

Intermountain Greenstripping and Rehabilitation Research Project
Native Grass Seed Production Study
1996 Progress Report
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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.

This report describes work completed during 1996. For a detailed description of the project see the report completed in 1995 titled "Intermountain Greenstripping and Rehabilitation Research Project - Native Grass Seed Production Study".

The fertilized treatments were not fertilized this spring as recommended by the Shrub Lab. On April 10, 1996 the project was evaluated for survival. The following table summarizes the evaluation data and is compared to data collected August 14, 1995:

Species	Treatment	8/14/95 % Survival	4/10/96 % Survival
Thurber's needlegrass (<i>Stipa thurberiana</i>)	irrigated	83.2	74.0
	non-irrigated	66.0	55.6
	irrigated + fertilizer	75.2	70.4
	non-irrigated + fertilizer	52.4	50.8
Bottlebrush squirreltail (<i>Elymus elymoides</i>)	irrigated	86.5	63.2
	non-irrigated	74.8	59.6
	irrigated + fertilizer	73.0	52.0
	non-irrigated + fertilizer	65.6	58.4

Of the Thurber's needlegrass plots, the non-irrigated + fertilizer treatment had the least mortality and the non-irrigated treatment had the greatest mortality between the two evaluation dates. Of the bottlebrush squirreltail plots, the non-irrigated + fertilizer treatment had the least mortality and the irrigated treatment had the greatest mortality between the two evaluation dates.

On April 30, Stan Kitchen from the Forest Service Shrub Laboratory visited the site to review progress. Because of the greater-than-expected mortality, it was decided to evaluate each plant for vigor and to base seed collection on a plant-by-plant basis in order to sample plants representative of each treatment. On May 13, each plant was rated for vigor and the data was sent to Stan. The bottlebrush squirreltail flowers were just starting to emerge from the sheath and most of the Thurber's needlegrass flowers had already emerged.

On June 4, approximately 10 cm of irrigation water was applied to the irrigated treatments. The bottlebrush squirreltail was flowering and the Thurber's needlegrass was finished flowering. On June 11, Steve Monsen and Stan Kitchen visited the site to review progress of seed development. On June 25, the Thurber's needlegrass was just beginning to shatter and the bottlebrush squirreltail was still in the early dough stage. On June 26 and 28, the first and second harvest of Thurber's needlegrass was completed. On July 2, the third harvest of Thurber's needlegrass and the first harvest of bottlebrush squirreltail were completed. On July 5 and 8, the second and third harvests of bottlebrush squirreltail were completed. Approximately 50 plants were harvested at each date and the seed is currently being evaluated by the Shrub Lab.

On August 3, all plots were irrigated with approximately 10 cm of water due to the extremely dry field conditions and on October 9 all plots were treated with Surflan (oryzalin) at a rate of 7.01 l/ha (3 qt/ac) as a pre-emergent to control annual weeds. The herbicide treatment was followed by a light irrigation to help incorporate the chemical into the soil. The fertilized plots will be fertilized next spring and seed will be harvested from the plots for analysis by the Shrub Laboratory.

It was also planned to direct seed a small amount of each species in field 14 this fall to evaluate seed production but due to wet weather and field conditions, the direct seeding will be delayed until field conditions allow.

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