

**Plant Propagation Protocol for *Erigeron compositus***

ESRM 412 – Native Plant Production

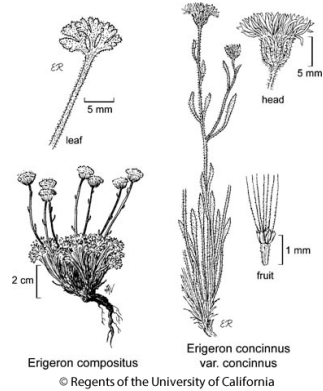
URL: <https://courses.washington.edu/esrm412/protocols/2021/ERICOM.pdf>



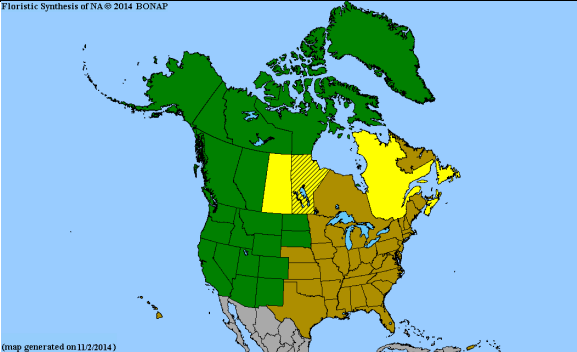
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<b>TAXONOMY</b>	
Plant Family	
Scientific Name	Asteraceae (compositae)
Common Name	Sunflower family, Daisy
Species Scientific Name	
Scientific Name	<i>Erigeron compositus</i>
Varieties	There are three botanical varieties: var. <i>compositus</i> , var. <i>glabratus</i> , and var. <i>discoideus</i> .
Sub-species	N/A
Cultivar	N/A
Common Synonym(s)	Dwarf mountain fleabane, Alpine Daisy
Common Name(s)	Cut leaved Daisy
Species Code (as per USDA Plants database)	ERICOM (USDA).
<b>GENERAL INFORMATION</b>	
Geographical range	

	 <p>(Noyes 1996.) Found across the western United States up into British Columbia, Greenland, and Alaska.</p>
Ecological distribution	A widespread North American species, occurring from prairies to alpine slopes. It inhabits disturbed open areas in well drained soils.
Climate and elevation range	Sandy riverbanks at low elevations to rocky outcrops at mid-to high elevation in the mountains (ABMI).
Local habitat and abundance	Rare, ranked as an S3 (as of 2019) (Saskatchewan Conservation Data Centre.)
Plant strategy type / successional stage	Colonizing species from the prairie to the alpine zone and establishes following disturbance.
Plant characteristics	Semi-woody, perennial Forb
<b>PROPAGATION DETAILS</b>	
Ecotype	<p>Scree slope, Siyeh Bend, Glacier National Park, Glacier Co., MT., 2000m elevation (Luna).</p> <p>Protocol Information developed by Tara Luna, and Dale Wick</p>
Propagation Goal	Plants
Propagation Method	seed
Product Type	Container (plug)
Stock Type	160 ml conetainers- needs very good drainage (Baskin)
Time to Grow	9 months
Target Specifications	<p>Height: 6 to 10 true leaves, 3 cm</p> <p>Caliper: n/a</p> <p>Root System: firm plug in 160 ml conetainer</p>
Propagule Collection Instructions	Seeds are hand collected in August when achenes turn tan and are easily detached from the disc. Seeds are collected in paper bags and kept in a well-ventilated drying shed prior to cleaning. (Luna)
Propagule Processing/Propagule Characteristics	Seeds are cleaned with a hammermill and office clipper at NRCS.

	<p>Seed longevity is unknown.  Seed dormancy is classified as physiological dormancy.  Seeds/Kg: 1,500,000 /kg  % Purity: 100%  % Germination: 90%  (Luna)</p>
Pre-Planting Propagule Treatments	<p>5-month outdoor cold, moist stratification. This species will germinate to high percentages using a shorter duration (60 day) artificial cold, moist stratification. (Luna)</p>
Growing Area Preparation / Annual Practices for Perennial Crops	<p>Outdoor nursery growing facility.  Sowing Method: Direct seeding. Manual hand sowing: seed is covered with medium.  Growing medium used is 70% milled sphagnum peat, perlite, and vermiculite and 30% sand with Osmocote controlled release fertilizer (13N:13P2O5:13K2O; 8-to-9-month release rate at 21C) and Micromax fertilizer (12%S, 0.1%B, 0.5%Cu, 12%Fe, 2.5%Mn, 0.05%Mo, 1%Zn) at the rate of 1 gram of Osmocote and 0.20 gram of Micromax per 172 ml container. Containers are filled and sown in late fall and irrigated thoroughly prior to winter stratification.  (Luna)</p>
Establishment Phase Details	<p>Medium is kept slightly moist during germination. Initial germination appeared uniform and occurred following several days of temperatures at 22C or above during the day. Seedlings are thinned at the true leaf stage. After seedlings are well established, they must dry down between irrigations  (Luna).</p>
Length of Establishment Phase	4 weeks
Active Growth Phase	<p>Root and shoot development occur rapidly following germination. 4 to 6 true leaves were evident 3 weeks after germination. Plants were fertilized with 20-20-20 NPK liquid fertilizer at 100 ppm during the growing season.</p>
Length of Active Growth Phase	8 weeks
Hardening Phase	<p>Irrigation is gradually reduced in September and October. Plants are leached with clear water and fertilized with 10-20-20 liquid NPK fertilizer at 200 ppm once before winterization (Luna).</p>
Length of Hardening Phase	4 weeks
Harvesting, Storage and Shipping	<p>Total Time to Harvest: 9 months  Harvest Date: August (Luna)  Storage Conditions: Overwinter in outdoor nursery under insulating foam cover and snow.</p>

Length of Storage	5 months
Guidelines for Out planting / Performance on Typical Sites	N/A
Other Comments	N/A
<b>INFORMATION SOURCES</b>	
References	See References Below
Other Sources Consulted	N/A
Protocol Author	Elle Graham
Date Protocol Created or Updated	05/25/21

#### References:

Alberta Biodiversity Monitoring Institute. 2020. Compound Leaved Fleabane (*Erigeron compositus*). ABMI Website: [abmi.ca/home/data-analytics/biobrowser-home/species-profile?tsn=99004369](http://abmi.ca/home/data-analytics/biobrowser-home/species-profile?tsn=99004369).

Aiken, S.G., Dallwitz, M.J., Consaul, L.L., McJannet, C.L., Boles, R.L., Argus, G.W., Gillett, J.M., Scott, P.J., Elven, R., LeBlanc, M.C., Gillespie, L.J., Brysting, A.K., Solstad, H., and Harris, J.G. 2007. Flora of the Canadian Arctic Archipelago: Descriptions, Illustrations, Identification, and Information Retrieval. NRC Research Press, National Research Council of Canada, Ottawa. <http://nature.ca/aaflora/data>, accessed on DATE.

[Calflora](http://www.calflora.org/): Information on California plants for education, research and conservation, with data contributed by public and private institutions and individuals, including the [Consortium of California Herbaria](http://www.calflora.org/). [web application]. 2021. Berkeley, California: The Calflora Database [a non-profit organization]. Available: <https://www.calflora.org/> (Accessed: 05/25/2021).

David J. Keil & Guy L. Nesom 2012, *Erigeron compositus*, in Jepson Flora Project (eds.) *Jepson eFlora*, [https://ucjeps.berkeley.edu/eflora/eflora\\_display.php?tid=2650](https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=2650), accessed on May 23, 2021.

Flora of the Pacific Northwest, Hitchcock and Cronquist, 7th edition, University of Washington Press, 1973. Seeding Rate Statistics for Native and Introduced Species, Hassell, Wendel, U.S.D.I. and U.S.D.A., April 1996.

Luna, Tara; Evans, Jeff; Wick, Dale. 2008. Propagation protocol for production of Container (plug) *Erigeron compositus* Pursh plants 160 ml conetainers; USDI NPS - Glacier National Park West Glacier, Montana. In: Native Plant Network. URL: <http://NativePlantNetwork.org> (accessed 2021/05/25). US Department of Agriculture, Forest Service, National Center for Reforestation, Nurseries, and Genetic Resources.

Moseley, Robert K. Idaho Department of Fish and Game, 1989, *FIELD INVESTIGATIONS OF SEVEN RARE ALPINE PLANT SPECIES IN THE SOUTHERN LEMHI RANGE AND BEAVERHEAD MOUNTAINS, DUBOIS RANGER DISTRICT, TARGHEE NATIONAL FOREST.*, [idfg.idaho.gov/ifwis/idnhp/cdc\\_pdf/moser89m.pdf](http://idfg.idaho.gov/ifwis/idnhp/cdc_pdf/moser89m.pdf).

Noyes, R. D. and D. E. Soltis. 1996. Genotypic variation in agamosperous *Erigeron compositus* (Asteraceae). *Amer. J. Bot.* 83: 1292–1303. Noyes, R. D., D. E. Soltis, and P. S. Soltis. 1995. Genetic and cytological investigations in sexual *Erigeron compositus* (Asteraceae). *Syst. Bot.* 20: 132–146.

Seeds: Ecology, Biogeography, and Evolution of Dormancy and Germination, Baskin and Baskin, Academic Press, 1998.

Seeding Rate Statistics for Native and Introduced Species, Hassell, Wendel, U.S.D.I. and U.S.D.A., April 1996.