

Protocol Information

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Family Scientific Name: **Apiaceae**

Family Common Name: **Carrot family**

Scientific Name: ***Lomatium grayi* (J.M. Coult. & Rose.) J.M. Coult. & Rose**

Common Name: **Gray's biscuitroot**

Species Code: **LOGR**

Ecotype: **Intermountain West**

General Distribution: **Gray's biscuitroot occurs in Northwest North America, primarily from the Cascade and Sierra Nevada to the Rocky Mountains in Washington, Idaho, Oregon, Wyoming, Nevada, Utah, Colorado and New Mexico. There are two populations in British Columbia, Canada where it is considered a threatened species.**

Propagation Goal: **Seeds**

Propagation Method: **Seed**

Product Type: **Propagules (seeds, cuttings, poles, etc.)**

Time To Grow: **3 Years**

Target Specifications: **Field produced seed with >95% purity.**

Propagule Collection: **Seed matures in July into August. Wildland seed disarticulates readily and is easily hand collected. Very clean collections can be made by shaking ripened inflorescences over a bag or tarp.**

Propagule Processing: **Minor screening to remove sticks provides excellent purity. Additional cleaning can be done with an air-screen cleaner.. There are approximately 86,000 seeds/kg (39,000 seeds/lb) (Barner 2008).**

Pre-Planting Treatments: **Seed of Gray's biscuitroot requires a 3-month moist chilling to relieve dormancy (Shock 2011). Fall-**

dormant seeding is required for field germination.

Growing Area Preparation/
Annual Practices for Perennial Crops:

Seed production fields should be seeded at 25 to 30 PLS/ft. Rows planted on 75 cm (30 in) centers allow for between row cultivation and weed control. When using weed barrier fabric, plant seeds into 8 cm (3 in) holes at 30 to 45 cm (12 to 18 in) spacing.

Establishment Phase: Above ground growth is slow as young plants invest significant resources to produce a substantial taproot. Plants grow in early spring into summer and go dormant in mid-summer, giving the appearance of mortality. During the first year of establishment, most plants will only produce a few leaves.

Length of Establishment Phase: 1 yr

Active Growth Phase: Most plants will not produce flowers or fruit during the first 2 to 3 years of growth. Good weed control can be achieved through the use of weed barrier fabric and hand roguing. Because Gray's biscuitroot enters dormancy in early summer, foliar herbicide applications of glyphosate to surrounding weeds are possible after senescence. Highest seed yields have been achieved with the use of supplemental irrigation. Shock and others (2010) showed a significant positive response to irrigation with 10 and 20 cm (4 and 8 in) additional water at Ontario, Oregon. Ontario has a mean annual precipitation of 24 cm (9.5 in), bringing the total received water to approximately 46 cm (18 in) for optimum seed production.

Length of Active Growth Phase: 7 yrs

Harvesting, Storage and Shipping: Seed can be harvested in production fields via a vacuum type harvester or flail vac. Seed is cleaned using an air screen cleaner. Purities approximating 100% are achievable with minimal effort. Peak seed yields of over 1590 kg/ha (1,400 lb/ac) resulted from 20 cm (8 in) of supplemental irrigation (Shock and others 2010).

Outplanting performance on typical sites: Seed can be broadcast or drilled to 3 to 6 mm (1/8 to 1/4 in) depth into a well prepared, weed-free seed bed. This species should be seeded in late fall as a dormant planting to allow natural stratification. A single species seeding rate of approximately 23 lbs/ac provides 25 to 30 seeds/ft². Seeding rates should be adjusted to the desired percentage for use in a mixture.

References: Barner J. 2008. Propagation protocol for production

of *Lomatium grayi* seeds; USDA-FS-R6 Bend Seed Extractory, Bend, Oregon. In: Native Plant Network. URL: <http://www.nativeplantnetwork.org> (accessed 21 Dec 2010). Moscow (ID): University of Idaho, College of Natural Resources, Forest Research Nursery. Shock CC. 2011. Station native wildflower seed production trials. Oregon State University Extension. Malheur Experiment Station. Online. Available at: <http://www.cropinfo.net/crops/WildflowerSeedProd.html>. Accessed 5 February, 2011. Shock, CC, Feibert E, Saunders L, Shaw N. 2010. Native wildflower seed production with limited subsurface drip irrigation. Oregon State University Agricultural Experiment Station, 2009 Annual Report: 193-209. Tilley D., St. John L. Ogle D., Shaw N, Cane J. 2011. Plant guide for Gray's biscuitroot (*Lomatium grayi*). USDA-Natural Resources Conservation Service, Idaho Plant Materials Center. Aberdeen, ID

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