

Great Basin Research Center

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GBRC Seed Increase Objectives:

1. Increase seed from wildland collections to support further research and increase distribution of native seed to commercial growers.

- In 2017 we sent STZ pooled sources of scarlet gilia (*Ipomopsis aggregata*), rocky mountain beeplant (*Cleome serrulata*) and annual sunflower (*Helianthus annuus*) to commercial growers for large-scale increase.

2. Keep detailed records of practices, plant growth, and production to assess methods to increase seed production of native species in agronomic settings.

- We used a chemical sealant (Pod Ceal®) to prevent beeplant seed pods from dehiscing, which allowed us to successfully harvest the seed using a plot combine once all seed had ripened.
- For scarlet gilia and Lewis flax (*Linum lewisii*) we combine harvested and threshed standing plant material at the end of the harvest season. Lewis flax yielded negligible amounts of seed from residual standing material, but nearly 40% of our total scarlet gilia seed harvest came from the standing material.
- We are collaborating with Andrea Kramer (Chicago Botanical Garden) and Scott Jensen (USFS) on a study to assess changes in populations through non-selective increase efforts for thick leaf penstemon (*Penstemon pachyphyllus*).

Species	Collections in Production	Peak Bloom Date (2017)	Harvest Dates (2017)	Harvest Method	Cleaned Seed Weight (g)
<i>Astragalus filipes</i>	1	-	7/16	Hand stripped	22.20
<i>Cleome serrulata</i>	6	8/17	9/18	Plot Combine	17,191.16
<i>Dalea searlsiae</i>	1	n/a	7/13 – 9/11	Vacuum	1,814.37
<i>Helianthus annuus</i>	5	8/31 - 9/11	10/12	Plot Combine	3,520.00
<i>Heliomeris multiflora</i> ssp <i>nevadensis</i>	5	7/12-7/26	8/10-9/18	Flailvac	2,563.30
<i>Ipomopsis aggregata</i>	4	6/8	6/29 – 8/17	Hopper and Racquet	1,860.05
<i>Linum lewisii</i>	8	6/8	6/22-8/16	Hopper and Racquet	6,758.52
<i>Penstemon eatonii</i>	4	n/a	n/a	n/a	n/a
<i>Penstemon pachyphyllus</i>	18	6/8	7/31 – 8/3	Plot Combine	7,228.40
<i>Penstemon palmeri</i>	19	n/a	n/a	n/a	n/a
<i>Sphaeralcea grossulariifolia</i>	8	8/17	8/24-9/27	Hopper and Racquet	n/a

Table 1. The 2017 production notes for the GBRC native plant materials increase project. All sources came from the 15-20 Deg. F/3-6 provisional seed zone (PSZ) for the Great Basin.



PROPAGATION



Native seed is collected from wild populations for increase grow-out. We either directly seed into production beds or fields, or propagate seed in the greenhouse for transplanting, depending on the amount of seed available.

GROWOUT



At our Fountain Green farm we have ~150 production beds with independent subsurface irrigation control.

Each bed is 5ft x 85ft with 5ft interspace between beds.

Beds are located at the north and south ends of the farm, with ~900 ft isolation distance between locations.

At our Ephraim farm we have ~7 acres under geo-controlled irrigation.

HARVEST and CLEANING



Harvest Equipment

- Plot Combine (left)
- Flailvac
- Hoops and Racquets
- Leaf-blower Vacuum (right)

Seed is harvested throughout the summer/fall and cleaned/stored at our seed warehouse.

When possible, seed is then sent to commercial growers for large-scale seed increase or for further research efforts.

