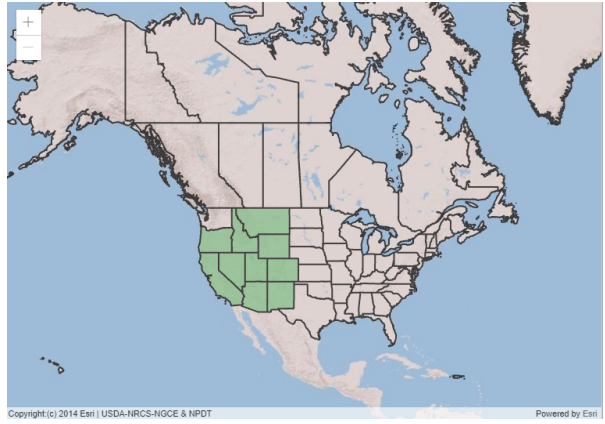


**Plant Propagation Protocol for *Achnatherum lettermanii***

ESRM 412 - Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/> [2022] [ACLE9.pdf]

<b>TAXONOMY</b>	
<b>Plant Family</b>	
Scientific Name	<i>Poaceae</i>
Common Name	Grass
<b>Species Scientific Name</b>	
Scientific Name	<i>Achnatherum lettermanii</i>
Varieties	No information provided
Subspecies	Achnatherum
Cultivar	No information provided
Common synonyms	<i>Stipa lettermanii</i>
Common name(s)	Letterman’s needlegrass
Species Code	ACLE9

<b>General Information</b>	
Geographical range	 <p>The map shows the geographical range of <i>Achnatherum lettermanii</i> in green, covering a large area in the western and central United States, including parts of California, Oregon, Nevada, Idaho, Utah, Arizona, and Colorado. The rest of North America is shown in light brown.</p>
Ecological distribution	Occurs across a wide range of elevations and

	<p>exposures. Found in mountain valleys, rocky ridges, open conifer forests and aspen woodlands. Susceptible to fire when burned during mid summer.</p> <p>Soils: Sandy loam, loam, silty clay loam, or clay loam. Typically occurs on dry soils 15 inches or more in depth, but can be found in very fertile or eroded soils.</p>
Climate and elevation range	Elevation ranges from 5000-11700 feet in areas that receive 16-20 inches of precipitation.
Local habitat and abundance	It grows in the Western half of the lower 48 in these states: Oregon, California, Nevada, Arizona, New Mexico, Colorado, Utah, Idaho, Wyoming, and Montana. The only Western state it does not grow in is Washington.
Plant strategy type / successional stage	Tufting perennial monocot bunchgrass.
Plant characteristics	<p>Densely tufted, slender, perennial bunchgrass which often forms large clumps. Grows from 6-60 inches in height. Fibrous root system. Produced primarily by seed, but also by tillering. Flowers from July to September.</p> <ul style="list-style-type: none"> <li>- Seedhead: Panicle is slender, loose and pale green. Spikelike and 3-8 inches long. Spikelets are 1/4 to 1/2 inches long. Glumes are prominently nerved on the back, 3-7 mm long. Awn is twice bent at 1.5 to 4.5 cm long. Callus is blunt, lemmas hairy along apex and 4 to 5 mm long. Palea is 3/4 the length of the lemma.</li> <li>- Leaves: Mostly basal, very fine and tightly rolled. 2 to 8 inches long. Sheaths open, auricles absent, ligules membranous.</li> <li>- Stems: Slender, smooth, 12 to 24 inches tall.</li> </ul>

**Propagation protocol for production of *Achnatherum* by Cheryl Decker.**

Ecotype	Zion National Park, Utah
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	D 40 containers
Time to Grow	1 Year
Target Specifications	Root System: Firm root plug in container.
Propagule Collection Instructions	Seeds are hand collected from sites within the Park when fruits have fully matured.
Propagule Processing/Propagule Characteristics	Seeds are stored in sealed containers under refrigeration between 40 and 60 degrees F.
Pre-Planting Propagule Treatments	Seeds are naturally stratified outdoors during fall months. Seeds are directly sown (3-5 per cell) into D40 cells containing a medium of 1.5 parts vermiculite, 1 part sterile sand, 1 part coarse turface, and 2 parts peat moss. Cells are watered thoroughly after sowing and are not allowed to dry out completely during stratification and germination.
Growing Area Preparation / Annual Practices for Perennial Crops	Seedlings are grown in a shadehouse from March through October.
Establishment Phase Details	Sometimes incorporate 13:13:13 NPK Osmocote time release fertilizer into the media.
Length of Establishment Phase	No information provided
Active Growth Phase	Seedlings are hand watered throughout the growing season after they are well established. Throughout the active growth phase, irrigate when containers are nearly dry as a method of hardening the plants while they are being grown.
Length of Active Growth Phase	No information provided
Hardening Phase	No information provided

Length of Hardening Phase	No information provided
Harvesting, Storage, and Shipping	No information provided
Length of Storage	No information provided
Guidelines for Outplanting / Performances on Typical Sites	No information provided
Other comments	No information provided

<b>Information Sources</b>	
References (full citations)	See below
Other Sources Consulted (but that contained no pertinent information) (full citations)	See below
Protocol Author	Dalton Harper
Date Protocol Created or Uploaded	05/24/2022

## Works Cited

- Achnatherum lettermanii*: Granite Seed. Granite Seed and Erosion Control. (n.d.). Retrieved May 25, 2022, from <https://graniteseed.com/seed/grass-species/achnatherum-lettermanii/>
- Achnatherum lettermanii* (Vasey) Barkworth. USDA plants database. (n.d.). Retrieved May 25, 2022, from <https://plants.usda.gov/home/plantProfile?symbol=ACLE9>
- Barkworth, (V., & Barkworth, M. E. (n.d.). *Achnatherum lettermanii*. *Achnatherum lettermanii* - FNA. Retrieved May 25, 2022, from [http://beta.floranorthamerica.org/Achnatherum\\_lettermanii#:~:text=Achnatherum%20lettermanii%20grows%20in%20meadows%20and%20on%20dry,to%20grow%20in%20shallower%20or%20more%20disturbed%20soils.](http://beta.floranorthamerica.org/Achnatherum_lettermanii#:~:text=Achnatherum%20lettermanii%20grows%20in%20meadows%20and%20on%20dry,to%20grow%20in%20shallower%20or%20more%20disturbed%20soils.)
- Letterman's needlegrass*, *Stipa lettermanii*. California Native Plant Society. (n.d.). Retrieved May 25, 2022, from [https://calscape.org/Stipa-lettermanii-\(\)](https://calscape.org/Stipa-lettermanii-())
- Letterman's needlegrass* (*Stipa lettermanii*). Letterman's Needlegrass (*Stipa lettermanii*) | Idaho Fish and Game. (n.d.). Retrieved May 25, 2022, from <https://idfg.idaho.gov/species/taxa/46556>
- Plant Database entry for Letterman's needlegrass* (*Stipa lettermanii*) with 4 images and 7 data details. Letterman's Needlegrass (*Stipa lettermanii*) - Garden.org. (n.d.). Retrieved May 25, 2022, from <https://garden.org/plants/view/79691/Lettermans-Needlegrass-Stipa-lettermanii/>
- Poaceae* (*Achnatherum*). RNGR. (n.d.). Retrieved May 25, 2022, from <https://rngr.net/npn/propagation/protocols/poaceae-achnatherum-2746>
- Program, M. N. H. (2022, May 25). MTNHP. Letterman's Needlegrass. Retrieved May 25, 2022, from <https://fieldguide.mt.gov/speciesDetail.aspx?elcode=PMPOA5X0H0>
- Range plants of Utah*. Letterman's Needlegrass. (n.d.). Retrieved May 25, 2022, from <https://extension.usu.edu/rangeplants/grasses-and-grasslikes/lettermans-needlegrass#:~:text=Letterman%20needlegrass%20occurs%20across%20a%20wide%20range%20of,the%20year%20and%20remains%20green%20throughout%20the%20season.>
- Stipa lettermanii* vasey. EOL. (n.d.). Retrieved May 25, 2022, from <http://prod.eol.org/pages/1115200>