



Better Turf for Better Golf

# TURF MANAGEMENT

from the USGA Green Section

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## BREEDING BERMUDAGRASS FOR TURF

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As a general rule in all types of research, one particular field of investigation draws upon another in order to obtain an ultimate objective. Since it is true that one branch of science cannot exist alone in its endeavor to solve a particular problem, we should expect an overlap in the field of applied research.

Thus, when the Southeastern Turf Research Center was established at the Georgia Coastal Plain Experiment Station, Tifton, Ga., in 1946, it received a shot in the arm from the well-established, cooperative U. S. Department of Agriculture grass-breeding program that had its beginning in 1936. Of the several turf projects under way at Tifton, probably the one most benefited by this allied field of research has been the breeding of superior Bermudagrass types for turf.

Forty-two selections from the extensive and effective breeding program for superior Bermudagrass pasture and forage types have been compared with forty-nine plugs of Bermudagrass from putting greens in the Southeast and with seeded Bermuda. The selections were maintained under putting green and fairway conditions. Various observations made during

the last three years on the disease resistance, sod density, fineness, aggressiveness, earliness of recovery in spring, freedom from weeds, renewed growth after overseeding with ryegrass and so forth of these Bermudas indicate that several selections in the nursery are superior to common seeded Bermudagrass and should assist the turf producer in the South in overcoming several problems.

Clubs all over the South are faced with the problem of obtaining suitable putting greens during the transition period from ryegrass to Bermudagrass. From the performance of the many selections at Tifton, it has been found that a great difference exists in the ability of the selections to produce a desirable turf during the transition period.

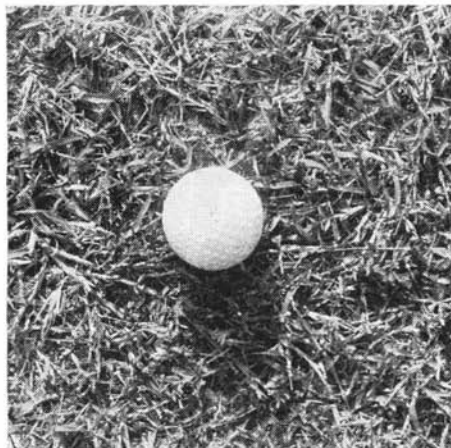
For instance, several weeks elapsed each year between the disappearance of the ryegrass and the appearance of good Bermuda sod on common seeded Bermuda and some of the other poorer selections. In comparison, it has been gratifying to note that several hybrid selections, particularly Tifton No. 55 and Tifton No. 57, have produced excellent growth throughout the transition period, with the result

*This article is based on cooperative investigations at Tifton, Ga., of the Division of Forage Crops and Diseases, U. S. Department of Agriculture; the Georgia Coastal Plain Experiment Station; the United States Golf Association Green Section, and a number of southern golf associations.*

## Two Bermudagrasses After Same Treatment



**Tifton No. 57 Bermudagrass. Sod is dense and weed-free, has fine texture.**



**Bermudagrass from seed. Sod is coarse, with heads of Egyptian crabgrass.**

that it has been difficult to detect the disappearance of ryegrass.

From the performance of the superior selections during the last three years, it is reasonable to assume that the transition problem that has been harassing southern greenkeepers for years may largely be eliminated by the use of such strains.

We should always keep in mind, however, that the potential abilities of an athlete may remain dormant if they are not given a chance to develop. Thus the importance of management cannot be overlooked even if superior strains are used in combatting transition or other turf problems.

The appearance of crabgrass and other weeds at more or less inopportune periods is another problem that the turf producer inevitably must face. It might seem too good to be true that the strains which performed so well in solving the transition problem at Tifton also produced weed-free turf. This, however, happens to be the case.

Throughout the three-year period such aggressive selections as Tifton No. 57, Tifton No. 55 and a few of the strains from golf clubs in the South have virtually eliminated the weed problem without the use of herbicides. Even on the fairway plots where watering was not practiced and the fertilization program was

less intense, these strains still were aggressive enough to keep undesirable weeds from becoming established. It is evident that the control of weeds in turf through the use of superior strains is the most economical solution to the problem.

Persons attending the 1949 Southeastern Turf Conference, held at Tifton, rated the Bermuda strains in the test as to their quality for putting. Tifton No. 57, selections from the Charlotte Country Club and from the Pinehurst Country Club received the highest ratings.

The disease resistance, ability to withstand close and frequent mowing and the relatively low fertility requirements of Tifton No. 57 and several of the other superior Bermudas make them stand out under unfavorable growing conditions. Reports from persons who have made small plantings of Tifton No. 57 and Tifton No. 55 on their golf courses indicate that the strains are well adapted throughout the South.

Even though they surpass other Bermuda types, none of the superior Bermuda strains is as fine as is desirable. After this period of intensive testing the problem of obtaining fineness in strains approaching that of bent or of incorporating fineness into the existing selections confronts the Research Center.

The latter problem has been approached

by hybridizing Tifton No. 57, Tifton No. 55 and several of the best selections from golf courses with a very fine-leaved Bermuda obtained from T. R. Garlington of the Atlanta Athletic Club (East Lake). The hybrids are now under observation, and it is hoped that some will possess the desired characteristics of both parents.

Some of the other problems receiving special attention at the Southeastern Turf Research Center might be listed as follows:

1. Breeding better Bahiagrass strains for heavy duty turf.
2. Studies on centipede grass seed production.
3. Fertilization studies including:
  - (a) Nitrogen source test on centipede and Bermudagrass,

- (b) Soil reaction as it affects the production of southern turf grasses,
- (c) Effect of organic and inorganic sources of nitrogen on Bermudagrass greens.

4. Insect control studies.
5. Crabgrass, Nutgrass and Dallisgrass control.

The results from these studies are considered to be of a preliminary nature, which may be altered with additional experience.

It has been the purpose of this paper to report on the progress in the breeding of Bermudagrass for turf and not to give an extensive summary of all the projects under way at the Southeastern Turf Research Center at Tifton.

## MERION (B-27) BLUEGRASS

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The selection and testing program which has resulted in the release of Merion (B-27) Kentucky bluegrass for commercial production is one of the achievements of the cooperative research program being carried on by the USGA Green Section and the Department of Agriculture.

This grass was tested by the Green Section for several years before the war. With the curtailment of Green Section activities in 1942, the Division of Forage Crops and Diseases, Department of Agriculture, took over the work, carrying on the clonal stock and observing plantings which had been made. At the end of the war the Green Section resumed its field work and since that time the Department of Agriculture and the Green Section both have been interested in getting Merion into production.

Merion bluegrass was observed for a number of years by Joe Valentine, superintendent at Merion Golf Club, in Ardmore, Pa., and a plug of turf was given to the Green Section in 1936 along with two similar strains from a tee at Merion. The name Merion was chosen for B-27

bluegrass by reason of the origin of the original material. Merion was described as a dense, dark-green turf growing in partial shade, spreading over several feet and crowding out weeds with its vigorous growth. Other morphological characteristics of this grass are:

1. Short leaves, 3 to 5 mm. in width.
2. Height when flowering, 16 inches.
3. Open panicles with 3 to 5 florets on each spikelet.

Twelve years of testing and observing Merion at the old Arlington Turf Gardens and at the Bureau of Plant Industry have shown this strain to be markedly superior to ordinary commercial bluegrass in the following characteristics:

1. Resistance to *Helminthosporium* leafspot.
2. Lower growth habits (tolerates closer mowing than common bluegrass).
3. Rate of spread.
4. Vigor of rhizomes.
5. Turf quality and appearance.
6. Resistance to weed invasion.
7. Heat and drought tolerance.

The seed of Merion bluegrass is uni-