

Trout Creek, Nevada Off-Center Upland Advanced Test Site  
Summary of Progress 1987 - 2002  
Loren St. John, Team Leader Aberdeen Plant Materials Center  
Dan Ogle, Plant Materials Specialist, Idaho

## INTRODUCTION

The purpose of the Trout Creek Off-Center Advanced Test Site is to evaluate the potential of grasses and shrubs for revegetation and forage for livestock and wildlife in areas of 8 - 12 inch mean annual precipitation in northeastern Nevada and south central Idaho. The test site is located in MLRA D25, Owyhee High Plateau of the Western Range and Irrigation region of the intermountain western United States.

The test site is located approximately 20 miles southeast of the town of Jackpot, Nevada on land administered by the United States Department of Interior - Bureau of Land Management and in cooperation with the San Jacinto Ranch, Salmon River Grazing Association and the Northeast Elko Conservation District.

The test site was identified and an enclosure fence was built in 1987 to exclude livestock and rabbits. The enclosure is approximately 10 acres in size. Three soil series exist in the enclosure. The Devilsgait series consists of very deep, very poorly drained soils that formed in silty alluvium from mixed rock sources with a component of loess and volcanic ash. Texture is a stratified silt loam and silty clay loam and these soils are found on flood plains. The Kelk series consists of very deep, well drained soils that formed in alluvium and loess derived from volcanic rocks and these soils are found on inset fans, fan remnants, stream terraces, and fan skirts. Texture is silt loam. The Chiara soil series consists of shallow, well-drained soils that formed in alluvium from mixed rock sources with a loess mantle high in volcanic ash. The Chiara soils are found on summit shoulders and side slopes of fan piedmont remnants and plateaus and have fine sandy loam, loam and silt loam textures. The pH for the soil series on the test site range from 7 to 8 (National Cooperative Soil Survey).

The ecological sites are Loamy Bottom, Loamy, and Loamy Fan and with 8 to 10 inches mean annual precipitation. The natural vegetation includes bluebunch wheatgrass, Thurber needlegrass, basin wildrye, Nevada bluegrass, Sandberg bluegrass, bottlebrush squirreltail, Wyoming big sagebrush, and green and rubber rabbitbrush. Indian ricegrass, needle and thread grass, and sand dropseed are also common on sandy soils. Inland saltgrass and creeping wildrye are also found in bottomland areas if soil salinity is elevated. The elevation is 5480 feet above sea level, the mean annual temperature is about 46 ° F and the frost-free period is 100 to 120 days.

## MATERIALS AND METHODS

The off-center advanced test site is composed of six components: an inter-center strain trial of grasses; an inter-center strain trial of rangeland shrubs; a bottomland grass performance trial; a grass, forb and shrub display nursery; and riparian shrub testing

trials. This report summarizes the plant testing activities for all but the riparian shrub testing trials.

The inter-center grass strain trial includes 51 accessions arranged in species groups. Each species group is arranged in a complete randomized block design with 4 replications. The rangeland shrub inter-center strain trial includes 7 accessions of fourwing saltbush, *Atriplex canescens* and 6 accessions of winterfat *Krascheninnikovia* and *Ceratoides* spp. with each species group arranged in a complete randomized block design with 4 replications. The bottomland grass performance trial includes 5 accessions of wildrye *Leymus* spp. that are also arranged in a complete randomized block design with 4 replications. The grass, forb and shrub display nursery includes 64 accessions to allow visitors to view examples of released plant materials and promising accessions that are adapted to the general area. Tables 1, 2, and 3 list the accessions planted.

The existing vegetation prior to planting was dominated by Wyoming big sagebrush with an understory of Sandberg bluegrass, bottlebrush squirreltail and cheatgrass. The seedbed was prepared with an offset disk to break down the sagebrush plants, which were raked off the planting site following disking, and then the seedbed was smoothed and firmed with a culti-packer.

Seed for each accession was mixed with rice hulls prior to seeding to plant approximately 25 Pure Live Seeds (PLS) per square foot. A double disk drill with press wheels was used to plant the plots. Plots are 6.67 feet wide by 33 feet long. Row spacing is 10 inches with each plot consisting of 8 rows. Depth of seeding ranged from 0.25 to 0.75 inches dependent upon species. Plots were seeded November 16-19, 1987.

Three different seed mixtures were seeded on the area disturbed by seedbed preparation but not planted into plots. The perimeter of the test site that was disturbed was planted to a firebreak mixture. A guard row mixture was planted between the blocks of plots. The area between the guard rows and the firebreak mixture were planted to a cover crop mixture. The following lists the components of each seed mixture:

<u>Fire break mix</u>		<u>Guard row mix</u>	
(Pounds PLS per acre)		(Pounds PLS per acre)	
Sodar streambank wheatgrass	(3)	Canbar canby bluegrass	(1)
P-27 Siberian wheatgrass	(2)	Ephraim crested wheatgrass	(2)
Ephraim crested wheatgrass	(2)	P-27 Siberian wheatgrass	(2)
9003136 fourwing saltbush	(2)	Sodar streambank wheatgrass	(3)
Appar blue flax	(0.5)	Delar small burnet	(1)
<u>Cover Crop mix</u>			
(Pounds PLS per acre)			
P-27 Siberian wheatgrass	(5)		
Covar sheep fescue	(2)		

The site was evaluated in 1992 and forage production data was collected by clipping forage from each replicated grass plot, air drying the collected samples and weighing the dry sample. A 9.6 ft.<sup>2</sup> diameter circular frame was used to harvest the sample from near the middle of each plot. Samples were harvested August 11-13, 1992. Data is shown in the accompanying tables.

In 1995, the Display Nursery was evaluated and forage production data was obtained in the same manner as in 1992. Samples were harvested on July 27, 1995 with assistance of Idaho NRCS field office and Idaho State Department of Lands personnel.

On September 3, 2002 the replicated grass and shrub plots and the Display Nursery were evaluated. Percent stand and plant vigor was evaluated for all plots. Forage production was estimated for all grass plots based upon weight unit estimates, and plant height and canopy width data were collected from the replicated shrub plots. The replicated grass plots were also evaluated for their ability to spread.

The Twin Falls NRCS field office collected precipitation data from the installed rain gauge at the test site and the data is shown in Table 4. Precipitation ranged from 7.10 inches during the 1997 crop year to 16.50 inches during the 1995 crop year. The mean annual precipitation for the 14 years of data collected is 10.29 inches.

## SUMMARY OF EVALUATIONS AND DISCUSSION

Tables 1, 2, and 3 summarize evaluation data from the Trout Creek Off-Center Upland Advanced Test Site.

Group 1 (crested wheatgrass accessions) had the best overall stands 15 years after the site was planted. 'Hycrest' had the best stand during the September, 2002 evaluation and 'Nordan' had the best vigor. Hycrest also produced the most forage. In 1992, 'CD II' produced the most forage. The only accession that did not establish within this group was 'Paiute' orchardgrass, which probably should not have been seeded at the site because it is not usually adapted to areas with less than 16 inches of annual precipitation. None of the accessions in group 1 had spread appreciably beyond the plot they were seeded into.

The accession with the best stand in group 2 (Russian wildrye accessions) was 'Bozoisky-Select'. 'Sawki' had the poorest stand. Bozoisky-Select also had the best vigor rating after 15 years of establishment at the test site. Bozoisky-Select produced the most forage, both in 1992 and 2002. As with group 1, none of the accessions had spread beyond the plot they were seeded into.

Group 3 accessions (mammoth wildrye) had very poor or nonexistent stands, both in 1992 and 2002. Accession ND-691 was the only accession that was present during both evaluation dates and it had poor vigor in September, 2002.

AI Hybrid intermediate wheatgrass had the best stand and vigor rating in group 4 (intermediate and pubescent wheatgrass accessions) with a 21.0 percent stand at the

September, 2002 evaluation. AI Hybrid produced the most forage in 2002. In 1992, 'Topar' pubescent wheatgrass produced the most forage. AI Hybrid was also rated as having the best ability to spread within this group.

The accessions planted in group 5 (bluebunch wheatgrass and related wheatgrass accessions), did not fare too well at the Trout Creek Off-Center Upland Advanced Test Site. In 1992, all of the accessions, with the exception of accession number 9027395 were represented at the site based upon yield data. By 2002, most accessions had deteriorated to less than 1 percent stands. 'Secar' Snake River wheatgrass had a 1.3 percent stand at the 2002 evaluation with only fair vigor. None of the accessions within group 5 exhibited any ability to spread.

'Trailhead' basin wildrye had the best stand in group 6 with 45 percent stand at the September, 2002 evaluation and 'Prairieland' altai wildrye had the best vigor rating within this group of accessions. Accession number 9022151 beardless wildrye showed the strongest ability to spread within the group. Trailhead produced the most forage in 2002, while Prairieland produced the most forage in 1992. None of the accessions within group 6 exhibited any ability to spread.

'Sodar' streambank wheatgrass had the best stand within Group 7 which represents accessions of thickspike wheatgrass at the September, 2002 evaluation. 'Bannock' had the best plant vigor. 'Schwendimar' produced the most forage in both 1992 and 2002. Bannock exhibited the strongest ability to spread of the accessions within this group.

The Indian ricegrass accessions (Group 8) were not present at the September, 2002 evaluation. In 1992, 'Rimrock' produced the most forage.

'Magnar' basin wildrye had the best stand in the bottomland test block in 2002 and Trailhead had the best vigor rating. Trailhead produced the most forage in 2002 but only slightly more than Magnar. In 1992, Prairieland altai wildrye produced the most forage in the bottomland test block. Accession number 9022151 beardless wildrye had the best spreading ability of this group.

The average plant height and canopy width of the fourwing saltbush accessions after 15 years of establishment averaged 2.3 feet (Table 2). The best stands were produced by accessions that were 3 of the original accessions of Snake River Plains Selected Class Germplasm that was released by the Aberdeen Plant Materials Center in 2001. Those three accessions also had the best plant vigor ratings at the September, 2002 evaluation.

Accession number 9028608 Pamirian winterfat (an introduced species) had by far the best stand, best plant vigor, and was the largest of all the accessions of winterfat planted at the Trout Creek Off-Center Upland Advanced Test Site. Three of the original accessions of Northern Cold Desert Selected Class Germplasm (a native species) that was released by the Aberdeen Plant Materials Center in 2001 were planted at the site in 1987.

Table 3 summarizes the data collected from the Display Nursery in 1995 and 2002 and is ranked from greatest percent stand to least percent stand from the evaluation in September, 2002. 'Rosana' western wheatgrass had the best stand of the grasses. In 1995, 'P-27' Siberian wheatgrass produced the most forage. In 2002, Trailhead basin wildrye produced the most forage. 'Immigrant' forage kochia had the best stand of the forb accessions planted in the Display Nursery at the September, 2002 evaluation. 'Rincon' fourwing saltbush had the best stand of the shrub plots and was 4.5 feet tall by 4 feet in canopy width in September, 2002.

## CONCLUSIONS

The purpose of the Trout Creek Off-Center Advanced Test Site is to evaluate the potential of grasses and shrubs for revegetation and forage for livestock and wildlife in areas of 8 - 12 inch mean annual precipitation in northeastern Nevada and south central Idaho.

As a group, the crested wheatgrass accessions have the best stands fifteen years after the site was planted. The native wildrye group had the next best stands followed by the Russian wildrye accessions. The Indian ricegrass accessions had no stands remaining fifteen years after planting and the mammoth wildrye accessions appeared to not have established.

Forage production significantly declined for all accessions planted at the test site from data collected in 1992 to the data collected in 2002. The decline in stands and forage yields may be partially attributed to a series of 2 to 3 years of inadequate amounts of winter and spring precipitation before the evaluation conducted in 2002. The buildup of excess plant residues because the plants are not harvested periodically also tends to lower plant vigor and productivity.

Table 1.  
Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
Summary of September 3, 2002 Evaluation Data

**Replicated Grass Plots**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Ability <sup>3/</sup> to Spread	Forage Production <sup>4/</sup> (pounds per acre)	
							<b>2002</b>	<b>1992</b>
<b>Group 1</b>								
Hycrest	crested wheatgrass	<i>Agropyron cristatum x desertorum</i>	ARS	42.5	3.3	9.0	188	610
Fairway	crested wheatgrass	<i>Agropyron cristatum</i>	Canada	38.8	3.8	8.8	119	845
Ephraim	crested wheatgrass	<i>Agropyron cristatum</i>	Aberdeen	35.0	3.8	8.3	125	590
Nordan	crested wheatgrass	<i>Agropyron desertorum</i>	ARS	33.8	3.0	8.0	169	705
CD II	crested wheatgrass	<i>Agropyron cristatum x desertorum</i>	ARS	31.3	3.0	8.8	150	870
Kirk	crested wheatgrass	<i>Agropyron cristatum</i>	Canada	28.8	3.5	8.0	144	675
6x	crested wheatgrass	<i>Agropyron desertorum</i>	ARS	23.8	5.3	8.8	74	600
P-27	Siberian wheatgrass	<i>Agropyron fragile</i>	Aberdeen	23.8	3.3	8.3	126	720
Parkway	crested wheatgrass	<i>Agropyron cristatum</i>	Canada	15.5	3.5	8.3	90	845
U-33	crested wheatgrass	<i>Agropyron cristatum</i>	USFS	14.3	4.3	8.8	106	490
Paiute	orchardgrass	<i>Dactylis glomerata</i>	Aberdeen	0.0	9.0	9.0	0	0
<b>Mean</b>				<b>26.1</b>	<b>4.1</b>	<b>8.5</b>	<b>117</b>	<b>632</b>
<b>Group 2</b>								
Bozoisksy-Select	Russian wildrye	<i>Psathyrostachys juncea</i>	Bridger	31.3	2.8	9.0	194	1195
Syn A	Russian wildrye	<i>Psathyrostachys juncea</i>	ARS	22.5	3.8	8.3	131	850
Vinall	Russian wildrye	<i>Psathyrostachys juncea</i>	ARS	22.5	4.0	9.0	112	625
Swift	Russian wildrye	<i>Psathyrostachys juncea</i>	Canada	21.3	5.3	9.0	82	605
Cabree	Russian wildrye	<i>Psathyrostachys juncea</i>	Bridger	15.0	4.5	9.0	115	1180
Sawki	Russian wildrye	<i>Psathyrostachys juncea</i>	Bridger	4.5	5.0	9.0	39	745
<b>Mean</b>				<b>19.5</b>	<b>4.2</b>	<b>8.9</b>	<b>112</b>	<b>866</b>
<b>Group 3</b>								
ND-691	mammoth wildrye	<i>Leymus racemosus</i>	Bismarck	0.5	7.3	9.0	8	90
Volga	mammoth wildrye	<i>Leymus racemosus</i>	Meeker	0.0	9.0	9.0	0	0
PI-478832	mammoth wildrye	<i>Leymus racemosus</i>	Bridger	0.0	9.0	9.0	0	0
<b>Mean</b>				<b>0.2</b>	<b>8.4</b>	<b>9.0</b>	<b>3</b>	<b>30</b>

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>3/</sup> Observation of spreading ability by seed or vegetative means. Rated 1 readily spreads, to 9 no spread.

<sup>4/</sup> Dry matter forage yield was estimated by weight units in 2002 and by clipping plots in 1992. See text for further explanation.

Table 1 continued.  
 Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
 Summary of September 3, 2002 Evaluation Data

**Replicated Grass Plots**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Ability <sup>3/</sup> to Spread	Forage Production <sup>4/</sup> (pounds per acre)	
							<b>2002</b>	<b>1992</b>
<b>Group 4</b>								
AI Hybrid	intermediate wheatgrass	<i>Thinopyrum intermedium</i> x	ARS	21.0	2.8	3.0	71	700
Topar	pubescent wheatgrass	<i>Thinopyrum intermedium</i>	Aberdeen	17.5	4.5	5.0	41	885
Greenar	intermediate wheatgrass	<i>Thinopyrum intermedium</i>	Pullman	11.8	4.8	4.8	36	660
Luna	pubescent wheatgrass	<i>Thinopyrum intermedium</i>	Los Lunas	6.8	3.5	4.5	29	775
Oahe	intermediate wheatgrass	<i>Thinopyrum intermedium</i>	South Dakota	4.0	6.3	6.3	12	615
Rush	intermediate wheatgrass	<i>Thinopyrum intermedium</i>	Aberdeen	3.8	5.5	5.8	19	235
Tegmar	intermediate wheatgrass	<i>Thinopyrum intermedium</i>	Aberdeen	2.5	7.3	7.0	17	420
Amur	intermediate wheatgrass	<i>Thinopyrum intermedium</i>	Los Lunas	2.5	5.8	5.3	11	230
<b>Mean</b>				<b>8.7</b>	<b>5.0</b>	<b>5.2</b>	<b>30</b>	<b>565</b>
<b>Group 5</b>								
Secar	Snake River wheatgrass	<i>Elymus wawawaiensis</i>	Pullman	1.3	5.5	9.0	10	960
PI-232127	bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	Bridger	0.3	8.3	9.0	1	350
Whitmar	beardless wheatgrass	<i>Pseudoroegneria spicata</i> ssp. <i>inermis</i>	Pullman	0.3	8.5	9.0	1	485
9027396	RS wheatgrass	<i>Elymus hoffmannii</i>	ARS	0.0	9.0	9.0	0	155
Goldar	bluebunch wheatgrass	<i>Pseudoroegneria spicata</i>	Aberdeen	0.0	9.0	9.0	0	905
9027395	RS wheatgrass	<i>Elymus hoffmannii</i>	ARS	0.0	9.0	9.0	0	0
<b>Mean</b>				<b>0.3</b>	<b>8.2</b>	<b>9.0</b>	<b>2</b>	<b>476</b>
<b>Group 6</b>								
Trailhead	basin wildrye	<i>Leymus cinereus</i>	Bridger	45.0	3.3	8.8	331	495
Prairieland	altai wildrye	<i>Leymus angustus</i>	Bridger	28.0	2.8	4.8	173	835
9022152	beardless wildrye	<i>Leymus triticoides</i>	Aberdeen	23.8	4.3	3.8	30	755
Magnar	basin wildrye	<i>Leymus cinereus</i>	Aberdeen	23.8	3.5	5.3	181	450
9022151	beardless wildrye	<i>Leymus triticoides</i>	Aberdeen	13.8	3.0	2.3	23	815
Shoshone	beardless wildrye	<i>Leymus triticoides</i>	Bridger	1.0	6.8	6.5	4	30
<b>Mean</b>				<b>22.5</b>	<b>3.9</b>	<b>5.2</b>	<b>124</b>	<b>563</b>

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>3/</sup> Observation of spreading ability by seed or vegetative means. Rated 1 readily spreads, to 9 no spread.

<sup>4/</sup> Dry matter forage yield was estimated by weight units in 2002 and by clipping plots in 1992. See text for further explanation.

Table 1 continued.  
 Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
 Summary of September 3, 2002 Evaluation Data

**Replicated Grass Plots**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Ability <sup>3/</sup> to Spread	Forage Production <sup>4/</sup> (pounds per acre)	
<b>Group 7</b>							<b>2002</b>	<b>1992</b>
Sodar	streambank wheatgrass	<i>Elymus lanceolatus</i>	Aberdeen	9.0	5.5	5.0	14	745
Bannock	thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Aberdeen	3.0	4.0	4.5	8	850
Schwendimar	thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Pullman	2.0	5.0	4.8	19	1085
PI-236663	thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Pullman	1.0	5.3	5.8	5	0
PI-236664	thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Pullman	0.8	6.5	6.8	3	415
SL hybrid	thickspike wheatgrass	<i>Elymus lanceolatus</i> x	ARS	0.8	6.8	7.3	2	475
Critana	thickspike wheatgrass	<i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i>	Bridger	0.5	7.8	5.5	3	850
<b>Mean</b>				<b>2.4</b>	<b>5.8</b>	<b>5.6</b>	<b>7</b>	<b>631</b>
<b>Group 8</b>								
Nezpar	Indian ricegrass	<i>Achnatherum hymenoides</i>	Aberdeen	0.0	9.0	9.0	0	0
Rimrock	Indian ricegrass	<i>Achnatherum hymenoides</i>	Bridger	0.0	9.0	9.0	0	455
9035287	Indian ricegrass	<i>Achnatherum hymenoides</i>	Los Lunas	0.0	9.0	9.0	0	440
Paloma	Indian ricegrass	<i>Achnatherum hymenoides</i>	Los Lunas	0.0	9.0	9.0	0	110
<b>Mean</b>				<b>0.0</b>	<b>9.0</b>	<b>9.0</b>	<b>0</b>	<b>251</b>
<b>Bottomland Site</b>								
Magnar	basin wildrye	<i>Leymus cinereus</i>	Aberdeen	41.3	3.0	6.8	77	660
Trailhead	basin wildrye	<i>Leymus cinereus</i>	Bridger	35.0	2.3	8.0	78	590
Prairieland	altai wildrye	<i>Leymus angustus</i>	Bridger	6.5	3.5	7.3	10	690
9022151	beardless wildrye	<i>Leymus triticoides</i>	Aberdeen	3.8	6.8	6.0	6	545
Shoshone	beardless wildrye	<i>Leymus triticoides</i>	Bridger	0.0	6.8	9.0	0	440
<b>Mean</b>				<b>17.3</b>	<b>4.5</b>	<b>7.4</b>	<b>34</b>	<b>585</b>

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>3/</sup> Observation of spreading ability by seed or vegetative means. Rated 1 readily spreads, to 9 no spread.

<sup>4/</sup> Dry matter forage yield was estimated by weight units in 2002 and by clipping plots in 1992. See text for further explanation.



Table 2.  
Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
Summary of September 3, 2002 Evaluation Data

**Replicated Shrub Plots**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Plant Height (feet)	Canopy Width (feet)
9003126 <sup>a</sup>	fourwing saltbush	<i>Atriplex canescens</i>	Aberdeen	43.8	3.5	2.6	2.8
9003134 <sup>a</sup>	fourwing saltbush	<i>Atriplex canescens</i>	Aberdeen	41.3	3.5	2.5	2.7
9003136 <sup>a</sup>	fourwing saltbush	<i>Atriplex canescens</i>	Aberdeen	38.8	3.3	2.9	2.8
PI-478838	fourwing saltbush	<i>Atriplex canescens</i>	Los Lunas	20.5	4.0	2.6	2.9
Rincon	fourwing saltbush	<i>Atriplex canescens</i>	Meeker	16.3	4.8	2.9	2.1
Wytana	fourwing saltbush	<i>Atriplex canescens</i> x <i>nutallii</i>	Bridger	15.0	5.3	1.0	1.8
PI-478837	fourwing saltbush	<i>Atriplex canescens</i>	Los Lunas	1.8	7.3	1.3	1.0
			<b>Mean</b>	<b>25.3</b>	<b>4.5</b>	<b>2.3</b>	<b>2.3</b>
9028608	Pamirian winterfat	<i>Ceratoides latens</i>	Aberdeen	22.5	3.3	2.5	2.6
9007816 <sup>b</sup>	winterfat	<i>Krascheninnikovia lanata</i>	Aberdeen	10.5	4.8	1.8	1.4
9007813 <sup>b</sup>	winterfat	<i>Krascheninnikovia lanata</i>	Aberdeen	6.8	5.3	1.6	1.4
Hatch	winterfat	<i>Krascheninnikovia lanata</i>	Los Lunas	5.3	5.3	1.6	1.3
9007855 <sup>b</sup>	winterfat	<i>Krascheninnikovia lanata</i>	Aberdeen	5.3	5.5	1.3	1.3
PI-478840	winterfat	<i>Krascheninnikovia lanata</i>	Los Lunas	3.0	6.3	1.4	0.9
			<b>Mean</b>	<b>8.9</b>	<b>5.0</b>	<b>1.7</b>	<b>1.5</b>

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>a</sup> These accessions are 3 of the 4 original parent collections that make up Snake River Plains Fourwing Saltbush Selected Class Germplasm released by the Aberdeen Plant Materials Center in 2001.

<sup>b</sup> These accessions are 3 of the 5 original parent collections that make up Northern Cold Desert Winterfat Selected Class Germplasm released by the Aberdeen Plant Materials Center in 2001.

Table 3.  
Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
Summary of September 3, 2002 Evaluation Data

**Display Nursery**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Forage Production <sup>3/</sup> (pounds per acre)	
						2002	1995
<b>Grasses</b>						<b>2002</b>	<b>1995</b>
Rosana	western wheatgrass	Pascopyrum smithii	Bridger	70	3	50	1000
Trailhead	basin wildrye	Leymus cinereus	Bridger	60	5	250	1000
Bozoisky-Sel.	Russian wildrye	Psathyrostachys juncea	Bridger	60	3	130	950
Hycrest	crested wheatgrass	Agropyron cristatum x desertorum	ARS	55	4	130	200
Nordan	crested wheatgrass	Agropyron desertorum	ARS	55	3	120	200
Magnar	basin wildrye	Leymus cinereus	Aberdeen	50	5	200	850
Syn A	Russian wildrye	Psathyrostachys juncea	ARS	50	3	125	550
CD II	crested wheatgrass	Agropyron cristatum x desertorum	ARS	50	7	35	500
Ephraim	crested wheatgrass	Agropyron cristatum	Aberdeen	50	4	80	250
P-27	Siberian wheatgrass	Agropyron fragile	Aberdeen	45	3	100	1750
Vinall	Russian wildrye	Psathyrostachys juncea	ARS	40	5	75	100
Kirk	crested wheatgrass	Agropyron cristatum	Canada	40	5	70	50
Parkway	crested wheatgrass	Agropyron cristatum	Canada	40	5	70	800
Fairway	crested wheatgrass	Agropyron cristatum	Canada	40	5	60	600
Swift	Russian wildrye	Psathyrostachys juncea	Canada	30	3	80	950
Prairieland	altai wildrye	Leymus angustus	Bridger	25	2	75	400
Sawki	Russian wildrye	Psathyrostachys juncea	Bridger	20	4	50	1450
Covar	sheep fescue	Festuca ovina	Pullman	15	5	30	50
Cabree	Russian wildrye	Psathyrostachys juncea	Bridger	15	4	45	650
Arriba	western wheatgrass	Pascopyrum smithii	Los Lunas	10	7	5	350
9053823	Smooth brome	Bromus inermis	Meeker	5	4	5	100
Sodar	streambank wheatgrass	Elymus lanceolatus	Aberdeen	5	5	10	150
PI-478832	mammoth wildrye	Leymus racemosus	Bridger	trace	6	0	450
Volga	mammoth wildrye	Leymus racemosus	Meeker	trace	6	0	0
Secar	Snake River wheatgrass	Elymus wawawaiensis	Pullman	trace	4	0	50
Bannock	thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Aberdeen	trace	6	0	20
SL-hybrid	thickspike wheatgrass	Elymus lanceolatus x	ARS	trace	5	0	0

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>3/</sup> Dry matter forage yield estimated by weight units in 2002 and by clipping plots in 1995. See text for further explanation.

Table 3 continued.  
 Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
 Summary of September 3, 2002 Evaluation Data

**Display Nursery**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Forage Production <sup>3/</sup> (pounds per acre)	
						2002	1995
<b>Grasses</b>							
Topar	pubescent wheatgrass	Thinopyrum intermedium	Aberdeen	trace	6	0	50
Rush	intermediate wheatgrass	Thinopyrum intermedium	Aberdeen	trace	8	0	550
Jose	tall wheatgrass	Thinopyrum ponticum	Los Lunas	trace	8	0	750
Rodan	western wheatgrass	Pascopyrum smithii	Bismarck	trace	7	0	500
Rimrock	Indian ricegrass	Achnatherum hymenoides	Bridger	0	9	0	500
Paloma	Indian ricegrass	Achnatherum hymenoides	Los Lunas	0	9	0	0
Nezpar	Indian ricegrass	Achnatherum hymenoides	Aberdeen	0	9	0	0
Canbar	canby bluegrass	Poa secunda	Pullman	0	9	0	100
Sherman	big bluegrass	Poa secunda	Pullman	0	9	0	500
ND-691	mammoth wildrye	Leymus racemosus	Bismarck	0	9	0	0
Paiute	orchardgrass	Dactylis glomerata	Aberdeen	0	9	0	0
Whitmar	beardless wheatgrass	Pseudoroegneria spicata ssp. inermis	Pullman	0	9	0	50
Goldar	bluebunch wheatgrass	Pseudoroegneria spicata	Aberdeen	0	9	0	50
Critana	thickspike wheatgrass	Elymus lanceolatus ssp. lanceolatus	Bridger	0	9	0	50
Mandan	pubescent wheatgrass	Thinopyrum intermedium	Bismarck	0	9	0	0
Greenleaf	pubescent wheatgrass	Thinopyrum intermedium	Canada	0	9	0	50
Luna	pubescent wheatgrass	Thinopyrum intermedium	Los Lunas	0	9	0	200
Greenar	intermediate wheatgrass	Thinopyrum intermedium	Pullman	0	9	0	0
Oahe	intermediate wheatgrass	Thinopyrum intermedium	South Dakota	0	9	0	150
Amur	intermediate wheatgrass	Thinopyrum intermedium	Los Lunas	0	9	0	0
Tegmar	intermediate wheatgrass	Thinopyrum intermedium	Aberdeen	0	9	0	0
Alkar	tall wheatgrass	Thinopyrum ponticum	Pullman	0	9	0	0
Largo	tall wheatgrass	Thinopyrum ponticum	Los Lunas	0	9	0	0
Barton	western wheatgrass	Pascopyrum smithii	Manhattan KS	0	9	0	1100
Primar	slender wheatgrass	Elymus trachycaulus	Pullman	0	9	0	0
San Luis	slender wheatgrass	Elymus trachycaulus	Meeker	0	9	0	0
Pryor	slender wheatgrass	Elymus trachycaulus	Bridger	0	9	0	0

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>3/</sup> Dry matter forage yield estimated by weight units in 2002 and by clipping plots in 1995. See text for further explanation.

Table 3 continued.  
 Trout Creek Off-Center Advanced Test Site Inter-Center Strain Trial  
 Summary of September 3, 2002 Evaluation Data

**Display Nursery**

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Forage Production <sup>3/</sup> (pounds per acre)	
<b>Forbs</b>						<b>2002</b>	<b>1995</b>
Immigrant	forage kochia	<i>Kochia prostrata</i>	Los Lunas	1	2	5	1500
Delar	small burnet	<i>Sanguisorba minor</i>	Aberdeen	0	9	0	0
Appar	perennial flax	<i>Linum perenne</i>	Aberdeen	trace	8	0	0
Cedar	palmer penstemon	<i>Penstemon palmerii</i>	Los Lunas	0	9	0	0

Accession No.	Common Name	Scientific Name	Source	Percent <sup>1/</sup> Stand	Plant <sup>2/</sup> Vigor	Plant Height (feet)	Canopy Width (feet)
<b>Shrubs</b>							
Rincon	fourwing saltbush	<i>Atriplex canescens</i>	Meeker	70	2	4.5	4
9028608	Pamirian winterfat	<i>Ceratoides latens</i>	Aberdeen	50	3	2	2
Hatch	winterfat	<i>Krascheninnikovia lanata</i>	Los Lunas	10	4	1	1
Hobble creek	big sagebrush	<i>Artemisia tridentata</i> ssp <i>vaseyana</i>	USFS	0	9		
Pine Valley	black Sagebrush	<i>Artemisia nova</i>	USFS	0	9		
Wytana	fourwing saltbush	<i>Atriplex canescens</i>	Bridger	0	9		

<sup>1/</sup> Accessions ranked from greatest percent stand to least percent stand.

<sup>2/</sup> Rated 1-9 with 1 best, 9 worst.

<sup>3/</sup> Dry matter forage yield estimated by weight units in 2002 and by clipping plots in 1995. See text for further explanation.

Table 4.  
 Trout Creek Off-Center Advanced Test Site  
 Summary of Precipitation Gauge Readings <sup>1/</sup>  
 Courtesy of NRCS Twin Falls, Idaho Field Office

Month	Crop year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
October		0.00	0.20	0.10			0.90	1.70	0.00	0.10	0.90	0.10	0.15	1.75	
November			0.75	0.50	0.85						0.35	0.55	0.25	0.50	
December		1.00	0.15		1.60		0.40			2.20	0.35	0.75		0.30	2.00
January					0.20						1.40	0.75		0.20	
February				1.20	0.70			3.20			1.10	1.50		0.25	1.80
March				1.55	0.65	6.00	1.50	1.80			1.10	0.75	4.70	1.00	
April		4.50	4.20		0.75	1.40	2.20		6.70		0.80	2.50	0.90		2.20
May		0.60		1.35	0.70	1.00	2.10	5.00	2.70	1.30	0.50	2.50	2.15		3.35
June		1.00	2.00	2.50		2.05	0.10	3.70	0.30	3.50	1.80	1.70	0.30		1.15
July			0.90	1.80	3.40	0.80	0.00	0.30	1.40		1.45	0.05	0.00	3.85	-0.25
August		1.10			0.30	0.50	0.60	0.70	0.00		0.00	1.25	0.00		
September		0.40	1.40	0.35	0.30	0.20	0.10	0.10	0.00		1.85	0.00	0.00	0.50	1.00
Total		9.00	9.60	9.35	9.45	11.95	7.90	16.50	11.10	7.10	11.60	12.40	8.45	8.35	11.25

Mean annual precipitation from Crop year 1989 to 2002 is 10.29 inches.

<sup>1/</sup> Rain gauge readings not made at same time or each month. Monthly totals may be cumulative from prior reading.