

Plant Propagation Protocol for *Achnatherum occidentale*
 ESRM 412-Native Plant Production
 Spring 2009

Taxonomy

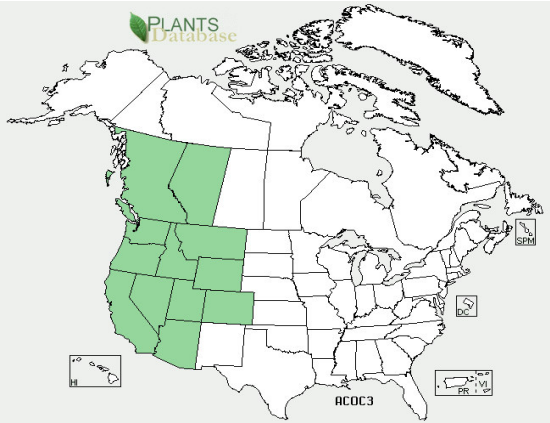
Family Names

Family Scientific Name	Poaceae (USDA)
Family Common Name	Grass

Scientific Names

Genus	Achnatherum (USDA)
Species	Achnatherum occidentale
Species Authority	Barkworth (USDA)
Variety	
Sub-species	Achnatherum occidentale ssp. californium, Achnatherum occidentale ssp. occidentale, Achnatherum occidentale ssp. pubescens
Cultivar	LK621e (USDA)
Authority for Variety/Sub-species	Barkworth (USDA)
Common Synonyms	Achnatherum occidentalis, Stipa occidentalis
Common Name	Western Needlegrass
Species Code	ACOC3 (USDA)

General Information

Geographical Range	 <p>(USDA)</p>
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Ecological Distribution	Rocky Hills, Plains, and Open woods. (USDA) Yellow Pine Forests, Red Fir Forests, Sub-alpine Forests, and Alpine Fell-Fields. (Johnson)
Climate and Elevation Range	Does not tolerate poor drainage or prolonged flooding (USDA). Prefers well drained moist, medium textured soils at an elevation of between 9843 to 11155 ft. (Johnson)
Local Habitat and Abundance; include commonly associated species	Dry Grasslands, Open Mountain Woodlands, High Elevations of sub-alpine forests. Commonly associated with mountain-mahogany, and bitterbrush. (Johnson)
Plant Strategy type/ successional stage	Competitive after maturity because they become unpalatable to grazers (Johnson) Perennial (USDA)
Plant Characteristics	Perennial bunchgrass, Blue-green foliage, densely tufted, hairy awn bent twice, fine inrolled leaves approximately 4-10 inches long, narrow blades (USDA)

Propagation Details

Ecotype	Collected from a native stand southwest of Canby CA at 4600ft above sea level in 1997. (Robson)
Propagation Goal	Seed (Robson)
Propagation Method	Seed (Robson)
Product Type	Propagule (Robson)
Stock Type	Container Plants (Small Containers) (Rose)
Time to Grow	Growth starts in mid-spring, matures between late August and early September. (Rose)
Target Specifications	Grows up to 12 dm tall (Rose)

Propagule Collection	Collected from the Colockum area. Transplanted 5 plants into pots in the Spring (March) before typical flowering season
Propagule Processing/ Propagule Characteristics	Planted at a density of 5/7 pounds of pure seed per acre. (USDA) Potted in a mixture of peat and vermiculite (Robson) Seeds per pound= 151,700 (Barner)
Pre-planting Propagule Treatments	Cleaned using a brush machine, and air cleaning. (Barner)
Growing Area Preperation/ Annual Practices for Perennial Crops	No information available.
Establishment Phase	Germinate 6-9 weeks after flowering (USDA)
Length of Establishment Phase	4 weeks (Barner)
Active Growth Phase	Watch for stunted growth due to weed competition (Rose)
Length of Growth Phase	Approximately five months (Rose)
Hardening Phase	Mid to late August. Reduce water. (Rose)
Length of Hardening Phase	6 weeks (Rose)
Harvesting, Storage and Shipping	Stored in cool, dry conditions (Rose)
Length of Storage	Store until spring- approximately seven or eight months (Rose)
Guidelines for Outplanting/ Performance on Typical Sites	Moderate grazing initially, protection from grazing once flowers start forming. Should be regulated to always have a stubble of at least 4 inches. (USDA) Seed has a higher survival rate when sown in the fall due to decreased weed competition (Rose)
Other Comments	Drought tolerant

Information Sources

References

1. Barner, Jim. 2008 Propagation Protocol for Production of *Achnatherum occidentale* (Thurb.) Barkworth seeds; USDA FS-R6 Bend Seed Extractory, Bend Oregon. In: Native Plant Network: URL: <http://www.nativeplantnetwork.org> (accessed 13 April 2009) Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery.
2. Johnson, Charles G. Common Plants of the Inland Pacific Northwest. Pacific Northwest Region: USDA Forest Service, 1998
3. Rose, Robin, Caryn Chachulski, and Diane L. Haase. Propagation of Pacific Northwest Native Plants. Corvallis: Oregon State UP, 1998
4. Robson, Kathleen A., and Jack Maze. "A Comparison of Rare and Common Grasses of the Stipeae: Greenhouse Studies of Growth and Variation in Four Species from Parapatric Populations". International Journal of Plant Sciences 156 (1995): 530-41. JSTOR. University of Washington, Seattle.
5. 12 Apr. 2009. Plant Database. Natural Resource Conservation Service. United States Department of Agriculture. 13 Apr. 2009 <<http://plants.usda.gov/index.html>>

<p>Other Sources Consulted</p>	<p>1. Hitchcock, Leo. <u>Key to the Grasses of the Pacific Northwest Based upon Vegetative Characters</u>. University of Washington Press, 1969</p> <p>2. Kester, Dale E., and Hudson Hartmann. <u>Plant Propagation: Principles and Practices</u>: 3rd Edition. New Jersey: Prentice Hall Inc, 1959</p> <p>3. Knobel, Edward. <u>Field Guide to the Grasses, Sedges and Rushes of the United States</u>. New York: Dover Publications Inc, 1977.</p> <p>4. Robson, Kathleen A., Alice Richter, and Marianne Filbert. <u>Encyclopedia of Northwest Native Plants for Gardens and Landscapes</u>. Portland: Timber P inc, 2008.</p> <p>5. The International Plant Propagators Society. <u>The International Plant Propagators combined Proceedings 1-30 (1951-80)</u></p>
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<p>Date Protocol Created</p>	<p>04-15-09</p>