Forage Research in Texas

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INFLUENCE OF NITROGEN ON DRY-MATTER YIELD OF FOUR TALL WHEATGRASS VARIETIES IN THE TRANS-PECOS AREA

OBJECTIVES:

To determine optimum dry-matter yield and develop a nitrogen response curve for tall wheatgrass varieties grown on a Hoban silty clay loam soil.

PROCEDURE:

Four varieties of tall wheatgrass ('Jose', 'Largo', 'Alkar', and 'Platte'), were drilled in 5.3 x 160 foot strips in October of 1978. Each strip was divided into 16 ten-foot plots. Four nitrogen treatments, with four replications were randomized and applied in the same order to each strip in March, 1979. Rates consisted of 0, 20, 40, and 80 pounds N (urea)/acre/month. Plots were clipped to a 3-inch stubble height at monthly intervals. Nitrogen was applied and plots were sprinkle irrigated after each defoliation. Total yields were recorded and sub-sampled for moisture content. A total of six nitrogen applications were made during the study period from October, 1978 to October, 1979. Nine applications were made from November 1979 to October, 1980.

RESULTS AND DISCUSSION:

Dry-matter yield from the four nitrogen levels and grass varieties are given in Tables 1 and 2 from the 1979 and 1980 growing seasons. The 1979 season apparently had results showing some influence by residual soil nitrogen. Late in that growing season there were visible signs of nitrogen deficiency, evidenced by color and apparent growth on the plots that did not receive nitrogen. The greatest response found in 1980 was between plots not receiving nitrogen and those of 20 lb/acre/month. The 40 and 80 lb/acre/month treatments did not have consistently increasing responses for all varieties although Largo did show such a response. Both statistical and economic analyses need to be made to fully appraise results to date.

Table 1. Total dry-matter produced from four levels of nitrogen in pounds per acre, 1979.

Variety	Nitrogen Rate (Total N/acre) lbs/ac/mo			
	0	20 (120)	40 (240)	80 (480)
Jose	9,762	10,340	10,386	11,356
Largo	9,811	9,644	10,188	10,853
Alkar	8,249	9,555	9,697	10,423
Platte	7,404	8,040	8,255	8,921

Table 2. Total dry-matter produced from four levels of nitrogen in pounds per acre, 1980.

Variety	Nitrogen Rate (Total N/acre) lbs/ac/mo			
	0	20 (120)	40 (240)	80 (480)
Jose	9,438	12,935	12,937	13,420
Largo	10,166	12,658	13,424	14,156
Alkar	8,983	10,729	12,748	11,464
Platte	8,041	11,753	12,876	12,881