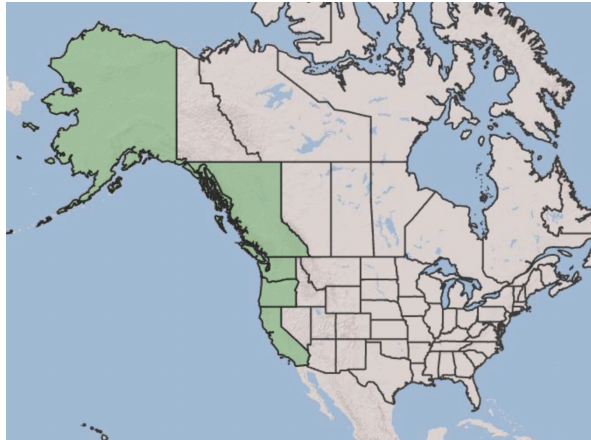


Plant Propagation Protocol for *Malus Fusca*
 ESRM 412 – Native Plant Production



TAXONOMY	
Plant Family	
Scientific Name	<i>Rosaceae</i> Juss.
Common Name	Rose
Species Scientific Name	
Scientific Name	<i>Malus fusca</i> (Raf.) C.K. Schneid.
Varieties	
Sub-species	
Cultivar	
Common Synonym(s)	<i>Malus diversifolia</i> (Bong.) M. Roem. <i>Malus fusca</i> (Raf.) C.K. Schneid. var. <i>levipes</i> (Nutt.) C.K. Schneid. <i>Pyrus fusca</i> Raf. <i>Pyrus rivularis</i> Douglas ex Hook.
Common Name(s)	Oregon crab apple, Pacific crab apple
Species Code (as per USDA Plants database)	MAFU
GENERAL INFORMATION	
Geographical range	Alaska, British Columbia, Washington, Oregon, California



North America Distribution

Source: USDA Plants Database



Pacific Northwest Distribution

Source: USDA Plants Database

Ecological distribution	Along waterways and streams, moist woods, forest clearings ¹ , swamps and bogs in deep rich soils ²
Climate and elevation range	Low to mid elevation ¹
Local habitat and abundance	Prefers sandy to loamy soils, riparian areas ⁵
Plant strategy type / successional stage	Early seral, stress-tolerant
Plant characteristics	Deciduous shrub or small tree ³ , partial to full sun ⁴ , yellowish to deep red oblong fruit ⁴ , slow growth rate, hermaphrodite, pollinated by insects ²
PROPAGATION DETAILS: FROM SEED	
Ecotype	Tolerant of wet soils ⁴
Propagation Goal	Plants
Propagation Method	Seed

Product Type	Bareroot
Stock Type	Plug+
Time to Grow	7-10 months ²
Target Specifications	Small tree/shrub
Propagule Collection Instructions	Collect seeds in late summer or early fall ² , separate seeds from fruit
Propagule Processing/Propagule Characteristics	Yellow seeds inside fruit, 10,900 seeds per pound ³
Pre-Planting Propagule Treatments	Required 3 month stratification at 1°C, seeds best sown in autumn ²
Growing Area Preparation / Annual Practices for Perennial Crops	Moisture retentive but well-drained soil, should be sown in a cold frame ² , press seeds about ¼ inch into the soil, supply 6 hours of direct light a day ⁶
Establishment Phase Details	Seeds need to be sowed directly after stratification, can take a long time to germinate, keep seeds moist
Length of Establishment Phase	Seeds usually germinate in a few weeks ⁶ , but can take up to 12 months or longer to germinate ² .
Active Growth Phase	Once the seedlings are large enough to handle, move the seedlings into individual pots with moisture retentive soil.
Length of Active Growth Phase	About 3 months, varies often, active growth period in the spring ³
Hardening Phase	Progressively expose the plants to more sun every day to harden before outplanting ⁶ .
Length of Hardening Phase	about a week
Harvesting, Storage and Shipping	Can move seedlings from pots when 6 inches tall ⁶ , no storage necessary
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	Protect from the cold during the first winter outplanted ² , seeds sown in autumn should be ready to outplant by late summer
Other Comments	
PROPAGATION DETAILS: VEGETATIVE	
Ecotype	Tolerant of wet soils ⁴
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Bareroot
Stock Type	Plug+
Time to Grow	6 months or more
Target Specifications	small tree/shrub

Propagule Collection Instructions	Mature wood cuttings are best taken in November ² , take cuttings in early spring after new growth has started, collect about six inches of new growth that is green and pliable, cut an inch below a leaf node at a 45° angle ⁶
Propagule Processing/Propagule Characteristics	Remove all but the top two leaves of leaf buds ⁶
Pre-Planting Propagule Treatments	Can use a rooting hormone to promote faster rooting ⁶
Growing Area Preparation / Annual Practices for Perennial Crops	Moisture retentive but well-drained soil, place the cut side of the cutting into the soil, place cuttings minimum of 5-10 feet apart ⁶ ,
Establishment Phase Details	keep soil moist but not wet, roots will start to establish
Length of Establishment Phase	6-8 weeks
Active Growth Phase	Increase amount of water given, thin out other cuttings growing close together ⁶
Length of Active Growth Phase	several months
Hardening Phase	cuttings turn from softwood to hardwood, can gradually expose cuttings to more sunlight to harden
Length of Hardening Phase	about a week
Harvesting, Storage and Shipping	Remove plants from pots and loosen/detangle the roots, no storage necessary
Length of Storage	
Guidelines for Outplanting / Performance on Typical Sites	Protect from the cold during the first winter outplanted ² , keep the soil moist and plants well watered, use compost or fertilizer in garden hole where the tree is being planted ⁶
Other Comments	
INFORMATION SOURCES	
References	<ol style="list-style-type: none"> 1. <i>Malus fusca</i>: Western Crabapple. Malus fusca: Western Crabapple Portland Nursery. (n.d.). https://www.portlandnursery.com/natives/malus-fusca 2. <i>Malus fusca</i> - (Raf.)Schneid. Pfaf Plant Search. (n.d.). https://pfaf.org/User/Plant.aspx?LatinName=Malus%2Bfusca 3. <i>Malus fusca</i> (Raf.) C.K. Schneid. USDA plants database. (n.d.). https://plants.usda.gov/home/plantProfile?symbol=MAFU

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Other Sources Consulted	<p><i>Pacific Crabapple (malus fusca) in the apples database</i>. The National Gardening Association Plants Database. (2017, October 24). https://garden.org/plants/view/83254/Pacific-Crabapple-Malus-fusca/</p> <p>Sutton, J., & Dunn, N. (2021). <i>Malus fusca (Raf.) Schneid.</i> Malus fusca - Trees and Shrubs Online. https://www.treesandshrubsonline.org/articles/malus/malus-fusca/</p> <p>Breen, P. (2024). <i>Landscape plants</i>. Malus fusca Landscape Plants Oregon State University. https://landscapeplants.oregonstate.edu/plants/malus-fusca</p> <p>TWC Staff. (2023, May 10). <i>Plant database</i>. Lady Bird Johnson Wildflower Center - The University of Texas at Austin. https://www.wildflower.org/plants/result.php?id_plant=mafu</p>
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