Curlew National Grasslands Off-Center Advanced Test Site
1995 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 1995.

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.

1995 EVALUATIONS AND DISCUSSION

The winter of 1994-95 was mild with above normal temperatures and near normal precipitation. However, during the months of March through June, precipitation was much above normal and temperatures were cool. By July, temperatures returned to normal and precipitation dropped back to normal.

A visit to the site was made on April 4, 1995. A drainage ditch on the west side of the test site had over-topped earlier in the spring when the ground was still frozen. Runoff caused some erosion in the alfalfa test plots and in some of the westernmost display plots. Many of these plots never fully established and were mostly covered with cheatgrass. It was decided that the area would be left to heal on its own for the present time but if additional erosion took place, an effort would need to be made to stabilize the site.

The inter-center strain trial was evaluated on July 18 and 19, 1995. 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 (see Curlew National Grasslands Off-Center Advanced Test Site - 1993-94 Progress Report).

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 and thickspike wheatgrass accessions and is summarized in Table 1.

Plant density for the intermediate wheatgrass accessions ranged from 0 plants per square foot for 'Amur' to 3.0 for 'Reliant'. Plant height for the intermediate wheatgrass accessions ranged from 0 cm for Amur to 91.8 cm for 'Slate'. Vigor for the intermediate wheatgrass accessions ranged from 1.8 (best) for 'Manska' to 9.0 (poorest) for Amur. Forage production ranged from 231 pounds per acre (air-dried) for AI Hybrid to 1425 pounds per acre for 'Slate'. The average forage production for the Intermediate wheatgrass accessions was 774 pounds per acre. In 1994, the average forage production was 343 pounds per acre.

Plant density for the thickspike wheatgrass accessions ranged from 0.8 plants per square foot for PI-236663 to 2.5 plants per square foot for 'Critana'. Plant height ranged from 14.0 cm for PI-236664 to 68.3 cm for Critana. Vigor for the thickspike wheatgrass accessions ranged from 3.8 (best) for Critana to 6.8 (poorest) for PI-236663. The most forage production was from Critana (861 pounds per acre) and the least forage production was from PI-236663 (120 pounds per

acre). The average forage production for the thickspike wheatgrass accessions was 354 pounds per acre. In 1994, the average forage production was 139 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 1995. 'Travois' had 1.3 plants per square foot for the best plant density. 'Spreador II' was the tallest alfalfa accession at 43.5 cm and 'Ladak' had the best vigor (4.5). The greatest forage production was from Travois at 398 pounds per acre. The average forage production for the alfalfa accessions was 273 pounds per acre. In 1994, average forage production was 50 pounds per acre.

Three randomly located plot frames were clipped in the cover crop area between the test plots and the display nursery for total above ground biomass production. Two of the plots were estimated to be 50 percent seeded species and 50 percent cheatgrass. The third plot was mostly composed of cheatgrass. The average total above ground biomass for these three plots was 3961 pounds per acre. The highest producing plot was 4850 pounds per acre and the least producing plot was 2925 pounds per acre.

Many of the test plots are contaminated with volunteer crested wheatgrass which appears to be increasing each year. Extremely dry conditions in 1994 seem to have set back the vigor of the test plants. The above normal precipitation this spring appears to have favored the volunteer crested wheatgrass (which is known for its early spring growth) and given them an advantage over the test plants. Statistical analysis of the data shows a higher coefficient of variability (CV) than from data collected in 1994 which may support this opinion. I believe that without the competition from the volunteer crested wheatgrass, forage production from the test plots would be significantly greater.

On November 6, 1995 the plots were mowed to a stubble height of 2 inches to remove current year's growth. Evaluations to be conducted next year include plant density, vigor and forage production.

Table 1. Curlew Grasslands Off-Center Advanced Test Site, Inter-center Strain Trial.
Summary of 1995 Evaluation Data

Accession	Source	Plant Density (per ft^2)	Plant Height (cm)	1/ Vigor	2/ Forage Production pounds per acre	
Intermediate Wheatgrass (*Elytrigia intermedia*)						
Slate	ARS-Nebraska	2.8	91.8	2.3	1425	a*
Manska	ARS-North Dakota	2.5	75.8	1.8	1351	a
Luna	Los Lunas PMC	2.8	88.3	2.3	1203	ab
Rush 3/	Aberdeen PMC	2.0	82.0	3.3	1148	ab
Reliant	ARS-North Dakota	3.0	75.5	2.3	1129	abc
Mandan	ARS-North Dakota	2.3	83.	3.3	824	abc
Greenleaf	Canada	1.3	67.3	3.0	546	abc
Oahe	AES-South Dakota	0.8	59.0	6.0	453	bc
Greenar	Pullman PMC	0.8	42.8	5.8	352	bc
Tegmar	Aberdeen PMC	1.3	54.5	5.5	315	bc
Topar	Aberdeen PMC	0.5	40.8	6.0	306	bc
AI Hybrid	ARS-Utah	0.5	37.5	6.5	231	c
Amur	Los Lunas PMC	0.0	0.0	9.0	0	+
				Mean	774	
				CV	70.4	%

Thickspike Wheatgrass (*Elymus lanceolatus*)

Critana	Bridger PMC	2.5	68.3	3.8	861 a*
Schwendimar [4/]	Pullman PMC	1.8	32.5	6.3	389 ab
SL Hybrid	ARS-Utah	2.0	59.5	4.3	343 b
Bannock [5/]	Aberdeen PMC	1.5	42.3	5.5	333 b
PI-236664	Pullman PMC	1.0	14.0	6.5	241 b
Sodar	Aberdeen PMC	1.5	26.3	6.3	194 b
PI-236663	Pullman PMC	0.8	16.0	6.8	120 b
				Mean	354
				CV	93.8 %

Alfalfa (*Medicago sativa*)

Travois	Commercial	1.3	37.0	5.0	398
Spreador II	Commercial	0.3	43.5	5.0	296
Ladak	Commercial	1.0	41.5	4.5	204
Servelra	Commercial	1.0	33.5	4.8	194
Ranger	Commercial	0.3	34.0	5.3	0
Baker	Commercial	0.3	28.8	5.8	0
				Mean	273

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

2/ Harvest samples were air-dried and weighed. * Means within each species group 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 alfalfa accessions because of extremely poor, non-uniform stands

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

3/ Rush intermediate wheatgrass was previously reported as PI-575702 but has since been released by the Aberdeen PMC

4/ Schwendimar thickspike wheatgrass was previously reported as 9006633 but has since been released by the Pullman PMC

5/ Bannock thickspike wheatgrass was previously reported as 9021076 but has since been released by the Aberdeen PMC.