

Curlew National Grasslands Off-Center Advanced Test Site
1996 Progress Report
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INTRODUCTION

The purpose of the Curlew National Grasslands Off-Center Advanced Test Site is to evaluate the potential of grasses for livestock and wildlife forage on sagebrush-grass range sites in southeast Idaho. The site is located in MLRA 13, Eastern Idaho Plateaus of the Northwestern Wheat and Range Region of the Intermountain United States. This report describes progress of work completed in 1996.

The site is located approximately 5 miles north of Holbrook, Idaho in the East Richards Pasture. The soils are silt loam and it is a Loamy, 12-16 inch range site. The elevation is 5030 feet. For a detailed description of the project site characteristics and methods see the Curlew National Grasslands Off-Center Advanced Test Site - 1993-94 Progress Report.

1996 EVALUATIONS AND DISCUSSION

Precipitation during the Fall of 1995 was less than normal and winter precipitation was above normal. During 1996, Spring and Summer precipitation was below normal, summer temperatures were above normal, and hot winds were common.

The inter-center strain trial was evaluated on July 31 and August 1, 1996. Data collected included plant density, plant height, forage production and vigor. The data is summarized in Table 1. Plant density, height, and forage production data were collected by the same procedure as in past years with the exception of location of forage sample collections. All plots showed decreased plant growth and vigor where previous samples had been collected, so the clipping frame was moved adjacent to previous clipping sites to sample plants representative of the entire plot. Forage samples were allowed to air-dry until September 15 when they were weighed and the data converted to pounds per acre, dry weight basis.

One-way analysis of variance (ANOVA) and means separation test using Duncan's Multiple Range Test were performed on the forage production data from the intermediate wheatgrass accessions and is summarized in Table 1. Due to extreme variability in the data from the thickspike wheatgrass accessions and the poor, non-uniform stands of the alfalfa accessions, the range test was not performed on those groups.

Plant density for the intermediate wheatgrass accessions ranged from 0.3 plants per square foot for 'Amur' to 2.5 for 'Slate' and 'Manska'. Plant height for the intermediate wheatgrass accessions ranged from 14.3 cm for Amur to 81.0 cm for 'Luna'. Vigor for the intermediate wheatgrass accessions ranged from 2.3 (best) for 'Manska' and 'Rush' to 8.0 (poorest) for Amur. Forage production ranged from 335 pounds per acre (air-dried) for 'Oahe' to 1292 pounds per acre for Slate and Manska. The average forage production for the Intermediate wheatgrass accessions was 760 pounds per acre. In 1995, the average forage production was 774 pounds per acre.

Plant density for the thickspike wheatgrass accessions ranged from 1.3 plants per square foot for 'Schwendimar', SL Hybrid and 'Sodar' to 2.0 plants per square foot for PI-236663. Plant height ranged from 14.8 cm for Sodar to 37.0 cm for 'Bannock'. SL Hybrid had the best vigor rating of the thickspike wheatgrass accessions. The most forage production was from 'Critana' (260 pounds per acre) and the least forage production was from PI-236663 (65 pounds per acre). The

average forage production for the thickspike wheatgrass accessions was 155 pounds per acre. In 1995, the average forage production was 354 pounds per acre.

The alfalfa accessions have suffered from poor establishment and competition from cheatgrass since they were planted. There is extreme variability in the stands and statistical analysis was not completed for the data collected in 1996. 'Travois' had 1.5 plants per square foot for the best plant density. 'Spreador II' was the tallest alfalfa accession at 45.5 cm and also had the best vigor of the alfalfa accessions. The greatest forage production was from Spreador II at 799 pounds per acre. The average forage production for the alfalfa accessions was 293 pounds per acre. In 1995, average forage production was 273 pounds per acre.

Volunteer crested wheatgrass appears to still be increasing each year. I continue to believe that without the competition from the volunteer crested wheatgrass, forage production from the test plots would be significantly greater.

Yearly evaluations of the Off-Center Advanced Test site will conclude after the next growing season. Plant density, vigor and forage production will be evaluated and a final report summarizing five years of evaluation data will be prepared.

Table 1. Curlew Grasslands Off-Center Advanced Test Site, Inter-center Strain Trial. Summary of 1996 Evaluation Data

Accession	Source	Plant Density (per ft ²)	Plant Height (cm)	<u>1/</u>	<u>2/</u>
				Vigor	Forage Production pounds per acre
Intermediate Wheatgrass (<i>Elytrigia intermedia</i>)					
Slate	ARS-Nebraska	2.5	80.3	2.5	1292 a*
Manska	ARS-North Dakota	2.5	78.0	2.3	1292 a
Rush	Aberdeen PMC	2.3	72.8	2.3	1041 ab
Luna	Los Lunas PMC	2.0	81.0	5.0	975 abc
Greenleaf	Canada	2.3	65.3	2.8	920 abc
Reliant	ARS-North Dakota	2.3	57.0	3.3	715 abc
Mandan	ARS-North Dakota	1.3	62.8	3.3	697 abc
Topar	Aberdeen PMC	2.0	62.3	4.0	548 bc
Tegmar	Aberdeen PMC	2.0	48.5	3.8	483 bc
AI Hybrid	ARS-Utah	1.3	68.0	3.5	418 bc
Greenar	Pullman PMC	0.8	45.8	5.0	409 bc
Oahe	AES-South Dakota	1.8	62.0	4.0	335 c
Amur	Los Lunas PMC	0.3	14.3	8.0	0 +
				Mean	760
				CV	54.68%
Thickspike Wheatgrass (<i>Elymus lanceolatus</i>)					
Critana	Bridger PMC	1.8	22.3	5.3	260
Bannock	Aberdeen PMC	1.5	37.0	5.3	251
Schwendimar	Pullman PMC	1.3	22.8	6.5	167
SL Hybrid	ARS-Utah	1.3	26.3	4.8	153
PI-236664	Pullman PMC	1.5	17.5	6.0	130
Sodar	Aberdeen PMC	1.3	14.8	6.8	84
PI-236663	Pullman PMC	2.0	21.0	5.0	65
				Mean	155

		Alfalfa (<i>Medicago sativa</i>)			
Spreador II	Commercial	1.3	45.5	5.3	799
Travois	Commercial	1.5	39.8	5.8	429
Servelra	Commercial	0.8	39.8	6.0	288
Ladak	Commercial	0.5	20.8	7.5	149
Ranger	Commercial	0.5	23.3	7.5	93
Baker	Commercial	0	0	9.0	0
				Mean	293

1/ Rated 1-9 with 1 best, 9 dead.

2/ Harvest samples were air-dried and weighed. * Means followed by the same letter are not significantly different as determined by Duncan's Multiple Range Test, P=0.05. Range test not completed for thickspike wheatgrass and alfalfa accessions because of extremely high variability

+ not included in analysis of variance (ANOVA) or range test.

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