green surface can be maintained all winter, however, by sowing redtop or Italian rye-grass on top of the Bermuda grass sod about one month before the first frost. The redtop is preferable. Both it and Italian rye-grass will grow all winter in mild climates, and disappear in the hot weather of spring, when the Bermuda is again vigorous.

Questions and Answers

All questions sent to the Green Committee will be answered as promptly as possible in a letter to the writer. The more interesting of these questions, with concise answers, will appear in this column each month. 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 Committee.

1. Choosing between carpet bent and velvet bent.—Which grass, carpet bent or velvet bent, in your opinion, is the better grass for the putting-green all the year round?—(Maryland.)

Carpet bent and velvet bent both make exquisite greens, the latter being the finer in texture. Carpet bent succeeds better than velvet bent in the latitude of Washington and is not quite so susceptible to brown-patch. On some courses in New England, however, velvet bent has dominated and pure greens of this grass may be seen. Under New England conditions we would strive for pure velvet bent greens, because it makes the finest of all turf. Farther southward we should prefer the carpet bent.

2. Planting putting-greens by the vegetative method.—In planting our turf garden, our idea was to produce a complete putting-green surface ready for transplanting and then remove it directly onto a green in exactly the same way that any sod is handled, and not to produce stolons to be planted in a bare green and to be allowed to spread of their own accord; that is, our plan was to grow fine turf off the course, and then transplant it to the place where it was needed. While this might cost a little more, the convenience to the players would certainly be worth the additional expense. With this in view, we cut out mats from the fairways and putting-greens, and had them cut up into divots about one inch square and set out just as one would set out onion plants in a vegetable garden, in rows about twelve inches apart, and individual divots twelve inches apart. The idea in setting these so closely together was that as soon as each of them had spread six or seven inches from its original center we would have a complete turf. Are we right? Will we get what we are striving for?—(Missouri.)

The idea you have in mind is entirely practicable and one that we have used in experimental plots. When you have grown your sod it can be transferred to a putting-green and be ready to play upon in a very few days. We doubt, however, if the method of planting the sod garden is nearly as good as that of using chopped-up runners, as recommended in the July, 1921, BULLETIN. By your method you are sure to have many strains of bent instead of one pure strain. Furthermore it requires a longer time for the sod to knit in a solid whole by your method than by the other. At Inverness very beautiful turf was grown by the chopped-up-runner method