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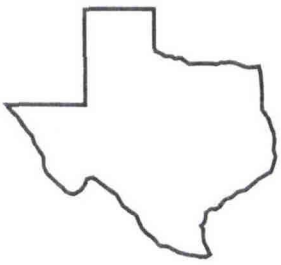
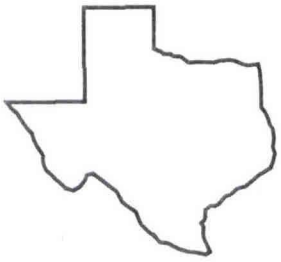
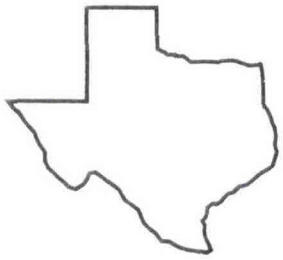
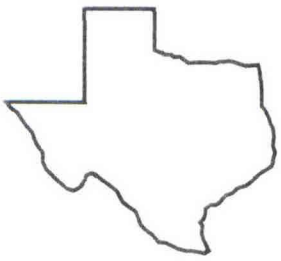




Overton Field Day Report - 1994





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EFFECT OF POTASH FERTILIZATION ON RYEGRASS INTERSEEDED INTO COASTAL BERMUDAGRASS

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Background. Ryegrass (*Lolium* sp.), possibly the most widely used of all grass, is known worldwide as an important cool-season forage. It is commonly overseeded into Coastal bermudagrass [*Cynodon dactylon* (L.) Pers.] for winter pasture in the Coastal Plains and Gulf Coastal Plains in Texas and the southeastern U.S.A. Coastal bermudagrass is known to use as much as 330 pounds of potassium (K) for eight tons of dry matter/ac. Ryegrass following Coastal bermudagrass, if not properly fertilized, could suffer yield reductions. The objective of this research was to evaluate response of overseeded annual ryegrass to applied potassium.

An area of Lilbert soil (loamy, siliceous, thermic, Arenic Plinthic Paleudult) was selected for this study of ryegrass response to fall and winter applications of potash. The main plots were treated with 0, 50, 100, and 150 lb/ac rates of K_2O before planting ryegrass in fall (October 14). Subplots were treated with the same K_2O rates on 24 Feb. as mid-winter treatments. Harvests of ryegrass forage were made 8 Mar., 15 Apr., and 25 May.

Research Findings. The initial application of potash had no significant effect on ryegrass dry matter yield in the first or second harvests. Third harvest yield differences, although shown as statistically significant, were small. Total ryegrass yields for the three cuttings fertilized with potash in fall showed no significant differences due to treatment.

Subplot potash rates applied in late February significantly increased yield of ryegrass dry matter at the second harvest. The response to increasing potash rates was linear. Yield at harvest three was low and not affected significantly by increasing potash rate. Ryegrass total yield shows the effect of potash on increased dry matter yield from the second harvest.

Application. Ryegrass harvested on 15 Apr. was growing vigorously at a time when it had access to potash applied to subplots on 24 Feb. Because of its rapid growth, the ryegrass had an increased need for potassium.

These are preliminary results from the first year of this study. Research will continue on the response of overseeded ryegrass to potash in a Coastal bermudagrass meadow for an additional two years. During that time, the effect of double cropping Coastal bermudagrass and ryegrass on this experimental site should further deplete the soil's reserve of potassium. Succeeding years are expected to show an increased response of both crops to potassium.

Table 1. Response of overseeded ryegrass to potassium fertilization.

Main plot K_2O rates	Harvest 1	Harvest 2	Harvest 3	Total
		lb/ac		
0	816	3475	1218 ab[1]	5509
50	717	3478	1209 ab	5404
100	703	3685	1296 a	5683
150	759	3517	1140 b	5416
	n.s.	n.s.		n.s.
		Subplot		
0	748	3162 c	1201	5112 b
50	716	3478 bc	1221	5414 ab
100	754	3594 ab	1226	5574 ab
150	777	3921 a	1251	5912 a
	n.s.		n.s.	
R^2	0.73	0.60	0.53	0.64
C.V.	29.8	12.9	12.7	11.7

[1]Yields within a column followed by similar letters are not significantly different statistically.