



FIG. 1. Bermudagrasses overseeded with cool-season grasses, from left to right, not overseeded, Kentucky 31 tall fescue, ryegrass, and Merion Kentucky bluegrass. The ryegrass has been overseeded a second time.

For Winter Color, Overseed Bermudagrass

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IN THE UPPER South, and in part of the transition zone, bermudagrasses are frequently planted for lawns and for general-purpose turf on playgrounds, athletic fields, driving ranges, and parks.

On some of these sites, either annual or perennial ryegrass has been seeded in the fall to provide winter color. Ryegrass provides winter color in the fall and spring and at some locations throughout the winter months. In late spring ryegrass disappears and the lawn must be overseeded the following fall.

Maintenance costs would be reduced if ryegrass could be replaced with a perennial cool-season turfgrass that would persist when grown with bermudagrass. Information obtained in growing various cool-season grasses, in association with bermudagrass, is reported as a guide to turf managers who are interested in overseeding or in management of combination cool-season and warm-season turf.

Grasses and Seeding Rates:

At Beltsville, Md., duplicate plots

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(18 feet x 60 feet) were sprigged in July 1962, with the following bermudagrasses: Tufcote, Tifgreen, H-8 (Kansas selection), and Burning Tree (Maryland selection). The bermudagrasses varied in texture—H-8 and Tifgreen are relatively fine, Tufcote is intermediate, and Burning Tree is coarse.

In September, 1964, after spiking the test area three times and aerifying once, the bermudagrasses were overseeded with cool-season grasses.

Each bermudagrass plot was divided into six subplots (18 feet long x 10 feet wide) and seeded as follows: 1) Check—no overseeding; 2) perennial ryegrass—6 pounds; 3) Pennlawn red fescue—5 pounds; 4) *Poa annua*—3 pounds; 5) Merion Kentucky bluegrass—4 pounds; and 6) Kentucky 31 tall fescue—6 pounds.

Rates for all grasses are shown as pounds per 1,000 square feet. The overseeding treatments were randomized with each of the two bermudagrass replications.

Management Practices:

The grasses were mowed weekly during the growing season at a height of one inch and clippings removed. Phosphorus, potassium, and

lime levels were maintained for optimum growth as indicated by soil tests.

During 1964 and 1965, one-pound increments of elemental N were applied during the season until 5 pounds of N as urea were applied.

Split applications of N fertilizer were applied in 1966 and 1967; one-half of the plot received 3 pounds of N and the other one-half 6 pounds of N for the growing season. Thatch was not removed from the bermuda plots during the period of this trial.

In September, 1965, it was necessary to reseed both the ryegrass and *Poa annua* plots. Seedbed preparation and seeding rates were the same as those used in September 1964.

Visual observations on cool-season grass cover in bermudagrass selections were taken twice in late fall and twice in early spring of 1965 and 1966. Single ratings were made in late fall and early spring of 1967.

Results:

Fertility levels had little effect on the percent cover of the cool-season grasses, although red fescue, *Poa annua*, and perennial ryegrass thinned out more rapidly at the higher than at the lower fertility level. There was a significant reduction in red fescue stands at the 6-pound N level.

The average percent stand for the five cool-season grasses over the 3-year period for each of the bermudagrasses is given in Table 1. Merion Kentucky bluegrass ranked first with 71% cover for the 3-year period.

Both tall fescue and red fescue received almost identical average

TABLE 1. Cool-season grass cover in bermudagrasses. Average percent for 3 years (1965-67.

Cool-season grasses	Bermudagrasses				Aver.	Rank
	Tufcote	Tifgreen	H-8 (Kansas)	Burning Tree		
Check	0.0	0.0	0.0	0.0	0.0	
Ryegrass	23.3	24.4	20.7	29.1	24.4	4
Red fescue	45.1	49.5	54.3	61.3	52.6	3
Poa annua	13.1	16.2	13.2	16.8	14.8	5
Merion	65.7	78.1	64.8	75.4	71.0	1
Tall fescue	50.4	42.3	57.3	61.0	52.8	2
Average	39.5	42.1	42.1	48.7		

scores. Under the conditions of this experiment, perennial ryegrass and *Poa annua* did not furnish satisfactory cover.

Merion produced the densest cover; however, in 1966 and 1967 parts of the Merion plots were injured by a fungus disease. In 1968, the disease caused rather large brown areas that detracted from the appearance of the Merion even though this grass rated first in total cover. The bermudagrasses in the browned-out areas of Merion recovered very slowly.

Red fescue provided uniform cover at the 3-pound N level. Thinning of red fescue was very pronounced in 1968 at both N levels, and bermudagrass recovered very slowly after the red fescue disappeared.

Tall fescue cover was rather sparse but uniform in the plots. The sparser distribution of tall fescue in the bermuda plots can be attributed to the low seeding rate (6 pounds per 1,000 square feet) used in this study. Because of the large size of tall fescue seed, this species should be overseeded in bermudagrasses at 12 to 20 pounds per 1,000 square feet.

Thus far, disease has not been a problem in the tall fescue plots. Tall fescue stands were not affected by the one-inch cutting height. Results suggest that tall fescue overseeded in bermudagrass may provide a combination turf for several years; however, it may be necessary to dethatch periodically.

In this study *Poa annua* did not reseed itself as is normally expected. This might be attributed to the heavy thatch accumulation in the bermudagrass plots. The comparatively poor perennial ryegrass cover can be explained by the low seeding rate and poor persistence of this species.

The overall cool-season grass cover was somewhat higher for the Burning Tree strain than for the other three bermudagrasses. There was no appreciable difference in cool-season grass cover among Tufcote, Tifgreen, and H-8.

In general, overseeding with perennial ryegrass will require annual seedings at a rate of 12 to 20 pounds per 1,000 square feet. In 1968, ryegrass and *Poa annua* had disappeared almost entirely.

Summary:

The results of overseeding four different bermudagrasses with five cool-season grasses is reported. Merion bluegrass provided the best combination bermudagrass turf for the first 3 years; after that an unidentified fungus disease killed large areas, leaving bare spots.

A combination of tall fescue with bermudagrass produced the most pleasing uniform turf, even though the tall fescue was sparser than Merion. The sparser tall fescue turf can be explained by the comparatively low seeding rate used in this experiment.

Tall fescue withstood mowing at one inch and was not infested by any fungus diseases. Red fescue provided good cover for the first 2 years, then it began to thin out rapidly. Perennial ryegrass and *Poa annua* were the poorest cool-season grasses used in this test.

Under the conditions of this study, tall fescue produced the best combination turf with bermuda. Tall fescue, where adapted in the transition zone and upper South, may provide a good combination turf for several years. It could be particularly useful in overseeding parks, lawns, and play areas that are planted to bermudagrass.

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