

Plant Propagation Protocol for *Achnatherum richardsonii*

ESRM 412 – Native Plant Production

Protocol URL: [https://courses.washington.edu/esrm412/protocols/\[USDA Species Code.pdf\]](https://courses.washington.edu/esrm412/protocols/[USDA Species Code.pdf])

TAXONOMY	
Plant Family	
Scientific Name	Poacea
Common Name	Grass family
Species Scientific Name	
Scientific Name	<i>Achnatherum richardsonii</i> (Link) Barkworth
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	<i>Oryzopsis richardsonii</i> (Link) Beal, <i>Stipa richardsonii</i> Link, and <i>Stipa richardsonii</i> var. <i>major</i> Macoun are all synonyms (**Stipa).
Common Name(s)	Richardson’s needlegrass or spreading needlegrass
Species Code (as per USDA Plants database)	ACR18
GENERAL INFORMATION	
Geographical range	<p>Symbol: ACR18</p> <p>USDA-NRCS-NGCE esri</p>



Ecological distribution

FRES20 Douglas-fir
 FRES21 Ponderosa pine
 FRES26 Lodgepole pine
 FRES29 Sagebrush
 FRES36 Mountain grasslands
 FRES37 Mountain meadows
 FRES38 Plains grasslands (SPECIES)

Climate and elevation range

Populations in British Columbia live in warm, dry valleys of the sub-boreal zone (SPECIES). 1,000 meters to 3,100 meters (Plant).

Local habitat and abundance

Richard’s needlegrass can be found in grasslands, meadows, rocky slopes, hills, open woodlands, and pine forests in sand or gravel (Barkworth) (SPECIES). This plant is associated with:

Canada bluegrass	Poa compressa
prairie Junegrass	Koeleria cristata
rough fescue	Festuca altaica
Idaho fescue	F. idahoensis
bearded wheatgrass	Elymus caninus
western needlegrass	Achnatherum occidentale
timber danthonia	Danthonia intermedia

	tufted hairgrass	Deschampsia cespitosa
	sedges	Carex spp.
	shrubby cinquefoil	Potentilla fruticosa
	bearberry	Arctostaphylos uva-ursi
	timothy	Phleum pratense
	common yarrow	Achillea millefolium
	prairiesmoke avens	Geum triflorum
	northern bedstraw	Galium boreale
	Hood's phlox	Phlox hoodii
	bluebell	Campanula rotundifolia
Plant strategy type / successional stage	Richard's needlegrass is a climax species. The plant disperses its seeds by wind and is not drought-tolerant as its roots are quite shallow (SPECIES).	
Plant characteristics	The plant is a hemicryptophyte and graminoid with a lifespan of at least two years as it is a perennial (SPECIES) (USDA).	
PROPAGATION DETAILS		
Ecotype	Make sure seeds are taken from multiple populations and from multiple mother plants within the population. Make sure to also collect from mother plants in different microclimates including the dry and wet areas. Take caution in collecting only 10% of seeds from each population.	
Comments	These protocol details are revised and summarized from other related plants from the Achnatherum genus. The <i>Achnatherum lemmonii</i> lives in a dry climate and can inhabit rocky slopes like the <i>Achnatherum richardsonii</i> . Information from <i>Stipa comata</i> was also used for this protocol.	
Propagation Goal	Seed	
Propagation Method	Seed	
Product Type	Seeds should be put in 3 cubic inch plugs with peat (rose) or in rows of 16 in blow sand (Schmitt).	
Stock Type		

Time to Grow	more than one month (lowry)
Target Specifications	30 inches in length
Propagule Collection Instructions	Collection should start at the first shatter with a seed stripper about mid-June to July (USDA) (green needlegrass though). Be sure to observe when most are mature and collect then. Maturity of seed is dependent on timing.
Propagule Processing/Propagule Characteristics	125 pounds per acre (green needlegrass though)
Pre-Planting Propagule Treatments	Clean the seeds from the chaff and store in paper bag. One reference said no treatments needed for <i>Stipa</i> (Native). But another reference suggested <i>Acnatherum hymeniodes</i> can grow better with a 2-month cold stratification period (Lowry) and <i>Stipa lemmonii</i> is grown in a 12 week cold-moist stratification (Hammond).
Growing Area Preparation / Annual Practices for Perennial Crops	sow seeds in blow sand directly in ground, gallon, four inch pots, 60 cell tray 1.9x3.5 9 cu inch, or plug container (Popper) (Schmitt) (Hammond).
Establishment Phase Details	Sow seed in october (Popper). Takes within a month to germinate (lowry).
Length of Establishment Phase	
Active Growth Phase	
Length of Active Growth Phase	
Hardening Phase	Shade during the hottest time of year (lowry). No hardening unless planting in the fall in a restoration project. In this case, harden plants with at least -15°C/5°F (Darke).
Length of Hardening Phase	
Harvesting, Storage and Shipping	Plants are ready to be transplanted once the seedlings have 3-5 blades into four-inch pots. Then once roots fill the 4-inch pots, plants are ready to be outplanted in spring or early fall (Hammond).
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	Mulch heavily with non-fertile mulch after transplanting. Crowd the grasses together, leaving about half the size of the average plant between plants, to ensure that weeds don't have room to grow.

	water attentively until after the first dry season (lowry)
Other Comments	Much of this information is taken from information on related species.
INFORMATION SOURCES	
References	<p>Barkworth, Mary E. Manual of Grasses for North America. Logan, UT: Intermountain Herbarium and Utah State UP, 2007. Print.</p> <p><i>Darke, Rick. Manual of Grasses: The New Royal Horticultural Society Dictionary. Portland, OR: Timber, 1994. Print.</i></p> <p><i>Hammond, Eric, and Lynda Boyer. "Heritage Seedling & Liners Co." E-mail interview. 23 May 2017.</i></p> <p><i>Native Plants: A Viable Option. Vol. 3. Berkeley, CA: California Native Plant Society, 1997. Print.</i></p> <p>Lowry, Judith Lerner. <i>Gardening with a Wild Heart: Restoring California's Native Landscapes at Home.</i> Berkeley: U of California, 2007. Print.</p> <p>"Plant Detail Achnatherum Richardsonii." <i>Plant Detail: Achnatherum Richardsonii (Richardson's Needlegrass, Canada Mountain Ricegrass, Spreading Needlegrass).</i> Evergreen, n.d. Web. 20 May 2017.</p> <p>Popper, Helen Ann. <i>California Native Gardening: A Month-by-month Guide.</i> Berkeley: U of California, 2012. Print.</p> <p>Schmitt, RJ. "Landmark Turf & Native Seed." Telephone interview. 22 May 2017.</p> <p>"SPECIES: Achnatherum Richardsonii." <i>Achnatherum Richardsonii.</i> United States Forest Service, n.d. Web. 19 May 2017.</p> <p>USDA NRCS Bismarck Plant Materials Center. "GREEN NEEDLEGRASS Nassella Viridula (Trin.) Barkworth." <i>Plant Guide</i> (n.d.): n. pag. <i>USDA Plant Database.</i> USDA. Web. 22 May 2017.</p> <p>***Stipa Richardsonii Var. Major Macoun." <i>Tropicos Name -.</i> Missouri Botanical Garden, n.d. Web. 24 May 2017.</p>
Other Sources Consulted	Darke, Rick. <i>The Encyclopedia of Grasses for Livable Landscapes.</i> Portland: Timber, 2011. Print.
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