

Intermountain Greenstripping and Rehabilitation Research Project
Native Grass Seed Production Study
Loren St. John, Assistant Manager

In 1995, the Aberdeen Plant Materials Center (PMC) entered into a cooperative study with the Bureau of Land Management (BLM) and the Forest Service Shrub Laboratory to study the effects of agronomic practices on the production of seed from two grasses native to the intermountain west: Thurber's needlegrass *Stipa thurberiana* and bottlebrush squirreltail *Elymus elymoides*. The agronomic practices being evaluated are: irrigation; no irrigation; fertilization plus irrigation; and fertilization with no irrigation.

Approximately 1100 plants of each species were delivered to the PMC by the Shrub Lab on April 6, 1995. The plants were in 164 ml cone-tainers. The plants arrived in poor condition, heavily root-bound with a dense layer of moss growing around the stems above the soil surface. The plants were placed in the greenhouse and clipped to approximately 2.5 cm height to remove plant litter and the moss was also removed. The plants were irrigated once a week until they were transplanted to field 4 at the PMC Home Farm.

The experimental design is a modified strip plot design. Fertilization and irrigation treatments are randomized and species are maintained within their separate blocks. Each plot contains 50 plants (5 rows x 10 plants) with 30 x 91 cm plant spacing. Irrigated plots are furrow irrigated. Fertilized plots were treated with 84 kg/ha (75 pounds per acre) ammonium sulfate one week prior to planting. The fertilizer was incorporated into the soil with a culti-packer.

Due to extremely wet field conditions during the month of May, transplanting was delayed until June 5. There were not enough bottlebrush squirreltail plants to complete the planting, lacking 100 plants. Immediately following transplanting, heavy precipitation occurred and continued sporadically until the end of June. On July 11, approximately 10 cm of irrigation water was applied to the irrigated plots. On July 18, Bronate was applied at 1.75 l/ha (1.5 pint/ac) to control redroot pigweed *Amaranthus retroflexus*. All plots were mowed on August 1 to a height of approximately 15 cm to knock down weed growth without clipping the transplanted plants. On August 31 approximately 10 cm of irrigation water was again applied to the irrigated plots.

On August 14, the project was evaluated to determine survival and vigor. The following table summarizes the evaluation data:

Species	Treatment	% Survival	Vigor*
Thurber's needlegrass (<i>Stipa thurberiana</i>)	irrigated	83.2	5.0
	non-irrigated	66.0	6.6
	irrigated + fertilizer	75.2	5.8
	non-irrigated + fertilizer	52.4	6.6
Bottlebrush squirreltail (<i>Elymus elymoides</i>)	irrigated	86.5	4.8
	non-irrigated	74.8	5.4
	irrigated + fertilizer	73.0	4.8
	non-irrigated + fertilizer	65.6	6.2

* Vigor is a rating of plant health. 1 is best, 9 is worst.

Some of the bottlebrush squirreltail plants had developed seed heads. Seed heads occurred in all treatments but not in all of the plots.

The fertilized plots will be fertilized next spring and seed will be harvested from the plots for analysis by the Shrub Lab.

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