

**Plant Propagation Protocol for *Mertensia umbratilis***

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2024/MEUM2.pdf>

<b>TAXONOMY</b>	
<b>Plant Family</b>	
Scientific Name	Boraginaceae Juss.
Common Name	Borage family
<b>Species Scientific Name</b>	
Scientific Name	<i>Mertensia umbratilis</i> Greenm.
Varieties	No varieties
Sub-species	No sub-species
Cultivar	No cultivars
Common Synonym(s)	<i>Mertensia oblongifolia</i> (Nutt.) G. Don (3)
Common Name(s)	shade bluebells, shade lungwort
Species Code (as per USDA Plants database)	MEUM2
<b>GENERAL INFORMATION</b>	
Geographical range	<p>Found east of the Cascade Mountains in Washington (6) and northeast Oregon (3). Found in Chelan, Kittitas, Yakima, and Columbia County in Washington, and Crook and Union County in Oregon (4).</p>  <p align="right">(4)</p>
Ecological distribution	<p>Found on rocky slopes and forest openings. Often found near sagebrush (wildflower).</p>  <p align="right">(5)</p> <p><i>Mertensia umbratilis</i> in its natural habitat.</p>

Climate and elevation range	Moist areas (5), low to middle elevations (6)
Local habitat and abundance	This species has a narrow distribution (3).
Plant strategy type / successional stage	No information found
Plant characteristics	<p>Perennial forb/herb (4), it grows up to 2 feet tall (5), stems are upright and glabrous, leaves are thin, oval-shaped, and about 3-5 cm long (3), flowers are blue, pink, or purple and bloom April-June (5), fruits are 3.6-4.6 mm and wrinkled (3).</p>  <p>(6)</p>
<b>PROPAGATION DETAILS: FROM SEED</b>	
Almost all the information is based on similar species in the same habitat including <i>Mertensia viridis</i> and <i>Mertensia longiflora</i> .	
Ecotype	None
Propagation Goal	No information found for <i>Mertensia umbratilis</i> , for <i>Mertensia viridis</i> : Plants (1)
Propagation Method	<i>Mertensia viridis</i> : Seed (1)
Product Type	<i>Mertensia viridis</i> : Container (1)
Stock Type	No information found
Time to Grow	No information found
Target Specifications	No information found
Propagule Collection Instructions	Seed collection should likely occur around late summer, as flowering occurs in April-June and seeds need time after flowering to develop (5).
Propagule Processing/Propagule Characteristics	Fruits consist of 4 nutlets (5), seeds are 3.6-4.6mm (3). <i>Mertensia viridis</i> : Seeds have physiological dormancy (1).
Pre-Planting Propagule Treatments	<i>Mertensia viridis</i> : Seeds should be cold stratified for about six weeks to break physiological dormancy (1).
Growing Area Preparation / Annual Practices for Perennial Crops	<i>Mertensia longiflora</i> : Sow seeds in a cold frame early in the year. No information on size or media type (2).
Establishment Phase Details	<i>Mertensia longiflora</i> : Keep seeds out of direct sunlight when they are in the cold frame (2).

Length of Establishment Phase	No information found
Active Growth Phase	<i>Mertensia longiflora</i> : When seedlings are large enough, transfer each of them to individual containers in the greenhouse. Keep them in the greenhouse for their first winter (2). No information found on which type of containers or media.
Length of Active Growth Phase	No information found
Hardening Phase	No information found
Length of Hardening Phase	No information found
Harvesting, Storage and Shipping	No information found
Length of Storage	No information found
Guidelines for Outplanting / Performance on Typical Sites	Plant in open areas that are seasonally moist and have moist soil (6). For <i>Mertensia longiflora</i> , plant in late spring or early summer (2).
Other Comments	Due to its narrow distribution, there is very little information about propagation for <i>Mertensia umbratilis</i> , so almost all the information is based on similar species in the same habitat including <i>Mertensia viridis</i> and <i>Mertensia longiflora</i> .
<b>INFORMATION SOURCES</b>	
References	<ol style="list-style-type: none"> <li>1. Baskin, Jerry M.; Baskin, Carol C.. 2002. Propagation protocol for production of Container (plug) <i>Mertensia viridis</i> A. Nels. plants University of Kentucky Lexington, Kentucky. In: Native Plant Network. URL: <a href="https://NativePlantNetwork.org">https://NativePlantNetwork.org</a> (accessed 2024/05/18). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.</li> <li>2. <i>Mertensia longiflora</i>. <i>Mertensia longiflora</i> - Useful Temperate Plants. (n.d.). <a href="https://temperate.theferns.info/viewtropical.php?id=Mertensia%2Blongiflora">https://temperate.theferns.info/viewtropical.php?id=Mertensia%2Blongiflora</a></li> <li>3. <i>Mertensia umbratilis</i> Greenm. Oregonflora. (n.d.). <a href="https://oregonflora.org/taxa/index.php?taxauthid=1&amp;taxon=6550&amp;cl=43">https://oregonflora.org/taxa/index.php?taxauthid=1&amp;taxon=6550&amp;cl=43</a></li> <li>4. <i>Mertensia umbratilis</i> Greenm. USDA plants database. (n.d.). <a href="https://plants.usda.gov/home/plantProfile?symbol=MEUM2">https://plants.usda.gov/home/plantProfile?symbol=MEUM2</a></li> <li>5. <i>Plant database</i>. Lady Bird Johnson Wildflower Center - The University of Texas at Austin. (n.d.). <a href="https://www.wildflower.org/plants/result.php?id_plant=MEUM2">https://www.wildflower.org/plants/result.php?id_plant=MEUM2</a></li> <li>6. WTU Herbarium, B. M. (n.d.). <i>Mertensia umbratilis</i>. Burke herbarium image collection. <a href="https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Mertensia+umbratilis">https://burkeherbarium.org/imagecollection/taxon.php?Taxon=Mertensia+umbratilis</a></li> </ol>
Other Sources Consulted	<ol style="list-style-type: none"> <li>1. <i>Germination guide for Native Seeds</i>. Wild Ones. (n.d.). <a href="https://frontrange.wildones.org/wp-">https://frontrange.wildones.org/wp-</a></li> </ol>

	<p>content/images/sites/105/2022/09/Germination-Guide-22-latest-copy.pdf</p> <ol style="list-style-type: none"> <li>2. <i>Mertensia oblongifolia</i> - (Nutt.) G. Don. Pfaf Plant Search. (n.d). <a href="https://pfaf.org/user/Plant.aspx?LatinName=Mertensia%2Boblongifolia">https://pfaf.org/user/Plant.aspx?LatinName=Mertensia%2Boblongifolia</a></li> <li>3. R carr. (2020, February 19). <i>R carr</i>. Flora of Eastern Washington and Adjacent Idaho. <a href="https://inside.ewu.edu/ewflora/mertensia-umbratilis/">https://inside.ewu.edu/ewflora/mertensia-umbratilis/</a></li> <li>4. <i>Shade bluebells</i>. Wildflower search. (n.d.). <a href="https://wildflowersearch.org/search?&amp;PlantName=Mertensia%2Bumbratilis">https://wildflowersearch.org/search?&amp;PlantName=Mertensia%2Bumbratilis</a></li> </ol>
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