

The Ins & Outs of Native Seed Production

Technical Summaries & Resource Availability

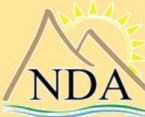


Russell Wilhelm
Seed Program Manager
March 10, 2020



Collection of Seed in NV

SOURCE IDENTIFIED SEED



Species Name:
Common Name:
Germplasm ID/Transfer Zone:
Generation:
G0 County, State, Elevation:
Lot #:
Certification #:

NOTICE TO BUYER: DISCLAIMER OF WARRANTIES AND LIMITATION OF DAMAGES.
THE SEEDS IN THIS CONTAINER ARE FROM A LOT OF SEED WHICH WAS INSPECTED IN ACCORDANCE WITH THE REGULATIONS OF THE NEVADA SEED CERTIFICATION SERVICE. IN NO EVENT WILL THE STATE OF NEVADA BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES. THIS DISCLAIMER MAY NOT BE ALTERED OR AMENDED.

IT IS UNDERSTOOD BY THE BUYER THAT "CERTIFICATION" OF ANY SEED LOT BY THE STATE OF NEVADA MEANS ONLY THAT THE CERTIFIED SEED LOT HAS BEEN VISUALLY INSPECTED AND THAT RANDOM SAMPLES HAVE BEEN TESTED AND HAVE BEEN FOUND TO BE IN COMPLIANCE WITH APPLICABLE STANDARDS AS SET FORTH BY THE NEVADA DEPARTMENT OF AGRICULTURE. CERTIFICATION OF ANY LOT IS NOT A GUARANTEE OR WARRANTY THAT THE CERTIFIED LOT IS FREE FROM DEFECTS SUCH AS DISEASE, ROT OR NOXIOUS WEEDS.

MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES

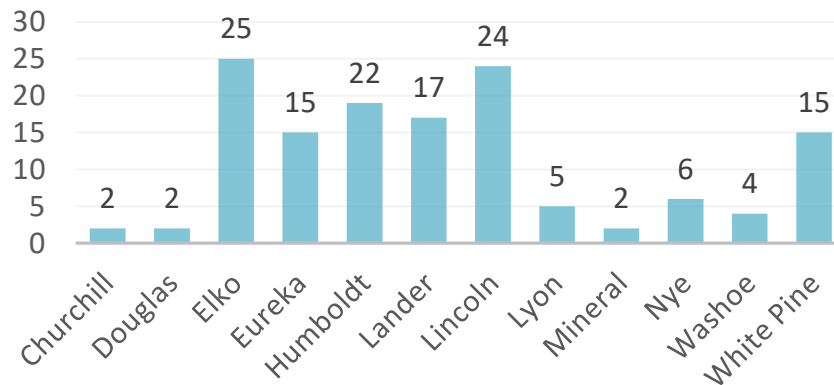
Wildland seed can be collected in Nevada after the appropriate approval process.

- 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



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



Globemallow (*Sphaeralcea ambigua*) collection: Nye County, NV



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



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

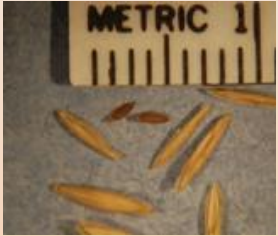
Migration from the Wildlands



- **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*)

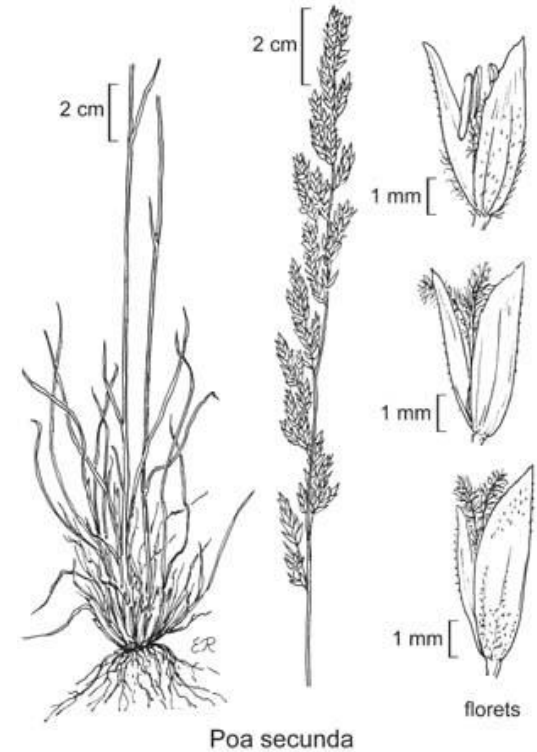


General Physiology:

- 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 15th to November 15th or April 1st to May 15th)
- 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: 1/8th – 1/4th”
- 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

Technical Summary: Perennial Grass



Bluebunch Wheatgrass (*Pseudoroegneria spicata*)



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

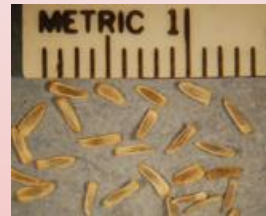
Production Notes:

- Planting Timeframe: Fall/early Spring (October 15th to November 15th or April 1st – May 15th)
- 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



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:

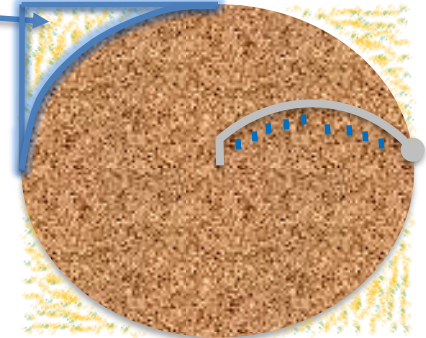
- Planting Timeframe: Fall/early Spring (October 15th to November 15th or April 1st – May 15th)
- Harvest Timeframe: typically 90 days after establishment
- Pounds per Acre Planted: ½ - 1 PLS lbs./Acre
- Expected Seed Yields: 60 - 150 lbs./acre (irrigated)
- # of Seeds per Pound: 2,000,000
- Planting 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.

Production on pivot corners



- **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



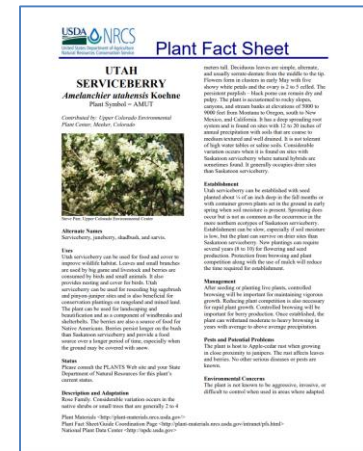
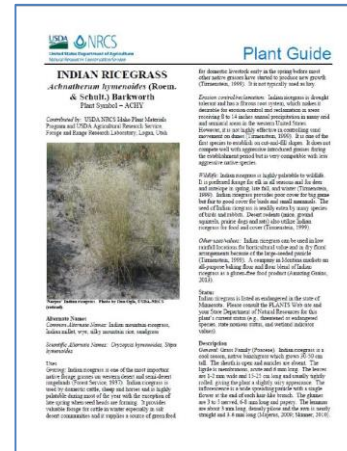
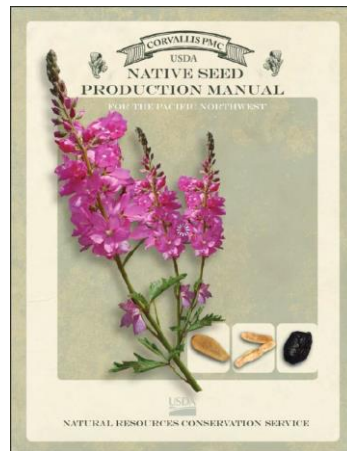
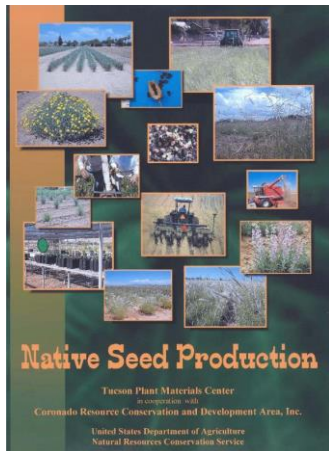
Combine
Windrows –
Standard grain
combine

Alternative Harvester:
Flail Vac



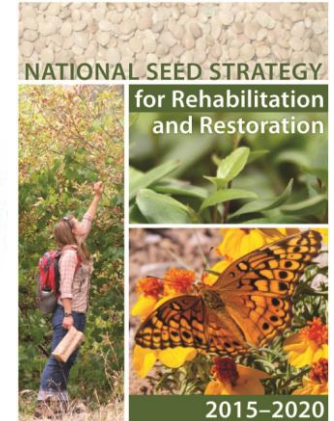
Native Seed Production Guides

- [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/>
- **Great Basin Native Plant Project**
 - <http://www.greatbasinnpp.org/>
- **NV Native Plant Society**
 - <https://nvnps.org/>
- **NV Dept. of Agriculture**
 - <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**
 - <https://www.nrcs.usda.gov/wps/portal/nrcs/releases/plantmaterials/technical/cp/release/>
- **National Seed Strategy**
 - https://www.fs.fed.us/wildflowers/Native_Plant_Materials/documents/SeedStrategy081215.pdf



Questions?



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