Coffee Point Off-Center Advanced Test Site
1997 Progress Report
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## INTRODUCTION

The purpose of the Coffee Point Off-Center Advanced Test Site is to evaluate the potential of grasses for revegetation and forage for livestock and wildlife in areas of 8-10 inch annual precipitation in southeast Idaho. The site is in MLRA 11B, Snake River Plains of the Northwestern Wheat and Range region of the Intermountain United States.

The site is located in the Coffee Point Exclosure, approximately 25 miles northwest of Aberdeen on land administered by the USDI - Bureau of Land Management. The exclosure has been used by the Aberdeen Plant Materials Center for testing purposes since 1982. The off-center advanced test site is composed of two components, the inter-center strain trial and a display nursery and was seeded in November, 1994. For a detailed description of the project and site characteristics see the Coffee Point Off-Center Advanced Test Site - 1995 Progress Report.

## 1997 EVALUATIONS AND DISCUSSION

During the last week of August, 1996 the Coxs Well wildfire burned approximately 225,000 acres northwest of Aberdeen. The test site burned on August 30 and it appeared that the fire moved quite rapidly through the test plots. General observations of the test plots in October, 1996 were that all plots had begun to green up after the fire. The accessions which were seeded in 20 inch row spacings (Russian wildrye and basin wildrye) had twice as much regrowth.

Precipitation data is collected with a direct reading rain gauge which is located at the southeast corner of the exclosure. Although no long term site specific precipitation data exists for the Coffee Point exclosure, it is in a 8 -12 inch precipitation zone. During the 1996 crop year, 5.35 inches were received. The following summarizes precipitation received during the 1997 crop year:

| Sampling period | Precipitation |
|---|---|
| 10/10/96 - 4/3/97 | 1.80 inches |
| 4/3 - 5/15 | 0.60 |
| 5/15 - 6/16 | 1.35 |
| 6/16 - 7/9 | 0.45 |
| 7/9 - 9/8 | 2.50 |
| 9/8 - 10/8/97 | 0.60 |
| Total | 7.30 inches |

General observations of the plots on April 3, 1997 indicated that with the exception of the bottlebrush squirreltail accessions, all accessions in the test plots were green and had grown 1 to 2 inches.

The site was evaluated on May 15 and data was collected on plant height, percent stand, plant density and vigor. On July 9, plant height, forage production and vigor data were collected. A summary of this data is presented in Table 1. All evaluation data collected during 1997 was collected in an identical manner as in previous years.

Plant height data collected on May 15 ranged from 1.0 cm for 9040189 bottlebrush squirreltail to 24.8 cm for 'Trailhead' basin wildrye. On July 9, plant height ranged from 19.3 cm for 'Critana' thickspike wheatgrass to 48.3 cm for 'Schwendimar' thickspike wheatgrass (Table 1).

Percent stand data ranged from 0.8 percent for 9040189 bottlebrush squirreltail to 79.0 percent for Syn A Russian wildrye. Percent stand data was analyzed utilizing analysis of variance (ANOVA) and Duncan's Multiple Range Test. Means shown on Table 1 which are followed by the same letter are not significantly different.

Plant density ranged from 0.3 plants per foot$^2$ for 9040189 bottlebrush squirreltail to 6.0 plants per foot$^2$ for 'Bannock' thickspike wheatgrass. 'Hycrest' crested wheatgrass, 'Tetracan' Russian wildrye, and 'Sodar' streambank wheatgrass had the best vigor ratings (1.8) and 9040189 bottlebrush squirreltail had the worst vigor rating (8.8) during the May evaluation. In July, 'Mankota' Russian wildrye and Trailhead had the best vigor ratings (1.8) and 'Secar' Snake River wheatgrass had the worst vigor ratings (5.3).

Syn A, Hycrest, Mankota, and 'Ephraim' crested wheatgrass produced the most forage. Forage production data was analyzed utilizing analysis of variance (ANOVA) and Duncan's Multiple Range Test. Table 1 is arranged in order by forage production from greatest to least.

Data was also collected from the non-replicated display plots and is also shown on Table 1. 'Kirk' crested wheatgrass had the highest forage production and 'Canbar' canby bluegrass had the lowest forage production. The non-replicated forb and shrub plots were not sampled for forage production

It appears that the fire killed the accessions of winterfat and fourwing saltbush in the non-replicated display plots. 'Immigrant' forage kochia appeared to be least affected by fire with 8 plants counted in 1997. There were 17 plants in 1996.

The Display Nursery located at Coffee Point which was seeded in 1982 was observed on October 10 to determine which accessions had survived the fire in 1996. Of the 46 accessions which were seeded, 12 appear to have persisted and survived the fire quite well. Those accessions include:

Hycrest crested wheatgrass
Bozoisky Russian wildrye
Prairieland altai wildrye
Critana thickspike wheatgrass
Bannock thickspike wheatgrass
Sodar streambank wheatgrass
Whitmar beardless wheatgrass
Covar sheep fescue
Nordan crested wheatgrass

P-27 Siberian wheatgrass
Ephraim crested wheatgrass
Hatch winterfat

The Plant Materials Center plans to continue evaluating the site annually for the next two years to determine long term performance of the plant materials.

Table 1.
Coffee Point Inter-Center Strain Trial
Summary of 1997 Evaluation data

**Replicated Grass Plots**

| Accession No. | Common Name | Scientific Name | Plant Height (cm) 5/15 | Plant Height (cm) 7/9 | 1/ Percent Stand 5/15 | 2/ Plant Density 5/15 | 3/ Vigor 5/15 | 3/ Vigor 7/9 | 4/ Forage Production pounds/acre |
|---|---|---|---|---|---|---|---|---|---|
| Syn A | Russian Wildrye | Psathyrostachys juncea | 18.5 | 20.5 | 79.0 a | 2.0 | 2.0 | 2.0 | 1124 a |
| Hycrest | Crested Wheatgrass | A. cristatum x desertorum | 19.5 | 35.5 | 74.8 ab | 3.5 | 1.8 | 2.3 | 1031 ab |
| Mankota | Russian Wildrye | Psathyrostachys juncea | 16.0 | 19.8 | 72.0 ab | 2.0 | 2.0 | 1.8 | 1013 abc |
| Ephraim | Crested Wheatgrass | Agropyron cristatum | 13.3 | 38.3 | 71.0 ab | 4.3 | 2.8 | 3.8 | 1004 abc |
| Vavilov | Siberian Wheatgrass | Agropyron fragile sibiricum | 17.5 | 31.5 | 70.3 ab | 4.5 | 2.5 | 2.5 | 985 abc |
| P-27 | Siberian Wheatgrass | Agropyron fragile sibiricum | 15.5 | 40.3 | 69.3 ab | 3.8 | 2.3 | 2.5 | 985 abc |
| Bozoisky | Russian Wildrye | Psathyrostachys juncea | 21.8 | 22.0 | 69.0 ab | 2.3 | 2.5 | 2.5 | 734 bcd |
| PI-275459 | Siberian Wheatgrass | Agropyron sibiricum | 14.8 | 30.3 | 68.5 ab | 3.5 | 2.3 | 3.3 | 660 bcde |
| Tetracan | Russian Wildrye | Psathyrostachys juncea | 19.3 | 20.0 | 68.5 ab | 2.0 | 1.8 | 3.0 | 636 cde |
| Nordan | Crested Wheatgrass | Agropyron desertorum | 15.8 | 38.8 | 68.0 ab | 4.8 | 2.0 | 2.5 | 585 de |
| Trailhead | Basin Wildrye | Leymus cinereus | 24.8 | 38.3 | 67.0 ab | 2.8 | 2.3 | 1.8 | 534 de |
| Magnar | Basin Wildrye | Leymus cinereus | 22.3 | 34.3 | 65.3 abc | 2.3 | 2.5 | 2.3 | 534 de |
| Douglas | Crested Wheatgrass | Agropyron cristatum | 12.0 | 30.3 | 63.5 abc | 4.3 | 2.5 | 3.5 | 520 de |
| Sodar | Streambank wheatgrass | Elymus lanceolatus ssp. lanceolatus | 10.0 | 20.8 | 61.0 bcd | 5.5 | 1.8 | 2.3 | 520 de |
| Bannock | Thickspike Wheatgrass | Elymus lanceolatus ssp. lanceolatus | 15.0 | 40.0 | 51.5 cd | 6.0 | 3.3 | 2.0 | 506 de |
| Critana | Thickspike Wheatgrass | Elymus lanceolatus ssp. lanceolatus | 12.5 | 19.3 | 47.3 d | 5.0 | 3.5 | 2.0 | 479 de |
| 9019218 | Bottlebrush Squirreltail | Elymus elymoides | 12.5 | 20.5 | 32.8 e | 3.3 | 3.3 | 3.3 | 474 de |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SL-hybrid | | Elymus x Pseudoroegneria | 12.3 | 22.5 | 31.5 | e | 1.5 | 4.3 | 4.5 | 451 | de |

| Accession No. | Common Name | Scientific Name | Plant Height (cm) 5/15 | Plant Height (cm) 7/9 | 1/ Percent Stand 5/15 | | 2/ Plant Density 5/15 | 3/ Vigor 5/15 | Vigor 7/9 | 4/ Forage Production pounds/acre | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 9019219 | Bottlebrush Squirreltail | Elymus elymoides | 10.5 | 20.3 | 29.8 | e | 2.3 | 4.8 | 3.8 | 390 | de |
| Schwendimar | Thickspike Wheatgrass | Elymus lanceolatus ssp. lanceolatus | 13.3 | 48.3 | 20.3 | ef | 3.0 | 5.0 | 3.3 | 307 | ef |
| Secar | Snake River Wheatgrass | Pseudoroegneria spicata ssp. spicata | 14.3 | 22.8 | 11.5 | fg | 1.3 | 4.8 | 5.3 | 297 | ef |
| 9040189 | Bottlebrush Squirreltail | Elymus elymoides | 1.0 | 0.0 | 0.8 | g | 0.3 | 8.8 | 9.0 | 0 | * |
| 9040187 | Bottlebrush Squirreltail | Elymus elymoides | 0.0 | 0.0 | 0.0 | | * | 0.0 | 9.0 | 9.0 | 0* |
| 9024804 | Columbia Needlegrass | Stipa nelsonii v. dorei | 0.0 | 0.0 | 0.0 | | * | 0.0 | 9.0 | 9.0 | 0* |
| 9040137 | Columbia Needlegrass | Stipa nelsonii v. dorei | 0.0 | 0.0 | 0.0 | | * | 0.0 | 9.0 | 9.0 | 0* |
| Volga | Mammoth Wildrye | Leymus racemosus | 0.0 | 0.0 | 0.0 | | * | 0.0. | 9.0 | 9.0 | 0* |

1/ Percent stand is equal to basal cover. 5/17/97 percent stand data was analyzed utilizing Duncan's Multiple Range Test; P=0.05, CV=17.4; means followed by the same letters are not significantly different. Accessions marked with a * were not included in analysis.
2/ Plant Density is the number of plants per foot$^2$
3/ Rated 1-9 with 1 best, 9 worst.
4/ 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, CV=35.5; Accessions marked with a * were not included in analysis.

Table 1 continued

## Non-replicated Grass Display Plots

| Accession No. | Common Name | Scientific Name | Plant Height (cm) 5/15 | Plant Height (cm) 7/9 | 1/ Percent Stand 5/15 | 2/ Plant Density 5/15 | 3/ Vigor 5/15 | 3/ Vigor 7/9 | 4/ Forage Production pounds/acre |
|---|---|---|---|---|---|---|---|---|---|
| Kirk | Crested wheatgrass | Agropyron cristatum | 14 | 35 | 65 | 5 | 3 | 2 | 966 |
| Parkway | Crested wheatgrass | Agropyron cristatum | 15 | 34 | 68 | 4 | 3 | 2 | 855 |
| Fairway | Crested wheatgrass | Agropyron cristatum | 12 | 26 | 65 | 5 | 3 | 4 | 669 |
| Pryor | Slender wheatgrass | Elymus trachycaulis | 13 | 45 | 15 | 1 | 5 | 4 | 260 |
| San Luis | Slender wheatgrass | Elymus trachycaulis | 0 | 0 | 0 | 0 | 9 | 9 | 0 |
| Newhy | RS Hybrid | Elytrigia x Pseudoroegneria | 15 | 40 | 38 | 5 | 3 | 2 | 892 |
| Canbar | Canby bluegrass | Poa secunda | 12 | 21 | 23 | 2 | 3 | 4 | 149 |
| Whitmar | Beardless wheatgrass | Pseudoroegneria spicata inermis | 20 | 35 | 20 | 1 | 4 | 3 | 557 |

## Non-replicated Forb and Shrub Display Plots

| Accession No. | Common Name | Scientific Name | Plant Height (cm) 5/15 | Number of Plants/Sample Rows 5/15 | Vigor 5/15 |
|---|---|---|---|---|---|
| 9021471 | Fringed sage | Artemisia frigida | 0 | 0 | 9 |
| Lutana | Cicer milkvetch | Astragulus cicer | 0 | 0 | 9 |
| Rincon | Fourwing Saltbush | Atriplex canescens | 0 | 0 | 9 |
| Wytana | Fourwing Saltbush | Atriplex canescens | 0 | 0 | 9 |
| 9067480 | Fourwing Saltbush | Atriplex canescens | 0 | 0 | 9 |
| Timp | Utah Sweetvetch | Hedysarum boreale | 6 | 3 | 3 |
| Immigrant | Forage Kochia | Kochia prostrata | 10 | 8 | 3 |
| Pamirian | Winterfat | Krascheninnikovia ceratoides | 0 | 0 | 9 |
| 9067481 | Winterfat | Krascheninnikovia lanata | 0 | 0 | 9 |

| | | | | | |
|---|---|---|---|---|---|
| 9063535 | Winterfat | Krascheninnikovia lanata | 0 | 0 | 9 |
| Hatch | Winterfat | Krascheninnikovia lanata | 0 | 0 | 9 |
| Richfield sel. | Firecracker penstemon | Penstemon eatonii | 0 | 0 | 9 |
| Clearwater sel. | Alpine penstemon | Penstemon venestus | 4 | 1 | 3 |

1/ Percent stand is also equal to basal cover.
2/ Rated 1-9 with 1 best, 9 worst.