

Plant Propagation Protocol for *Penstemon venustus*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/PEVE2.pdf>

Picture of Distribution in WA:

<http://biology.burke.washington.edu/herbarium/imagecollection/images/spacer.gif>

Distribution in North America:

<http://plants.usda.gov/core/profile?symbol=PEVE2>

TAXONOMY	
Plant Family	Figwort ¹
Scientific Name ¹	<i>Scrophulariaceae</i>
Common Name	Lovely Penstemon
Species Scientific Name	<i>Penstemon venustus</i>
Scientific Name	<i>Penstemon venustus</i> Douglas ²
Varieties	None
Sub-species	None
Cultivar	None
Common Synonym(s)	None
Common Name(s) ²	Lovely Penstemon, Blue Mt. Penstemon, Beautiful Penstemon, Shrubby Venus Penstemon, Alpine Penstemon, Elegant Beardtongue
Species Code (as per USDA Plants database) ²	PEVE2
GENERAL INFORMATION	
Geographical range ²	<i>Penstemon venustus</i> is naturally found in Washington, Oregon, California, Inland NW Idaho and Utah
Ecological distribution ²	This species can be found in sunny, open slopes of recently disturbed sites of mountain valleys, foothills and dry, rocky conditions; USDA Plant Hardiness Zones 4a-8b
Climate and elevation range ^{7,8}	Elevations of 1,000-6,000 feet, subalpine; annual precipitation zone of 20-35+ inches/year
Local habitat and abundance ⁴	Adapted to well drained shallow rocky and sandy loam

	soils; full sunlight
Plant strategy type / successional stage ²	<ul style="list-style-type: none"> -Stress-tolerator with high seed abundance -Pioneer species with deep taproot and woody base good for soil stabilization -Not a nitrogen fixer
Plant characteristics ²	<ul style="list-style-type: none"> Perennial Forb and woody subshrub: -12 to 32 inches tall -Leaves are stiff, cauline, lanceolate and sharply serrate -Lavender purple flowers attract pollinators and insects including native bees and specialist pollen wasps
PROPAGATION DETAILS	
Ecotype	
Propagation Goal ²	Plants
Propagation Method ²	Seed
Product Type ²	Seed propagules or cuttings; container
Stock Type	Seeds ²
Time to Grow ^{2,5}	8-12 weeks for stratification; another 8-12 weeks for seedling growth
Target Specifications	Plants should be spaced 18 inches apart and grown to be 4-5 inches in height ²
Propagule Collection Instructions ^{2,10}	<ul style="list-style-type: none"> -Seeds should be harvested in late Fall -Seeds can be harvested by hand or mechanically using a hammer mill (after plants are swathed) then fanning mill -Harvesting should occur when the seed is mature, the capsules are dry and the seed is hard and dark in color -Capsules should be opened after harvesting and the seeds can be shaken free -Harvested material should be dried carefully to avoid molding
Propagule Processing/Propagule Characteristics ^{2,3}	<ul style="list-style-type: none"> -<i>P. venustus</i> should be seeded at a rate of 0.7 lbs/acre PLS -880,000 seeds/lb -Seed will remain viable in dry, cool storage conditions for at least 10 years
Pre-Planting Propagule Treatments ^{2,5}	<ul style="list-style-type: none"> -Stratify seed for 8-12 weeks in cold, moist conditions -Treating seed with gibberellic acid can reduce stratification time
Growing Area Preparation / Annual Practices for Perennial Crops ²	<ul style="list-style-type: none"> -Seeding should occur into cone containers or flats with surface sown -Use well drained soil -Thin covering of perlite will prevent excessive moisture

Establishment Phase Details ²	<ul style="list-style-type: none"> -Seeding should occur in late Fall to early Winter for natural stratification, or mimic these colder conditions -Seeded into 30-36 inch rows -Adding weed barrier fabric reduces weeds and keeps soil moist -Press seeds 1/8-1/4 inch deep into a firm seedbed Mulching and irrigation benefit propagation -Do not use broadleaf herbicides
Length of Establishment Phase ¹⁰	3-4 months
Active Growth Phase ⁹	<ul style="list-style-type: none"> -Early Spring through Summer -Many plants will not flower until second year
Length of Active Growth Phase ⁹	4-6 months
Hardening Phase ²	<ul style="list-style-type: none"> -Late Summer to the beginning of Winter -<i>P. venustus</i> is usually covered by snow for natural Winter conditions and blocked from sunlight
Length of Hardening Phase	2-3 months
Harvesting, Storage and Shipping ¹⁰	<ul style="list-style-type: none"> -Seedlings are ready for hardening and outplanting after 3-4 months -Keep chilled in Winter -Well drained soils are needed
Length of Storage ²	8-12 weeks
Guidelines for Outplanting / Performance on Typical Sites ¹⁰	<p>Survival rates are usually high if several precautions are followed:</p> <ol style="list-style-type: none"> 1. Plants are watered at the time of transplanting 2. Air pockets around the roots are eliminated
Other Comments	
INFORMATION SOURCES	
References	<ol style="list-style-type: none"> 1. Pojar, J., A. Mackinnon, and P.B. Alaback. 1994. Plants of the Pacific Northwest Coast: Washington, Oregon, British Columbia and Alaska. Redmond, WA: Lone Pine Publishing. 2. St. John, L., D. Tilley, and D. Ogle. 2011. Plant Guide for Venus penstemon (<i>Penstemon venustus</i>). USDA- Natural Resources Conservation Service, Plant Materials Center. Aberdeen, ID. 3. Ogle, D., L. St. John, M. Stannard, and L. Holzworth. 2011. Conservation Plants Materials for the Intermountain West. USDA- Natural Resources Conservation Service, Boise, ID (accessed 22 April 2015). 4. Jepson Flora Project, University of California, Berkeley. University and Jepson Herbaria. 2014. ucjeps.berkeley.edu/jepson_flora_project.html

	<p>(accessed April 23 2015).</p> <p>5.Kitchen, S., Meyer, S. 1991. Seed Germination of Intermountain <i>Penstemons</i> as influenced by Stratification and GA₃ Treatments. Journal of Environmental Horticulture. Pages 51-56. Accessed April 25 2015.</p> <p>6.University of Washington Herbarium, Burke Museum of Natural History and Culture. Seattle, WA. biology.burke.washington.edu/herbarium. 2015. Accessed April 22 2015.</p> <p>7. Dave's Garden, Plantfiles © 2000-2015. http://davesgarden.com/guides/ accessed 26 April 2015.</p> <p>8. L. St. John, and P. Blaker. New Native Plant Releases from USDA- NRCS Aberdeen, ID, Plant Materials Center.</p> <p>9. American <i>Penstemon</i> Society. Survival of Penstemons Seedlings Germinate and Grown. http://apsdev.org/library/. Accessed 26 April 2015</p> <p>10. Susan E. Meyer. The woody Plant Seed Manual. <i>Penstemon</i> Schmidel. USDA Forest Service Rocky Mt. Research Station.</p>
Other Sources Consulted	University of Washington Herbarium, Burke Museum of Natural History and Culture. Seattle, WA. biology.burke.washington.edu/herbarium. 2015. Accessed April 22 2015.
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