

Plant Propagation Protocol for *Vaccinium scoparium*

ESRM 412 – Native Plant Production

URL: [https://courses.washington.edu/esrm412/protocols/\[2025\]/\[VASC.pdf\]](https://courses.washington.edu/esrm412/protocols/[2025]/[VASC.pdf])

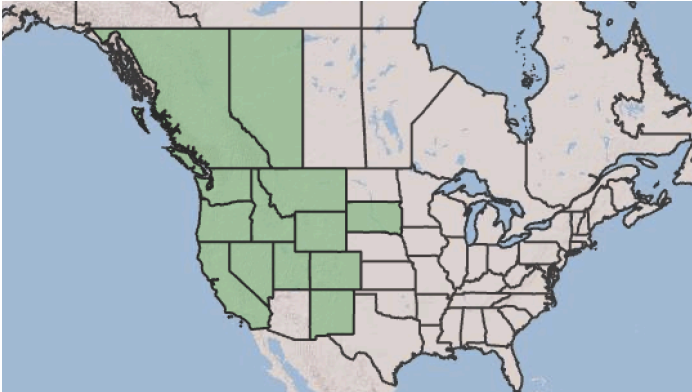


Burke Herbarium Image Collection
(Giblin, 2024)

TAXONOMY	
Plant Family	
Scientific Name	Ericaceae
Common Name	Heath family
Species Scientific Name	
Scientific Name	<i>Vaccinium scoparium</i> Leib.
Varieties	

Sub-species	
Cultivar	
Common Synonym(s)	<i>Vaccinium scoparium</i> Cov. (1)
Common Name(s)	Grouse whortleberry, grouse huckleberry, littleleaf huckleberry
Species Code (as per USDA Plants database)	VASC

GENERAL INFORMATION

<p>Geographical range</p>	 <p align="center">USDA Plant Database</p> <p>In the United States, grouse whortleberry occurs in CA, OR, WA, AZ, CO, ID, MT, NV, NM, SD, UT, and WY. In Canada, it occurs in British columbia and Alberta (1)</p>
<p>Ecological distribution</p>	<p>Occurs in rocky subalpine, alpine woods to open slopes (3) Open, dry forests, mid-to high elevations in the mountains (4)</p>
<p>Climate and elevation range</p>	<p>Found at elevation of 6,000 to 7,200 feet in California, 8,500 to 12,500 feet in Colorado, 4,800 to 9,000 feet in Montana, 7,870 to 8,360 feet in Wyoming (1)</p>

<p>Local habitat and abundance</p>	<p>Disjunct species of <i>V. scoparium</i> grows in Black hills of South Dakota, often dominates shrub layer in subalpine zone in the Rocky Mountains. (1)</p> <p>Grows in acidic soil in moist and dry sites. Most common in sandy or gravelly loams. Always present in the understory of lodgepole pine stands (3)</p> <p>Common associated species in Oregon and Washington: queencup beadlily, twinflower, woodrush, pinegrass, beargrass, sedges, bearberry, big huckleberry, menziesia, dwarf huckleberry, bunchberry, Cascade's rhododendron, white spirea, and red mountainheath (1)</p>
<p>Plant strategy type / successional stage</p>	<p>Stress-tolerator of harsh subalpine environments, high elevation, and acidic soils with low fertility</p> <p>Moderately resistant to trampling by hikers</p> <p>Shallow rhizomes make them susceptible to relatively minor soil disturbance (1)</p>
<p>Plant characteristics</p>	<p><i>V. scoparium</i> is a low deciduous shrub around 10-25cm tall. It has green slender angled branches growing from the base, giving it a broomlike appearance. Its leaves are green, small, thin, lanceolate or ovate-lanceolate, serrate, and glabrous. Leaves are arranged alternately along the branch.</p> <p>The flowers of <i>V. scoparium</i> are inconspicuous, solitary, pinkish, urn-shaped, short petiolate, and around 4mm long</p> <p>The plant produces small bright red berries, 3-6 mm in diameter (3)(4)</p>

PROPAGATION DETAILS: FROM SEED	
Ecotype	Colorado, Lake Irene (5)
Propagation Goal	Plants, seeds
Propagation Method	Seed
Product Type	Propagules (seeds, cuttings, poles, etc.)
Stock Type	
Time to Grow	Varies, <i>V. scoparium</i> are slow growing plants Around 1-2 years
Target Specifications	Height of 1-3 ft, 2-4 ft wide (8)
Propagule Collection Instructions	Collect seeds when berries are ripe, from mid July to September. Place berries in a plastic bag and store it at 5°C for a couple days to a few weeks (3)
Propagule Processing/Propagule Characteristics	Crush fruits to obtain seeds (5) Fill a blender with water and place berries into the blender. Blend for about 10 seconds. Pour excess water into the sink, including berry pieces and non-viable seeds. Fill blender with water and repeat the draining process until all berry parts are removed and all that remains are seeds at the bottom. Pour seeds onto a paper towel, and set it out to dry to prevent mold (7) Macerate the fruit and use floatation method to separate the seeds. Rinse seeds with water and dry before storage (3)

	<p>Seeds are cleaned by a macerator and screened Seeds/kg: 11,600,000/kg (9)</p>
<p>Pre-Planting Propagule Treatments</p>	<p>Seed does not need pretreatment to germinate (3)</p> <p>Germination may be best with cold stratification on warm nights with temperature of 10°C (3).</p> <p>Use a cold stratification method to mimic winter conditions and break seed dormancy. Place seed in moist medium and refrigerate for 30 to 60 days (8)</p>
<p>Growing Area Preparation / Annual Practices for Perennial Crops</p>	<p>Propagation environment: Greenhouse setting 65-70°F during day, 55°F at night. Propagated on heating pads set at 70°F under tent. Mist schedule set from 8am-8pm, with 10 sec / 15 min watering durations. Seedling moved to mister area without tent one week after germination occurs Germination mix: Fafard Germinating Mix (superfine) Growing mix: Fafard Growing Mix 2 (5)</p>
<p>Establishment Phase Details</p>	<p>Sow seeds on 4x8 flats, uncovered (5)</p> <p>Sow fresh or stored seeds into flats or small pots with a medium mixture of sand and peat moss. Seedlings will begin to emerge in a month. After 6 or 7 weeks of emergence, transplant seedlings into larger pots. Plant outside after the first growing season. Water as needed (3)</p>
<p>Length of Establishment Phase</p>	<p>19 days (5) 1 month (3) 2-4 weeks under optimal condition (8)</p>

Active Growth Phase	<p>Water consistently so roots are kept moist. Extra watering during drought conditions</p> <p>Management of plant: occasional burning to stimulate new growth and prune branches after picking berries to stimulate new growth and fruit production (3)</p> <p>Apply acid fertilizer such as ammonium sulfate during active growing season (early spring and mid-summer) (10)</p>
Length of Active Growth Phase	1-2 years (8)
Hardening Phase	<p>Plants given one final irrigation to prepare for winter (9)</p> <p>In August, water plants less frequently to encourage maturation (10)</p>
Length of Hardening Phase	<p>4 weeks 1st year, 16 weeks 2nd year (9)</p> <p>4 weeks (10)</p>
Harvesting, Storage and Shipping	Total time to harvest is 2-3 years. Store plants overwinter in outdoor nursery under insulating foam cover and snow (9)
Length of Storage	5 months (9)
Guidelines for Outplanting / Performance on Typical Sites	N/A
Other Comments	Propagation of <i>V. scoparium</i> from seed is difficult. Seeds are fragile and vulnerable to dessication (1)

PROPAGATION DETAILS: VEGETATIVE

Referenced experimentally derived protocol from (Flessner et al, 2003) and (Luna et al., 2008)

Ecotype	Lodgepole pine forest, West Glacier, Flathead Co., MT (9) Crater Lake National Park at 6,600 ft in elevation; in understory areas with well-developed duff layers (10)
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Container (plug) (9)
Stock Type	800 ml container (9) 2-year containers (10)
Time to Grow	2 years
Target Specifications	Stocktype: container cutting, Height: 6 cm, Root system: firm plug in 800 ml pot (9) Priority focused towards root growth and establishment than showy top (10)
Propagule Collection Instructions	Take summer softwood stem cuttings (9), select healthy stems that are 4-6 in long (8) Propagule chosen from well-established plants in late summer. Consists of carefully dug divisions with rhizomes attached (10)
Propagule Processing/Propagule Characteristics	Keep cuttings moist and refrigerated until pre-treatment is applied (9)

	<p>Divisions placed in moist peat during collection with added native soil duff; Transport with ice packs to keep divisions moist and cool (10)</p>
<p>Pre-Planting Propagule Treatments</p>	<p>Softwood cuttings are re-cut to about 7 cm, terminal buds are removed. Treat cuttings with 2,000 ppm liquid IBA and stick it in rooting medium that is 1:1 peat:perlite. Place under mist bed with bottom heat (9)</p> <p>For divisions, no treatment was applied. Kept in a walk- in cooler until mid-February. Checked monthly to ensure conditions of plant division is still good and peat is still moist (10)</p>
<p>Growing Area Preparation / Annual Practices for Perennial Crops</p>	<p>Misting system is automated at 6 second intervals every 6 minutes in the outdoor mist bed. Frequency adjusted depending on outdoor conditions. Bottom heat which promotes rooting is kept constant at 21°C using heating cables.</p> <p>Rooting medium: 50% perlite and 50% peat</p> <p>Potted cuttings are moved to shadehouse for a month, then moved to outdoor nursery and irrigated with Rainbird automatic irrigation system in the mornings.</p> <p>Nursery growing season is from late April to mid October (9)</p> <p>Divisions planted into 5” deep rooting boxes. Media contains equal portions of Sunshine #4 aggregate and vermiculite. Placed on mist bench with mild bottom heat to promote rooting (10)</p>
<p>Establishment Phase Details</p>	<p><i>V. scoparium</i> are fragile and slow establishing plants (10)</p>

	Cuttings were lifted out of mist bed after it had formed adequate root system (9)
Length of Establishment Phase	12 weeks (9) (10)
Active Growth Phase	<p>Cuttings are potted in 800 ml containers after it is lifted out of mist bed. Growing medium in the containers are 70% 6:1:1 milled sphagnum peat, perlite and vermiculite, 30% sand with osmocote controlled release fertilizer and Micromax fertilizer. After potting, cuttings are irrigated and placed in shadehouse until end of the growing season (9)</p> <p>1st year rooted divisions are potted into 4" square pots with rich organic soil mix. Pots are placed in lathhouse during summer. Application of acid-special fertilizer during growing season to aid in plant growth</p> <p>In the 2nd growing season, plants are transferred into 1 gallon containers. Application of aluminum sulfate to reduce soil pH. (10)</p>
Length of Active Growth Phase	<p>Cutting: 4 weeks 1st year, 16 weeks 2nd year (9)</p> <p>Division: April to July (10)</p>
Hardening Phase	<p>Plants are given one final irrigation before winterization (9)</p> <p>Kept plants under shade, with less frequent watering sessions in August (10)</p>
Length of Hardening Phase	4 weeks (9) (10)
Harvesting, Storage and Shipping	Total time to harvest is around 2-3 years. Storage in outdoor nursery overwinter under insulating foam and snow (9)

	During the 2nd year, plants were shipped to holding facility in Crater Lake by refrigerated van (10)
Length of Storage	5 months (9)
Guidelines for Outplanting / Performance on Typical Sites	N/A
Other Comments	Flessner et al. found that cuttings taken without a portion of rhizome or root attached were not successful to grow, and that 90 days stratification in moist peat/sand was not effective (10)
INFORMATION SOURCES	
References	See below
Other Sources Consulted	See below
Protocol Author	Vivian H. Nguyen
Date Protocol Created or Updated	05/20/25

References:

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(10) Flessner, Theresa R; Trindle, Joan D.C.. 2003. Propagation protocol for production of Container (plug) *Vaccinium scoparium* Leib. ex Coville plants 2-year containers; USDA NRCS - Corvallis Plant Materials Center Corvallis, Oregon. In: Native Plant Network. URL: <https://NativePlantNetwork.org> (accessed 2025/05/24). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

Photo:

<https://burkeherbarium.org/imagecollection/photo.php?Photo=wtu132011&Taxon=Vaccinium%20scoparium&SourcePage=taxon>