

**Plant Propagation Protocol for *Symphoricarpos longiflorus***

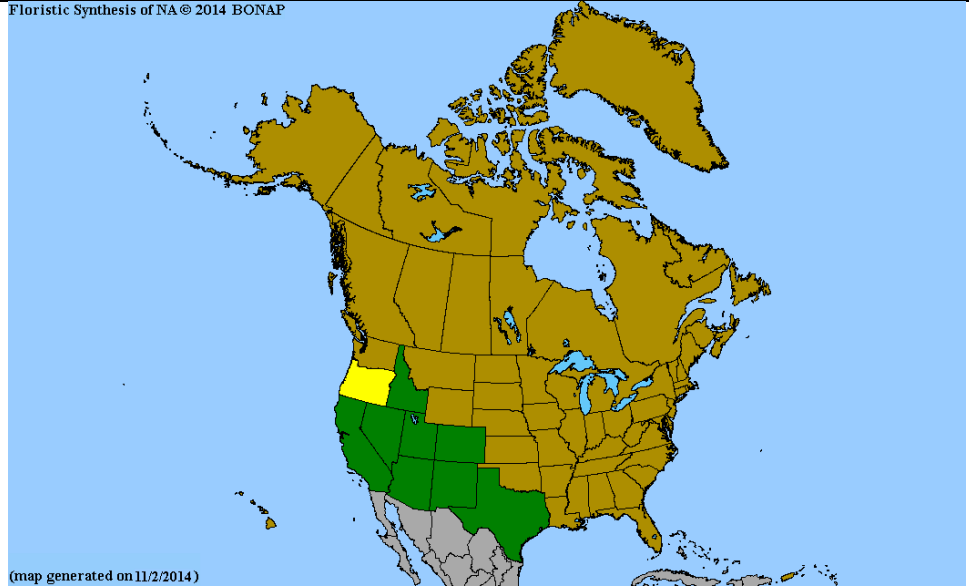
ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2026/SYLO.pdf>



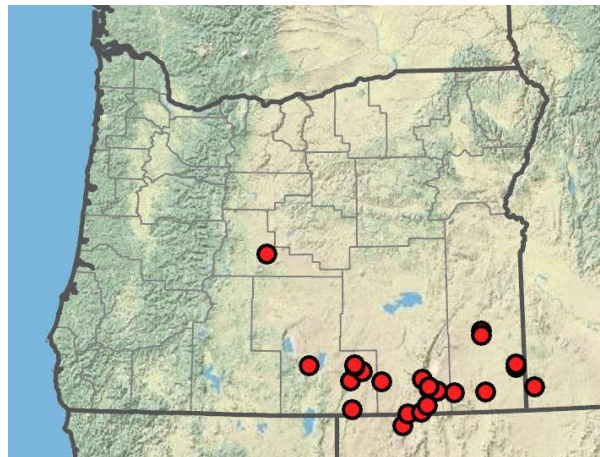
Credits: OregonFlora (12)

<b>TAXONOMY</b>	
Plant Family	
Scientific Name	Caprifoliaceae
Common Name	Honeysuckle family
Species Scientific Name	
Scientific Name	<i>Symphoricarpos longiflorus</i> A. Gray
Common Synonym(s)	<i>Symphoricarpos fragrans</i>
Common Name(s)	Desert snowberry, fragrant snowberry, longflower snowberry, longleaf snowberry
Species Code (as per USDA Plants database)	SYLO
<b>GENERAL INFORMATION</b>	
Geographical range	This species is native to the Great Basin and western US (AZ, CA, CO, ID, NM, NV, OR, TX, UT). (6) See maps below for distribution in North America (4) and for distribution in Oregon (12).



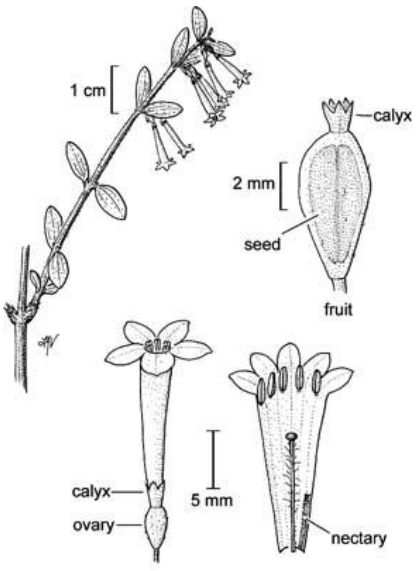
(map generated on 11/2/2014)

Distribution of *Symphoricarpos longiflorus* in North America (6)



Distribution of *Symphoricarpos longiflorus* in Oregon (12)

Ecological distribution	Ponderosa pine forests, sagebrush ecosystems, desert shrublands, chaparral-mountain shrublands, Pinyon-juniper forests. (6)
Climate and elevation range	This species tolerates a wide range of air temperatures (-29 °C to 38 °C) and grows well with a minimum mean annual precipitation of 8 to 9 inches (203-229 mm). This species occurs in elevations ranging from 3000 feet to 9514 feet (914 m to 2899 m). (6)
Local habitat and abundance	This species inhabits xeric sites and occurs with low sagebrush, big sagebrush, fringed sagebrush, black sagebrush, green rabbit brush antelope bitter brush and gray horse brush in Nevada. Additional species include Saskatoon serviceberry, curleaf mountain-mahogany, and Idaho fescue associate within pinyon-juniper woodlands (Nevada, Utah). (6)

Plant strategy type / successional stage	Life form is a phanerophyte and it takes on stress-tolerant strategy type, inhabiting within narrow ecological boundaries and on xeric sites. (6)
Plant characteristics	<p>This species is a highly branched perennial shrub and produces berry-like drupe with 2 nutlets. It ranges from 20 to 39 inches (50- 100 cm) tall with fibrous older branches and simple, opposite deciduous leaves. Perfect flowers are in terminal, few-flowered racemes or paired in leaf axils. (6) It reproduces primarily by seed and softwood or hardwood cuttings and can spread rapidly by layering. (5)</p>  <p style="text-align: center;">Symphoricarpos longiflorus</p> <p style="text-align: center;">© Regents of the University of California Source: Jepson Herbarium (11)</p>

**PROPAGATION DETAILS: SEED**

Ecotype	Seeds sourced from New Mexico, within ponderosa pine and mixed coniferous forests. (7)
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	164 ml conetainer (7)
Time to Grow	20 to 25 weeks (7)
Target Specifications	Target height of seedlings is 15 to 18 cm tall. (7) Seedlings reach up to 30 cm in height after one year of sowing. (4)

Propagule Collection Instructions	Fruit collected by hand picking or flailing plants with tarp underneath. Fruits are macerated and water is used to separate the pulp and empty seeds. Seeds and residue are dried and cleaned. (4) Fruits were collected between September and October at four sites throughout New Mexico with elevations ranging from 2377 to 2987 m. (7)
Propagule Processing/Propagule Characteristics	Fruits were soaked overnight and fermented for 48 hours. The fruits were then mashed and dried, then placed in a rubbing box to remove seeds. A Dakota blower was used to separate seeds from the pulp. Seeds are then stored at 5°C in paper envelopes until use (1 to 2 years before testing). (7)
Pre-Planting Propagule Treatments	Seeds undergo warm stratification by placing seeds in poly bags with moist peat moss and stored at 21 to 24 °C for 21 days. The seeds are submerged in 20 ml of 500 or 1000 ppm GA3 solution for 24 hours at room temperature. The seeds are then cold stratified by being placed in polyfill bags with peat moss for 168 days at temperatures from -1 to 6 °C. Using gibberellic acid solution helps degrade the seed coat as a substitute for sulfuric acid scarification and improves germination of cold stratified seeds (7). Additionally, cold stratification helps promote after-ripening of partially developed embryo in <i>Symphoricarpos longiflorus</i> . (1)  Alternatively, seeds can undergo prolonged warm stratification for up to 90 days in these conditions and skip acid scarification, preparing the seed for cold stratification and embryo maturation. (7)
Growing Area Preparation / Annual Practices for Perennial Crops	During establishment and early growth period, seedlings are kept in the greenhouse and moved to an outdoor nursery facility (shade house) after reaching 7 to 10 cm tall. The growing media used is a peat:perlite:vermiculite mixture (2:1:1) and are added to 164 ml conetainers. Irrigation heads are spaced throughout the bench with RainBird plastic MPR nozzles and controlled using a computer-controlled irrigation system. (8)
Establishment Phase Details	Seeds are sown in a hole made at the top of the medium, 2 to 4 mm deep. Containers are irrigated 4 to 8 times daily to maintain a moist growing environment. Greenhouse temperatures vary from 21 to 26 °C (day) and 18 to 22 °C (night) and ambient light is used with supplemental lighting every 2 hours for 5 minutes during the night. Thinning of germinants to one seedling per cell is performed after 14 days. (8)
Length of Establishment Phase	28 days (8)
Active Growth Phase	The earlier portion of this phase (up to week 4 and 5) is performed in the greenhouse with containers irrigated as needed (once every 4 to 5 days for few weeks. The seedlings are then moved to the shade house, where they are irrigated once every 2 to 3 days. Irrigation is performed early in the morning to

	allow sufficient drying of leaves and are also fertigated at a rate of 50 ppm with liquid fertilizer (20-10-10, N-P-K) until reach target shoot height (15 to 18 cm). (8)
Length of Active Growth Phase	12 to 15 weeks (8)
Hardening Phase	This phase begins once seedlings reach target shoot height where containers are leached with heavy irrigation to restrict further growth. Seedlings are also fertilized every third irrigation using the liquid base fertilizer (10-30-20, N-P-K) at a rate of 25 ppm N. (8)
Length of Hardening Phase	4 to 6 weeks (8)
Harvesting, Storage and Shipping	Seedlings are kept in shade house throughout the winter season and shipped by late February and early March. Irrigation intervals are extended and fertilizer is provided every fourth irrigation using the irrigation system. (8) Seedlings showed reduced germination after 5 years of storage at cold moist stratification conditions (1.1 to 3.3 °C). (10)
Length of Storage	Typically 5 months (8)
Guidelines for Outplanting / Performance on Typical Sites	Advisable to outplant seedlings during fall season, selecting well-drained, rocky sites with partial to full sunlight. (6)
Other Comments	Seed processing protocols developed according to this species having a partially developed embryo and tough seed coat. (6) Protocols are pulled from <i>Symphoricarpos oreophilus</i> due to limited information for <i>Symphoricarpos longiflorus</i> . <i>S. oreophilus</i> has 67% to 78% germination rate. (6) Additionally, desert snowberry has similar adaptive attributes to mountain snowberry and favors drier sites. (5)
<b>PROPAGATION DETAILS: VEGETATIVE</b>	
Ecotype	Nevada (2) Central New Mexico (9)
Propagation Goal	To determine rooting capacity of Nevada shrub species using stem cuttings. (2)
Propagation Method	Vegetative cuttings (softwood and semi-hardwood)
Product Type	Propagules (cuttings)
Stock Type	Copperblock 77/170, cell volume: 170 ml (2)
Time to Grow	18 to 23 weeks (9)
Target Specifications	Firm root plug, 15 to 20 cm (9)
Propagule Collection Instructions	Softwood and/or semi-hardwood stem cuttings of 0.3-2 cm in diameter are taken from dormant plants and cut 15-30 cm in length during twig growth stage (2) or of at least 18 cm in length (8). Cuttings are placed in poly bags and

	brought to nursery on ice in coolers. Cuttings are then placed within cooler and struck within 48 hours. (9)
Propagule Processing/Propagule Characteristics	Cuttings are trimmed to 15 cm in length, using a knife to make a diagonal cut at the basal end and removing terminal buds. (9)
Pre-Planting Propagule Treatments	<p>Stem cuttings were submersed in water and wrapped in newspapers for transportation. Basal ends cut and dipped into 0.8% indole-3-butyric acid (commercially produced talc) and placed on perlite, where they were kept on a mist bench. (2)</p> <p><b>Alternative method:</b> Stem cuttings are dipped into 500 ppm IBA (indole-3-butyric acid)/NAA (naphthaleneacetic acid) solution (of equal parts), dissolved in 50% isopropyl alcohol, for 5 seconds. Basal ends are dipped to a depth of 2 cm in solution, air dried, and struck to depth of 10 cm in media. Cuttings are placed on greenhouse bench with intermittent mist and bottom heat set at 20 °C. (9)</p>
Growing Area Preparation / Annual Practices for Perennial Crops	Rooting period and initial active growth occurs in greenhouse and later active growth occurs in outdoor nursery facility (shade house) after reaching 7 to 10 cm in height. Growing media used is peat:perlite:vermiculite mixture (2:1:1) and is added to 170 ml containers. Irrigation heads are spaced throughout the bench with RainBird plastic MPR nozzles and controlled using a computer-controlled irrigation system. (9)
Establishment Phase Details	Intermittent mist and bottom heat is maintained throughout growth period. Greenhouse diurnal temperatures range from 18 to 26 °C with ambient lighting used. Controlled release fertilizer of 14-14-14 (N-P-K) is added to the media at a rate of 4 kg/m <sup>3</sup> . (8) Alternatively, cuttings can be given a diluted fungicide (0.41g/liter) through the mist bench watering system. (2)
Length of Establishment Phase	7 to 8 weeks (9)
Active Growth Phase	Containers are irrigated once every 4 to 5 days for several weeks after rooting is complete, then switched to every 2 to 3 days for remainder of growth period. Plants are given liquid base fertilizer (20-10-10; N-P-K) at rate of 50 ppm N until reaching target shoot height. Temperatures are kept 21 to 26 °C during the day and 18 to 22 °C during the night. Ambient light is used with supplemental lighting with 75-watt incandescent lights used every 2 hours for 5 minutes during the night. (9)
Length of Active Growth Phase	15 to 18 weeks (9)

Hardening Phase	This phase begins once seedlings reach target shoot height where containers are leached with heavy irrigation to restrict further growth. Seedlings are also fertilized every third irrigation using the liquid base fertilizer (10-30-20, N-P-K) at a rate of 25 ppm N. (9)
Length of Hardening Phase	3 to 12 weeks (2), 4 to 6 weeks (9)
Harvesting, Storage and Shipping	Rooted cuttings are placed in paper containers with sandy loam soil. (2) Rooted cuttings are overwintered in shade house and shipped by late February/early March. Irrigation intervals are extended and fertile provided for every fourth irrigation. (9)
Length of Storage	3 months (2) to 5 months (9)
Guidelines for Outplanting / Performance on Typical Sites	Advisable to outplant seedlings during fall season, selecting well-drained, rocky sites with partial to full sunlight. (6)
Other Comments	Protocols are pulled from <i>Symphoricarpos oreophilus</i> due to limited literature information for <i>Symphoricarpos longiflorus</i> . The same geographical region is selected and similar to the natural elevation range of <i>Symphoricarpos longiflorus</i> .

### INFORMATION SOURCES

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