

Chinese Inter-Center Strain Trial
Aberdeen Plant Materials Center
1996 Progress Report
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INTRODUCTION

The purpose of the Chinese Inter-Center Strain Trial is to compare plants native to northern China with plant materials currently being used or tested in the western United States. Inter-Center strain trials were established at Bridger, Montana, Pullman, Washington, and Aberdeen, Idaho Plant Materials Centers during the spring of 1994 to allow comparison of the plant materials over a broad and ecologically diverse area and to identify plant adaptation and performance. This report describes the progress of the Chinese Inter-Center Strain Trial at the Aberdeen Plant Materials Center during the third year of evaluation.

For a detailed description of the project site characteristics and methods see the Chinese Inter-Center Strain Trial - 1994 Progress Report.

1996 EVALUATIONS AND DISCUSSION

Precipitation during the Fall of 1995 was less than normal and winter precipitation was above normal. Spring and Summer precipitation was below normal and summer temperatures were above normal and hot winds were common. The inter-center strain trial was not irrigated during 1996. The following summarizes precipitation data during the 1996 crop year which was collected at the University of Idaho Aberdeen Research and Extension Center:

Month	Precipitation		Normal	
	(in.)	(mm.)	(in.)	(mm.)
October 1995	0.21	5.3	0.62	15.7
November	0.52	13.2	0.78	19.8
December	1.32	33.5	0.91	23.1
January 1996	0.93	23.6	0.77	19.6
February	1.50	38.1	0.54	13.7
March	0.86	21.8	0.63	16.0
April	0.38	9.7	0.75	19.1
May	1.98	50.3	1.22	31.0
June	0.02	0.5	1.11	28.2
July	0.24	6.1	0.26	6.6
August	0.00	0.0	0.47	11.9
September	1.20	30.5	0.55	14.0
Total	9.16	232.6	8.61	218.7

Weed control of the shrub and legume block was accomplished by hand hoeing as needed during the growing season. All plots of 9075986 *Melissitus ruthenicus* were winter-killed, so the plots were fallowed to control weeds. The grass plots were well established and only minimal weed control was needed.

On July 23, plant height, vigor and forage production data were collected from all plots with the exception of the shrub plots in which forage production data was not collected. On September 24, percent stand and regrowth data were collected. Table 1 summarizes

the data. Plant height, vigor and percent stand data were collected by the same procedure as used in previous years.

Forage samples were collected by hand clipping a 60 x 200 cm frame centered on the middle 2 rows of each plot for plots with 30 cm row spacing and a 120 x 200 cm frame was used on plots with 60 cm row spacing (all legume plots and 'Bozoisky' Russian wildrye have 60 cm row spacing and all other grass plots have 30 cm row spacing). Forage samples were bagged for air drying unless the volume of material was too large in which case, the total sample was weighed and a small "grab" sample from the plot was bagged, weighed to determine wet weight, and then allowed to air dry to determine dry forage weights. All samples were allowed to dry until September 4, when they were weighed and data was converted to dry matter yield.

Height of the grasses ranged from 18.3 cm for 9075982 *Puccinellia tenuifolia* to 146.0 cm for 9058211 *Elymus exelsus*. Three accessions with the best vigor ratings (1.3) were 9075983 *Leymus chinensis*, 9058211 *Elymus exelsus*, and 'Bozoisky' Russian wildrye.

Dry matter forage ranged from 0.125 MT/ha for 9075982 *Puccinellia tenuifolia* to 6.110 MT/ha for 'P-27' Siberian wheatgrass (MT/ha x 0.446 = ton (U.S.)/acre). Analysis of variance (ANOVA) and means separation using Duncan's Multiple Range Test were completed for the dry matter forage production data and is also shown on Table 1.

Percent stand and regrowth was evaluated on September 24. Percent stand ranged from 7.7 percent for 9075982 *Puccinellia tenuifolia* to 94.7 percent for 'Rosana' western wheatgrass. Regrowth ranged from 2.7 cm for 9075982 *Puccinellia tenuifolia* and 9058215 *Roegneria pendulina* to 29.3 cm for Bozoisky.

Height of the legumes at the July 23 evaluation ranged from 48.0 cm for 'Spredor III' alfalfa to 91.7 cm for 9057946 *Astragalus adsurgens*. The best vigor rating (2.3) was for 'Lutana' cicer milkvetch.

There was no significant difference in forage production from the legume accessions as shown on Table 1. The shrubs were not sampled for dry matter yield.

Percent stand ranged from 66.7 percent for 9057946 *Astragalus adsurgens* to 80.3 percent for Spredor III. Spredor III also had the greatest regrowth of the legume accessions.

9057950 *Ceratoides arborescens* was the tallest, most vigorous and had the best stand of the shrub accessions.

The grass and legume plots were mowed to a stubble height of 5 cm in late October to remove current years' growth. We plan to continue evaluating the trial for the next 2 years.

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Table 1
Chinese Inter-Center Strain Trial, Field 21 Fish and Game Farm
Summary of 1996 Evaluation

Accession	Genus and Species	Evaluation Date	Plant Height (cm)		Dry Matter Yield		Percent Stand		Regrowth (cm)	
			7/23/96	7/23/96	MT/ha	MT/ha	9/24/96	9/24/96		
Grasses										
P-27	<i>Agropyron fragile</i> ssp. <i>sibiricum</i>		72.7	2.0	6.110 a		61.0		14.7	
9075983	<i>Leymus chinensis</i>		74.3	1.3	5.423 ab		91.0		18.3	
9058207	<i>Agropyron desertorum</i>		67.3	3.0	4.850 abc		61.0		12.0	
9069758	<i>Achnatherum splendens</i>		73.0	2.0	4.761 abcd		54.7		28.7	
9058211	<i>Elymus exelsus</i>		146.0	1.3	4.591 abcd		67.7		15.0	
9058209	<i>Agropyron sibiricum</i>		63.7	2.7	4.000 bcde		65.3		14.3	
Rosana	<i>Pascopyrum smithii</i>		69.0	2.0	3.949 bcde		94.7		15.7	
Schwendimar	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>		86.0	3.7	3.893 bcde		51.0		17.7	
9057959	<i>Elymus tangutorum</i>		87.3	3.0	3.858 bcdef		62.7		12.0	
Hycrest	<i>Agropyron cristatum</i> X <i>desertorum</i>		66.7	3.3	3.852 bcdef		64.3		15.0	
Bozoisky	<i>Psathyrostachys juncea</i>		133.0	1.3	3.846 bcdef		82.7		29.3	
Critana	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>		67.0	2.7	3.747 bcdef		84.3		13.3	
9058210	<i>Elymus dahuricus</i>		112.3	2.3	3.555 bcdef		77.0		17.7	
9058206	<i>Agropyron cristatum</i>		64.0	2.3	3.398 bcdef		52.7		14.3	
Bannock	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>		82.1	2.3	3.393 bcdef		84.3		16.7	
9075984	<i>Elymus cylindricus</i> X <i>dahuricus</i>		114.3	3.7	2.868 cdefg		78.7		15.3	
9058213	<i>Elymus tangutorum</i>		95.3	3.7	2.701 cdefgh		53.0		10.7	
9075985	<i>Elymus purpuraristatus</i>		91.3	3.7	2.602 cdefgh		69.3		14.3	
9057957	<i>Elymus excelsus</i>		86.0	2.7	2.595 cdefgh		72.0		15.3	
9057956	<i>Elymus excelsus</i>		102.7	2.7	2.569 cdefgh		57.7		16.7	
9075990	<i>Agropyron sibiricum</i>		66.3	3.7	2.527 defghi		47.0		12.7	
9058214	<i>Roegneria ciliaris</i>		71.3	4.3	2.259 efghij		67.7		13.0	
Pryor	<i>Elymus trachycaulus</i> ssp. <i>trachycaulus</i>		90.7	4.0	2.250 efghij		77.7		7.7	
9075989	<i>Hordeum brevisubulatum</i>		72.0	3.7	2.166 efghij		88.7		16.0	
9057954	<i>Elymus purpurascens</i>		68.7	5.0	2.004 efghij		44.3		21.7	
9058212	<i>Elymus nutans</i>		60.7	4.7	1.986 efghij		69.3		13.3	
9075955	<i>Elymus cylindricus</i>		111.3	1.7	1.847 efghij		73.7		17.7	
9075991	<i>Agropyron mongolicum</i>		71.0	4.3	1.756 efghij		38.7		11.3	
Lodorm	<i>Nassella viridula</i>		47.3	5.0	1.583 fghij		62.0		18.0	
Goldar	<i>Pseudoroegneria spicata</i> ssp. <i>spicata</i>		70.0	5.3	1.000 ghij		28.7		12.0	
9057962	<i>Agropyron mongolicum</i>		71.3	5.0	0.930 ghij		25.3		13.0	

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			7/23/96	<u>1/</u> Vigor 7/23/96	MT/ha	<u>2/</u> 7/23/96		
Grasses continued.								
9057958	<i>Elymus nutans</i>		59.7	5.0	0.916	ghij	55.3	5.0
9058217	<i>Stipa grandis</i>		44.0	3.7	0.903	ghij	40.0	13.0
9058208	<i>Agropyron mongolicum</i>		62.0	5.7	0.597	ghij	26.0	14.0
9058215	<i>Roegneria pendulina</i>		31.3	7.3	0.444	hij	23.0	2.7
540441	<i>Leymus arenarius</i>		27.3	7.0	0.278	ij	11.0	10.0
9057963	<i>Puccinellia chinempoensis</i>		35.3	7.7	0.236	j	27.7	3.3
9005491	<i>Puccinellia nuttalliana</i>		33.3	8.3	0.167	j	26.0	0.0
9075982	<i>Puccinellia tenuifolia</i>		18.3	8.3	0.125	j	7.7	2.7
				Mean	2.578			
				CV	44.43 %			
				LSD	1.862			
Legumes & Shrubs								
9057988	<i>Astragalus adsurgens</i>		63.3	3.3	9.340	a	69.7	9.0
9057946	<i>Astragalus adsurgens</i>		91.7	2.7	6.958	a	66.7	8.0
Spredor III	<i>Medicago sativa</i>		48.0	3.0	6.626	a	80.3	22.3
Lutana	<i>Astragalus cicer</i>		52.7	2.3	6.302	a	71.0	10.7
9075986	<i>Melissitus ruthenicus</i> ^{3/}							
				Mean	7.307			
				CV	33.29 %			
				LSD	4.579			
9057950	<i>Ceratoides arborescens</i>		140.7	2.0	NA		83.3	NA
9063535	<i>Krascheninnikovia lanata</i>		54.0	3.0	NA		78.3	NA
9067481	<i>Krascheninnikovia lanata</i> ^{4/}							

1/ Vigor rated 1-9, 1 Best 9 Worst.

2/ Means within a column followed by the same letter are not significantly different as determined by Duncan's Multiple Range Test, P=0.05. MT/ha x 0.446 = ton (U.S.)/acre

3/ This accession was removed from test because of severe winterkill.

4/ This accession did not emerge after planting resulting in no data.