

**Plant Propagation Protocol for *Asclepias syriaca***

ESRM 412 – Native Plant Production

URL: [https://courses.washington.edu/esrm412/protocols/\[2024\]/ASSY.pdf](https://courses.washington.edu/esrm412/protocols/[2024]/ASSY.pdf)



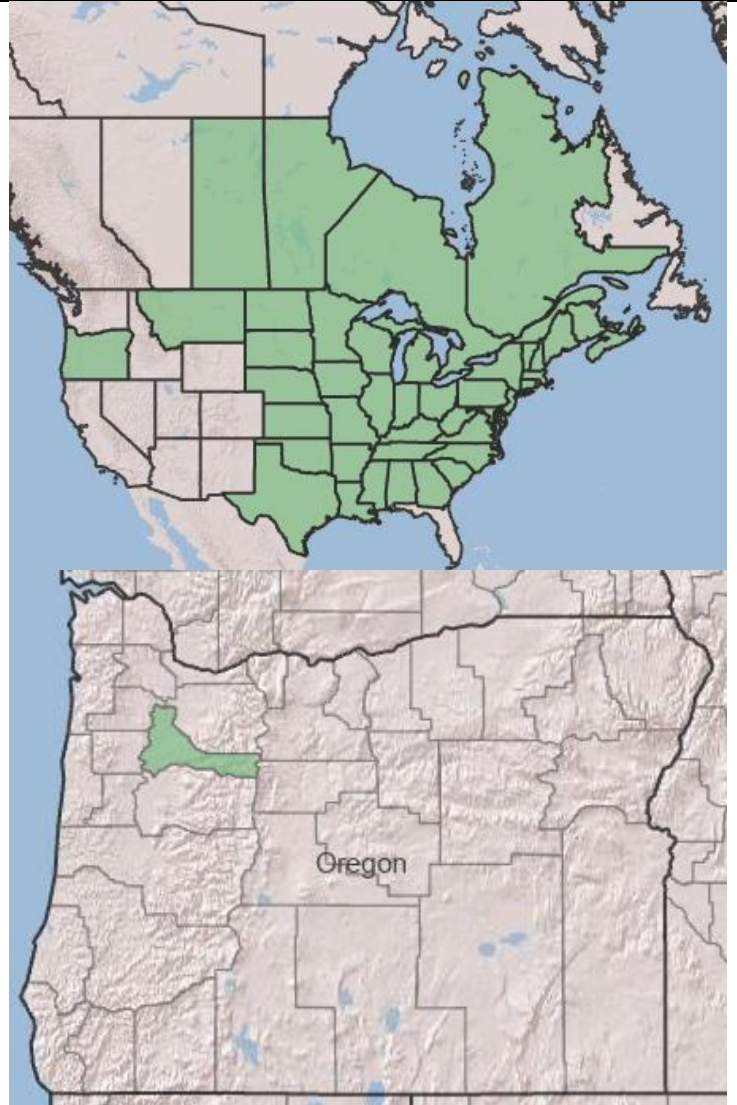
(Photo Credit: David Taylor<sup>[13]</sup>)



(Photo Credit: Angelyn Whitmeyer<sup>[19]</sup>)

<b>TAXONOMY</b>	
<b>Plant Family</b>	
Scientific Name	<i>Asclepiadaceae</i> Borkh.
Common Name	Milkweed family
<b>Species Scientific Name</b>	
Scientific Name	<i>Asclepias syriaca</i> L.
Varieties	None Listed
Sub-species	None Listed
Cultivar	None Listed
Common Synonym(s)	<i>Asclepias intermedia</i> Vail <i>Asclepias kansana</i> Vail <i>Asclepias syriaca</i> L. var. <i>kansana</i> (Vail) Palmer & Steyerm.
Common Name(s)	Common milkweed
Species Code (as per USDA Plants database)	ASSY
<b>GENERAL INFORMATION</b>	

Geographical range



(Photo Credit: USDA<sup>[2]</sup>)

Located in the Lower 48, common milkweed is found in 37 states, with most states being on the eastern side of the Rocky Mountains. They are also native to parts of eastern Canada.<sup>[10]</sup>

It grows throughout the Great Plains ecoregion from southern Canada to NE Oklahoma, NW Georgia, and Texas, and east from North Carolina to Maine.<sup>[12]</sup>

For the Oregon and Montana populations, Xerces Society states that its records may be due to introduced individuals.<sup>[2]</sup>

Ecological distribution	Considering its large distribution, it has adapted to a wide range of soil and climatic conditions. It is found along the banks or floodplains of lakes, ponds, and waterways, as well as in prairies, forest edges, roadsides, and waste areas. Common milkweed thrives in sandy, clayey, or rocky calcareous soils. <sup>[1]</sup>
Climate and elevation range	It can handle a variety of climates, but common milkweed prefers warm conditions, as it has low frost tolerance. <sup>[9]</sup> It can grow in drier areas due to its deep taproot. <sup>[1]</sup> Its distribution is typically limited by 64.4-89.6 degrees F mean July temperatures. <sup>[1]</sup>  No data available currently for elevation.
Local habitat and abundance	Due to its large range, commonly associated species aren't the same for each area. Though, this species is known to form hybrids with both <i>A. exaltata</i> , poke milkweed, (in the east) and <i>A. speciosa</i> , showy milkweed, (in the west). <sup>[14]</sup>
Plant strategy type / successional stage	Common milkweeds contain allelopathic compounds that inhibit the growth of selected crops and weeds. <sup>[1]</sup> It's also toxic to most insects and animals, as it contains levels of cardiac glycoside compounds. For some insects, such as Monarch butterflies, the cardiac glycosides become a defense against herbivory. <sup>[13]</sup>  As referenced earlier, its deep taproot allows it to grow in drier climates, making full grown plants drought tolerant. <sup>[1]</sup>  Shade intolerant, prefers full sun. <sup>[14]</sup>
Plant characteristics	Common milkweed is a long-lived, perennial forb/herb that can spread via rhizomes. Its ability to rapidly spread has given it the title of 'weedy,' as well as 'fugitive species,' as it forms colonies in disturbed environments due to its lack of ability to compete with other vegetation. <sup>[13,14]</sup> It grows up to 1.5 meters (5 feet) tall, featuring solitary, hairy stems that can be simple or branched from a thickened base. The leaves are opposite and have a broadly ovate to elliptic shape, measuring 10-20 cm (3.9-7.9 in) in length and

	<p>5-11 cm (1.9-4.3 in) in width. The leaves are sparsely hairy on the upper surface and densely hairy underneath, with petioles ranging from 0.2-1.4 cm (0.08-0.77 in) in length. They are relatively thick, with a prominent midrib on the lower surface, and vary in color from light to dark green above, while the lower surface is lighter, sometimes almost white.<sup>[12]</sup> When damaged, the leaves and stems release a milky latex.<sup>[14]</sup></p> <p>Milkweed's inflorescences emerge from the upper leaf axils, each containing 20-130 small flowers. Each individual flower is about 2 cm (0.75 in) long and 1 cm (0.4 in) wide. Its petals that are green to purple-tinged and are topped by a crown of five rose-colored to purple lobes, rarely white. Each plant generally supports 2-5 umbels of flowers. They bloom from May to August and are sweet smelling.<sup>[12]</sup></p> <p>The plant produces follicles that are approximately 10 cm (4 in) long. Initially green and covered with soft hairs and small finger-like projections, the follicles turn brown as they mature and split open to release 50-100 seeds. The seeds, which are 6-8 mm (0.2-0.3 in) in diameter, are round and hairy, each equipped with a white, fluffy coma ("parachute") that aids in wind dispersal.<sup>[13]</sup></p>
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<p><b>PROPAGATION DETAILS: FROM SEED</b>  <b>Prepared by R. Lester and J. Vandevender<sup>[6]</sup></b></p>	
Ecotype	Monongahela National Forest
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)
Stock Type	N/A
Time to Grow	They allowed the seeds to grow for 6 months.

Target Specifications	The specification of this propagation was a well-developed plant suitable for transplanting with at least 12" of top growth and a healthy root system.
Propagule Collection Instructions	Seeds were collected from multiple existing populations within the boundaries of the Monongahela National Forest. Mature seed pods were collected from numerous plants to ensure genetic diversity.
Propagule Processing/Propagule Characteristics	<p>Seed pods were placed in breathable cloth bags and allowed to air dry for several days. Once dried, the seed pods were opened by hand to remove the enclosed seed. Small batches of seed were placed on wire mesh and fire was used to remove the fluffy portion. The fire burns quickly which removes the fluff without harming the seed.</p> <p>Seed density wasn't recorded. But using the mean seed weights for various population, which range from 3.5-7.4 mg, seed density ranges from about 61,296-128,598 seeds/lb.<sup>[9]</sup></p>
Pre-Planting Propagule Treatments	Pro-mix BX with bio-fungicide was moistened and placed in heavy plastic trays. The soil was compacted to prepare a firm seedbed. The seeds were then spread evenly on the soil surface and covered with 1/4 inch of additional soil. The top layer was pressed down slightly to ensure good seed to soil contact. The trays were placed in the cooler (34 degrees F) for 30 days to allow for cold, moist stratification.
Growing Area Preparation / Annual Practices for Perennial Crops	Once the seedlings had developed sufficient root systems after germination, they were transplanted into quart plastic containers filled with Metro-mix 510 growing media.
Establishment Phase Details	<p>After cold stratification, the trays were moved directly to the greenhouse for germination.</p> <p>Seedling emergence is best when planted between 1-2 cm deep.<sup>[4]</sup></p>

Length of Establishment Phase	2 weeks.
Active Growth Phase	N/A
Length of Active Growth Phase	5 months.
Hardening Phase	Plants were moved into the shade-house (50% shade) to allow for hardening off before shipping.
Length of Hardening Phase	2 weeks.
Harvesting, Storage and Shipping	Once plants had sufficient top growth and root development, they were shipped back to the Monongahela National Forest for transplanting. Trailers were covered with tarps to prevent excessive wind burn damage.
Length of Storage	1 day.
Guidelines for Outplanting / Performance on Typical Sites	Seedlings usually bloom in their second year after being planted. <sup>[12]</sup>
Other Comments	<p>They mention that common milkweed seeds often fall prey to insect damage while still in the seed pods and how it will have a significant effect on the viability of the seeds.</p> <p>If planting seeds in the fall, cold, moist conditions during winter will effectively cold-stratify seeds to enhance germination in the spring – meaning artificial stratification is unnecessary.<sup>[15]</sup></p>
<b>PROPAGATION DETAILS: SEEDS</b> <b>Prepared by J. Schultz, P. Beyer, and J. Williams<sup>[11]</sup></b>	
Ecotype	The seeds were collected from local, native plants within the eastern central Upper Peninsula.
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container (plug)

Stock Type	N/A
Time to Grow	0
Target Specifications	N/A
Propagule Collection Instructions	The seeds were collected by hand, September through October. Seed can be readily removed from ripe pod by cracking the pod and pulling the seed from one side of the pod, leaving the coma behind.
Propagule Processing/Propagule Characteristics	It's possible to keep the seeds in cold storage for up to three years.
Pre-Planting Propagule Treatments	<p>After removing the seeds from the pod, they dried the seeds for 1-2 weeks in open paper bags or open Rubbermaid-style bins. Once seeds were done drying, they begin stratification.</p> <p>For stratification, they mixed the seeds with an equal amount of moist perlite or vermiculite. They then sealed the mixture into a Ziploc-style bag or a Rubbermaid-style container. They recommend one-month cold-moist stratification in a cool dry place (refrigerator or cold garage). It's possible to keep the seeds in cold storage for up to three years.</p>
Growing Area Preparation / Annual Practices for Perennial Crops	<p>The propagation environment was in a greenhouse made with Standard U.V. 3HL Clear 6 mil (J.R. Johnson's Greenhouse Supply Inc.). There were fans running continuously to circulate the air. And vents are open during the summer months for cooling.</p> <p>Container type was 24 cell (2" diameter) 14"x8.5"x4" deep flats, which they state is the best for growing common milkweed. They also mention that it can be grown in virtually any plug size.</p> <p>Sowing media was Scotts Redi-earth Plug and Seedling Mix, which contains vermiculite and sphagnum peat moss.</p>

Establishment Phase Details	From January until August, the greenhouse thermostat was set to 65 degrees F for both night and day. The ambient greenhouse temperatures may reach 100 degrees F during the day in the summer. From September through December, the thermostat was set at 55 degrees F. During this season, ambient greenhouse temperatures may reach 75 degrees F during the day. The greenhouse holds plants at all stages of growth, so the temperature setting stays the same for all plants at all stages of growth. Soil was kept consistently damp during germination. They watered using a fine mist or light hose setting only, to not disturb the soil and seedlings too much. Newly planted trays should be placed on the south side of the greenhouse. They didn't use artificial light.
Length of Establishment Phase	N/A
Active Growth Phase	The soil does not need to be consistently moist. Move trays to cooler north greenhouse tables. No fertilizers are used.
Length of Active Growth Phase	N/A
Hardening Phase	In early-late spring, the mature plants can be moved into a cold frame with a cover of material that diffuses sunlight to prevent scorching of the plants. Once the danger of frost has passed, leave plants outside and water less frequently.
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	In the Upper Peninsula, flats are transplanted into the field from late May to early October. Flats that are not planted in the summer remain in the greenhouse for another season.
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	N/A
Other Comments	They note that common milkweed attracts monarch butterflies and other insects. It grows naturally in dry



	mesic areas on the edge of fields or pastures. They also comment on how the plugs were very difficult to plant out and establish. The roots are very fragile, so it's important to be careful when transplanting them. Germination is also somewhat spotty, and there may be better success with direct seeding.
<b>PROPAGATION DETAILS: VEGETATIVE</b>	
<p>Common milkweed has the ability to spread by rhizomes, making it possible to use root cuttings to propagate it. After unsuccessful attempts to establish roots from stem cuttings, it appears that reproduction is only through means of seeds and rhizomes.<sup>[3]</sup> Though, after a recent study surrounding the development of a vegetative (stem) propagation protocol for <i>Asclepias tuberosa</i>, they found that they had rooting success when taking cuttings from mature (2-yr-old) plants. When they used rooting hormone, they didn't find a significant difference in rooting success, but it did impact mean plant height.<sup>[7]</sup> Though this isn't specifically about common milkweed, it may provide insights surrounding its stem propagation.</p>	
Ecotype	N/A
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	N/A
Stock Type	N/A
Time to Grow	N/A
Target Specifications	N/A
Propagule Collection Instructions	It's recommended to collect root sections from dormant plants, during late fall to early spring. Collect rhizomes that are more than 5 cm (2") with visible shoot buds (they're around 2" apart). <sup>[5,12]</sup> It's also been found that 15 cm (6") root fragments reproduce independently of visible shoot buds. The smaller the root cutting, the longer it will take to become established. <sup>[8]</sup>
Propagule Processing/Propagule Characteristics	N/A

Pre-Planting Propagule Treatments	N/A
Growing Area Preparation / Annual Practices for Perennial Crops	Rhizomes can be stored by trimming off dead shoots and replanting them outdoors in raised beds or in a large container filled with a well-drained growing medium. <sup>[5]</sup> It's extremely important to water frequently, as that increases rooting success rates. <sup>[12]</sup>
Establishment Phase Details	N/A
Length of Establishment Phase	N/A
Active Growth Phase	N/A
Length of Active Growth Phase	N/A
Hardening Phase	N/A
Length of Hardening Phase	N/A
Harvesting, Storage and Shipping	N/A
Length of Storage	N/A
Guidelines for Outplanting / Performance on Typical Sites	When cultured properly, plants propagated from large rhizomes will flower and produce seeds the first year; though, it may take until their second year. <sup>[5,12]</sup>
Other Comments	N/A
<b>INFORMATION SOURCES</b>	
References	Works Cited Below
Other Sources Consulted	Works Cited Below
Protocol Author	Skye Gearhart
Date Protocol Created or Updated	05/22/24

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