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RESPONSE OF COASTAL BERMUDAGRASS TO A HIGH SULFUR CONTENT SULPHATE OF POTASH-MAGNESIA

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SUMMARY

Coastal bermudagrass response to a sulfur-magnesium treatment combination was evaluated on a Gallime fine sandy loam soil containing 8.3 and 24.2 ppm sulfur (S) and magnesium (Mg), respectively, in the 0-6 inch depth. Rates of 0, 40, 80, and 120 lb S/ac and 0, 2.95, 5.89, and 8.8 lb Mg/ac were applied to the same plots as a 57% S content sulphate of potash-magnesia. Nitrogen (N), phosphorus, and potassium were equalized over all plots initially at rates of 100, 100, and 250 lb of N, P_2O_5, and K_2O/ac, respectively, and N at the rate of 100 lb/ac was applied after each cutting. Three harvests of grass were made. Yields averaged 5004, 2715, and 5237 lb/ac at each cutting, respectively, and totalled an average of 12,950 lb/ac for the three cuttings. The S-Mg combination treatment had no statistically significant effect on yield of grass.

OBJECTIVE

Evaluate the response of Coastal bermudagrass to a combination of sulfur and magnesium on a Gallime fine sandy loam soil.

PROCEDURE

A Gallime fine sandy loam soil having a surface pH of 5.1 was selected for this study. This soil contained 8.3 and 24.2 ppm sulfur (S) and magnesium (Mg), respectively, in the surface six inch depth. Rates of S were 0, 40, 80, and 120 lb/ac and were broadcast onto the surface of 10 x 20 foot plots. Magnesium levels were not equalized over all plots, but were allowed to increase as the S rate increased. Sulphate of potash magnesia containing 8.4% K_2O, 4.2% Mg, 8.4% sulfate-S and a total of 57% S was the fertilizer material used to vary the sulfur rate. Potassium treatment was equalized on all plots at 250 lb K_2O/ac. Nitrogen and phosphorus (P_2O_5) were each applied at 100 lb/ac, initially. Nitrogen at 100 lb/ac was applied after each of the first two cuttings. Yield samples were taken in July, August, and November.

RESULTS

Responses of Coastal bermudagrass to the sulfur-magnesium rates are indicated in Table 1. Yields by treatment were not significantly different. This indicated that available S and Mg were adequately supplied in the soil, if not in the top 6 inches, possibly in the lower depths. Sulfur and Mg in the harvested grass have not been analyzed.

TABLE 1. EFFECT OF SULFUR-MAGNESIUM COMBINATION RATES ON YIELD OF COASTAL BERMUDAGRASS

Treatment S - Mg	Yield of Coastal bermudagrass dry matter			
	Harvest 1	Harvest 2	Harvest 3	Total
	lb/ac			
0 - 0	4860	2517	5161	12530
40 - 2.95	4590	2835	5079	12500
80 - 5.89	5217	2638	5614	13460
120 - 8.80	5348	2871	5094	13310
Mean	5004	2715	5237	12950
L.S.D. (p=0.10)	N.S.	N.S.	N.S.	N.S.
C.V. %	12.7	13.7	8.8	6.2