

Plant Propagation Protocol for *Amsinckia menziesii*
 ESRM 412 – Native Plant Production
 Spring 2017



TAXONOMY	
Plant Family	
Scientific Name	Boraginaceae
Common Name	Borage family
Species Scientific Name	
Scientific Name	<i>Amsinckia menziesii</i> (Lehm.) A. Nelson & J.F. Macbr.
Varieties	<i>menziesii</i> , <i>intermedia</i>
Sub-species	
Cultivar	
Common Synonym(s)	AMHI <i>Amsinckia hispida</i> auct. non (Ruiz & Pav.) I.M. Johnst. AMID <i>Amsinckia idahoensis</i> M.E. Jones AMMI3 <i>Amsinckia micrantha</i> Suksd. AMPA9 <i>Amsinckia parviflora</i> A. Heller AMRE2 <i>Amsinckia retrorsa</i> Suksd. AMRU3 <i>Amsinckia rugosa</i> Rydb. ECME4 <i>Echium menziesii</i> Lehm.
Common Name(s)	Menzies' fiddleneck, common fiddleneck, coast fiddleneck
Species Code (as per USDA)	AMME, AMMEI2

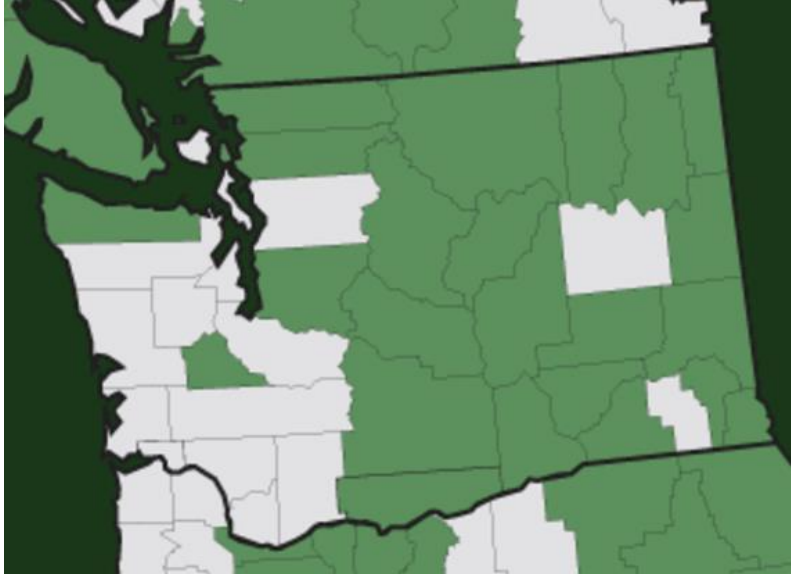
Plants database)	
GENERAL INFORMATION	
Geographical range	Throughout Washington. South of Alaska all the way to California. Scattered east of Rocky Mountains. (Knoke)
Ecological distribution	Disturbed habitats, meadows, and fields. (Knoke)
Climate and elevation range	Moderately dry, low elevation areas. (Knoke)
Local habitat and abundance	Common in openings of many vegetation types from coast to desert, including grassland, chaparral, coastal sage scrub, creosote bush scrub, yellow pine forest. (Knoke)
Plant strategy type / successional stage	Highly competitive. Agriculture weed, which can cause decrease in crop yield.
Plant characteristics	<p>General: Annual herb; stem with short, stiff hair along it. Somewhat flimsy. 15-80 cm in height.</p> <p>Leaves: Basal leaves which are 2-12 cm long. Alternate.</p> <p>Flowers: Yellow petals, which are short in length and fused next to each other. The petals create an opening with the five calyx lobes.</p> <p>Fruits: Nutlets: 4, clustered together, greenish or gray, and approximately 2-3.5 mm long. (Knoke)</p>
PROPAGATION DETAILS	
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container
Stock Type	
Time to Grow	Plant in December, harvest in May
Target Specifications	Maturation occurs usually in late spring. Once the plant has fully bloomed flowers and nutlets have visibly grown. (Knoke)
Propagule Collection Instructions	Whole inflorescences can be collected into open containers or breathable bags once the seeds are matured. Late springtime. (Montalvo)
Propagule Processing/Propagule Characteristics	Seeds are 2-3 mm in size and somewhat triangular shaped. Their longevity can be increased if they're stored in soil seed banks. There are approximately 230,000 seeds/lb. Seeds undergo physiological dormancy when placed in cold stratification during the wintertime. (McCulloch)
Pre-Planting Propagule Treatments	In Australia, germination overwinter was found to be ideal at 12-13 degrees Celsius. Cold stratification leads to best results. (Montalvo)
Growing Area Preparation / Annual Practices for Perennial Crops	Ideal growing soils are disturbed land. After observations, post fire disturbances produced almost twice as many seedlings. Seeds need to be scarified through either fire disturbances or cold temperature treatments. Then seeds need to be placed 1 cm deep

	<p>into soil during the winter. Approximately 5 seeds per meter² of area. Seeds need to be planted in an area that receives direct sunlight. (Montalvo)</p> <p>Note: seeds are so common in disturbed locations that seed farming isn't necessary.</p>
Establishment Phase Details	<p>Seeds should be placed for germination during the wintertime. Germination proved to be the most successful when placed in 12-13 degrees Celsius. Cold stratification improves seed germination. The seeds can simply be saved in seeds banks. (Montalvo)</p>
Length of Establishment Phase	All winter. (Montalvo)
Active Growth Phase	<p>Stems can start to emerge as soon as late February. However, full growth phase occurs throughout springtime until near the end once the plants have been fully matured. Signs of full flower foliage and distinct nutlets represent mature plants. (Montalvo)</p>
Length of Active Growth Phase	Spring time. (Montalvo)
Hardening Phase	<p>After maturation, seeds should be collected ideally during fall time so that they can be germinated over winter. Plants can survive in cold temperatures until the following spring. They are considered winter annual herbs. (Klinkenberg)</p>
Length of Hardening Phase	Fall time (Montalvo)
Harvesting, Storage and Shipping	<p>Seeds can be collected and stored in soil seed banks. Once plants harden during the fall time, they can be stored and/or shipped. (Montalvo)</p>
Length of Storage	<p>Quality of seed banks determines storage life. However, an abundant amount of plant growth makes it easy for seeding the following year. Furthermore, flowers self-pollinate, resulting in more growth and seed production. (Montalvo)</p>
Guidelines for Outplanting / Performance on Typical Sites	<p>Annual species, they should grow within the following grow period, and due to their weedy nature, they'll thrive. (Klinkenberg)</p>
Other Comments	<p>Extremely abundant plant in the wild. Livestock should avoid the area since these are toxic to them. (Klinkenberg)</p>
INFORMATION SOURCES	
References	<p>Montalvo. "Amsinckia Menziesii." Accessed April 26, 2017. https://www.fs.fed.us/psw/publications/beyers/psw_2010_beyers(montalvo)_NativePlantRecomm.Amsinckia.menziesii.pdf.</p> <p>JepsonOnline. 2010. The Jepson Manual Higher Plants of California; Online Version with 2nd edition notes. http://ucjeps.berkeley.edu/jepman.html.</p> <p>Klinkenberg, Brian. "Amsinckia Menziesii (Lehm.) Nelson & J.F. Macbr." <i>E-Flora BC</i>, n.d. http://linnet.geog.ubc.ca/Atlas/Atlas.aspx?sciname=Amsinckia%20menziesii.</p>

	<p>Knoke, Don. "WTU Herbarium Image Collection - Burke Museum." Accessed April 26, 2017. http://biology.burke.washington.edu/herbarium/imagecollection.php?Genus=Amsinckia&Species=menziesii.</p> <p>McCulloch, E. C. 1940. The experimental production of hepatic cirrhosis by the seed of <i>Amsinckia intermedia</i>. <i>Science</i> 91:95.</p> <p>S&S Seeds. 2010. S & S Seeds Inc. Plant database: http://www.ssseeds.com/database/index.html.</p>
Other Sources Consulted	<p>Calscape.com. "Menzie's Fiddleneck, <i>Amsinckia Menziesii</i>." <i>Calscape</i>. Accessed April 26, 2017. http://calscape.org/Amsinckia-menziesii-().</p>
Protocol Author	Ahmed Rizvi
Date Protocol Created or Updated	06/04/2017



Source: USDA PLANTS Database



Source: <https://www.pnwflowers.com/flower/amsinckia-menziesii>