The Ins & Outs of Native Seed Production

Technical Summaries & Resource Availability

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Collection of Seed in NV

Wildland seed can be collected in Nevada after the appropriate approval process.

- Private landowner authorization
- Public land permitting process
- Permits are issued under strict stipulations
  - ie. Species sensitivity, collection volume, ecological site constraints, etc.

NDA’s Role:
- Certification of Seed
- Quality assurance service
- Promoting the collection / production of pure species
- Generational limitations

- 2019 statistics:
  - 139 certified sites in NV
  - 117,495 clean pounds tagged

SID Collection Sites - 2019
Indian Ricegrass (*Achnatherum hymenoides*) collection: Lyon County, Nevada

Wyoming Big Sagebrush (*Artemisia tridentata ssp. Wyomingensis*) collection: Elko County, Nevada

Winterfat (*Krascheninnikovia lanata*) collection: Lyon County, NV

Sandberg Bluegrass (*Poa secunda*) collection: Lander County, Nevada

Globemallow (*Sphaeralcea ambigua*) collection: Nye County, NV
Migration from the Wildlands

• Farming these species is possible:
  – Some common species that are currently in production would include:
    • Sulphur Flower Buckwheat
    • Indian Ricegrass
    • Sandberg Bluegrass
    • Bottlebrush Squirreltail
    • Bluebunch Wheatgrass
    • Western Yarrow
Technical Summary: Perennial Grass

Sandberg Bluegrass (*Poa secunda*)

**General Physiology:**
- Cool season grass
- Height @ maturity: 1.5 Ft.
- Perennial species
- Prefers slightly acidic to slightly alkali soils: 6.0 – 8.0

**Production Notes:**
- Planting Timeframe: Fall dormant/early Spring (October 15\textsuperscript{th} to November 15\textsuperscript{th} or April 1\textsuperscript{st} to May 15\textsuperscript{th})
- Harvest Timeframe: Typically 90 days after establishment
- Pounds per Acre Planted: 2.0 PLS lbs. per acre
- Expected Seed Yields: 100 – 400 lbs./acre (irrigated) / 75 – 150 lbs./acre (dryland)
- # of Seeds per Pound: 925,000 – 1,000,000
- Planting Depth: 1/8\textsuperscript{th} – ¼”
- Row Spacing: 18” – 24” rows (irrigated) / 30” – 36” rows (dryland)
- Time to Maturity: ~90 days after establishment
- Minimum Annual Precipitation Required: 8” annually
- Maximum Annual Precipitation Required: 16” annually
- Fertility Requirement: Low - Medium
- Frost Free Days (Minimum): 90
- Drought Tolerance: High
- Will produce seed first year? Typically no

**Potential Pests/Pathogens:**
- Grasshoppers, Jackrabbits, rodents
- Leaf and stem Rust
- Stem Maggots
## General Physiology:
- Cool season grass
- Height @ maturity: **3.0 Ft.**
- Perennial species
- Prefers slightly acidic to slightly alkali soils: **6.6 – 8.4**

## Production Notes:
- Planting Timeframe: Fall dormant/early Spring (October 15th to November 15th or April 1st – May 15th)
- Harvest Timeframe: typically 90 days after establishment
- Pounds per Acre Planted: 3 – 4 PLS lbs./Acre
- Expected Seed Yields: 150 – 250 lbs./acre (irrigated) / 75 – 100 lbs./acre (dryland)
- # of Seeds per Pound: 125,680
- Planting Depth: ¼” – ½”
- Row Spacing: 24” – 36” rows (irrigated) / 36” rows (dryland)
- Time to Maturity: ~90 days after establishment
- Minimum Annual Precipitation Required: 8” annually
- Maximum Annual Precipitation Required: 35” annually
- Fertility Requirement: Low
- Frost Free Days (Minimum): 90
- Drought Tolerance: High
- Will produce seed first year? Typically no
- **Potential Pests/Pathogens:** Grasshoppers and other insects
**Technical Summary: Perennial Grass**

**Bottlebrush Squirreltail** (*Elymus elymoides*)

**General Physiology:**
- Cool season grass
- Height @ maturity: 1.5 Ft.
- Perennial species
- Prefers slightly acidic to slightly alkali soils: 6.0 – 8.4

**Production Notes:**
- Planting Timeframe: Fall/early Spring (October 15\(^{th}\) to November 15\(^{th}\) or April 1\(^{st}\) – May 15\(^{th}\) )
- Harvest Timeframe: typically 90 days after establishment
- Pounds per Acre Planted: 2.4 PLS lbs./Acre
- Expected Seed Yields: 200 lbs./acre (irrigated)
- # of Seeds per Pound: 100,000
- Planting Depth: ¼” – ½”
- Row Spacing: 36” between rows
- Time to Maturity: ~90 days after establishment
- Minimum Annual Precipitation Required: 5” annually
- Maximum Annual Precipitation Required: 16” annually
- Fertility Requirement: Low
- Frost Free Days (Minimum): 90
- Drought Tolerance: High
- Will produce seed first year? Typically no

**Potential Pests/Pathogens:** Common Rust

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**Technical Summary: Perennial Forb**

**Western Yarrow** (*Achillea millefolium*)

### General Physiology:
- Rhizomatous Forb
- Height @ maturity: **3.0 Ft.**
- Perennial species
- Prefers slightly acidic to slightly alkali soils: **6.0 – 8.0**

### Production Notes:
- Planting Timeframe: Fall/early Spring (October 15\(^{th}\) to November 15\(^{th}\) or April 1\(^{st}\) – May 15\(^{th}\) )
- Harvest Timeframe: typically 90 days after establishment
- Pounds per Acre Planted: ½ - 1 PLS lbs./Acre
- Expected Seed Yields: 60 - 150 lbs./acre (irrigated)
- # of Seeds per Pound: 2,000,000
- Planting Depth: 1/8” - ¼”
- Row Spacing: 24” – 36” rows (irrigated)
- Time to Maturity: “90 days after establishment
- Minimum Annual Precipitation Required: 8” annually
- Maximum Annual Precipitation Required: 60” annually
- Fertility Requirement: Low
- Frost Free Days (Minimum): 120
- Drought Tolerance: Medium
- Will produce seed first year? Yes, especially when Fall sown
- Longevity of the field may be as great as **10 years**
Seed Production: Considerations

- **Sandberg Bluegrass**
  - For best establishment, seed should be planted into a firm, weed free, seed bed with a drill.
  - Seed production should not be attempted on dryland sites receiving less than 15” of annual precipitation.
  - Production is risky in regions that have a high probability of a killing frost past May 15th.
  - Fall dormant seedings are the preferred method throughout the intermountain West.
  - Seed should be planted 2 months prior to the most reliable precipitation.
  - Seed matures fairly quickly on the plant and shattering can occur. Plants should be monitored and evaluated for seed maturity frequently.
  - Seed tends to be small, so calibrating drills to apply accurate rates can be difficult.
  - Good seed production can be expected the second and third years of production, with a drastic loss in production occurring the fourth year.
  - Seed can be direct combined, but it is typical to swath and then combine from a cured windrow.

- **Bluebunch Wheatgrass**
  - Seed production has been very successful under cultivated conditions.
  - This species should be seeded with a drill at ½” in medium textured soils, ¼” in fine textured soils and ¾” or less in coarse textured soils.
  - Seed fields are productive for three to four years.
  - Seed matures fairly quickly on the plant and shattering can occur. Plants should be monitored and evaluated for seed maturity frequently.
  - Harvest is best accomplished through swathing, followed by combining of cured rows.
  - If direct combining, harvest should occur at 30% moisture. Seed should be dried down to 12% moisture if stored in bins or 15% if stored in sacks.
Common Equipment Used

- **Planting** – grain drill
- **Windrowed** – Swathed with draper header
- **Cure in field for 5-8 days**
- **Clean Seed** – Clipper 4 screen cleaner & gravity deck
- **Combine Windrows** – Standard grain combine

*Perennial Grass Production*
(Magnar Basin Wildrye & Bottlebrush Squirreltail)

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Native Seed Production Guides

- **Native Seed Production Manual for the Pacific Northwest**
- **Tallgrass Prairie Center: Native Seed Production Manual**
- **NRCS: Plant Guides and Fact Sheets**
**Additional Production Resources**

- **USDA – PLANTS Database**
  - [https://plants.sc.egov.usda.gov/java/](https://plants.sc.egov.usda.gov/java/)

- **Great Basin Native Plant Project**

- **NV Native Plant Society**
  - [https://nvnps.org/](https://nvnps.org/)

- **NV Dept. of Agriculture**
  - [http://agri.nv.gov/Plant-Industry/](http://agri.nv.gov/Plant-Industry/)

- **“Guidebook to the Seeds of Native and Non-Native Grasses, Forbs and Shrubs of the Great Basin”**
  - BLM, Idaho State Office

- **NRCS – Plant Materials Program: Releases**

- **National Seed Strategy**
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