

Forage Research in Texas

Departmental Technical Report No. 81-12

Department of Soil and Crop Sciences

Project: H 6142

Workers: James Read and Billy Hipp

Location: Dallas

RESPONSE OF PLAINS BLUESTEM, KLEINGRASS AND ALAMO SWITCHGRASS
TO NITROGEN FERTILIZATION

OBJECTIVES:

Determine the adaptability and yield potential of plains bluestem and Alamo switchgrass.

Determine the response of four warm-season grasses to three levels of nitrogen fertilization.

Determine the response to two different sources of nitrogen.

PROCEDURE:

Plots of plains bluestem (Bothriochloa ischaemum (L.) Keng.), kleingrass-75 (Panicum coloratum L.), Alamo switchgrass (P. virgatum L.), and Renner lovegrass (Eragrostis curvula (Schrad.) Nees) were planted in April, 1979. Plots were 6 x 12 ft. and consisted of 6 rows spaced 1 ft. apart. The center 8 ft. of the two center rows were used for harvest. Adequate stands of plains bluestem, kleingrass-75 and Alamo switchgrass were obtained, but stands were very poor for Renner lovegrass and it was deleted from the test. Design was a randomized complete block with four replications. Due to droughty conditions in 1980, the plots were harvested only two times, May 27 and July 9.

On March 24, all plots received 17.5 lb./P per ac. as 0-18-0. The nitrogen rates and sources are given in Table 1.

RESULTS AND DISCUSSION:

Dry matter yields for 1980 are shown in Table 1. In each case yields were low because of droughty conditions that prevailed during the summer of 1980. Kleingrass produced more forage at each level of fertility than plains bluestem or Alamo switchgrass.

Seventy pounds of N as urea produced slightly more forage than 70 lbs. N as ammonium nitrate. Kleingrass yield was further increased with the 140 lb. N rate.

Table 1. Dry matter yields of three warm-season grasses under four N fertility regimes.

Cultivar	lbs. of N per acre			
	0	70 $\frac{1}{2}$	70 $\frac{2}{2}$	140 $\frac{1}{2}$
	----- lb. dry matter per acre -----			
Kleingrass	2000	4000	5000	5800
Plains bluestem	1900	3600	3900	4100
Alamo switchgrass	1400	2200	2900	2600

- 70 $\frac{1}{2}$ 40 lbs. N on March 24 and 30 lbs. N as ammonium nitrate after first cutting.
- 70 $\frac{2}{2}$ 40 lbs. N on March 24 and 30 lbs. N as urea after first cutting.
- 140 $\frac{1}{2}$ 80 lbs. N/acre on March 24 and 60 lbs. N/acre as ammonium nitrate after first cutting.