

# Plant Propagation Protocol for *Heterotheca villosa*

ESRM 412 – Native Plant Production

Protocol URL: <https://courses.washington.edu/esrm412/protocols/HEVI4.pdf>

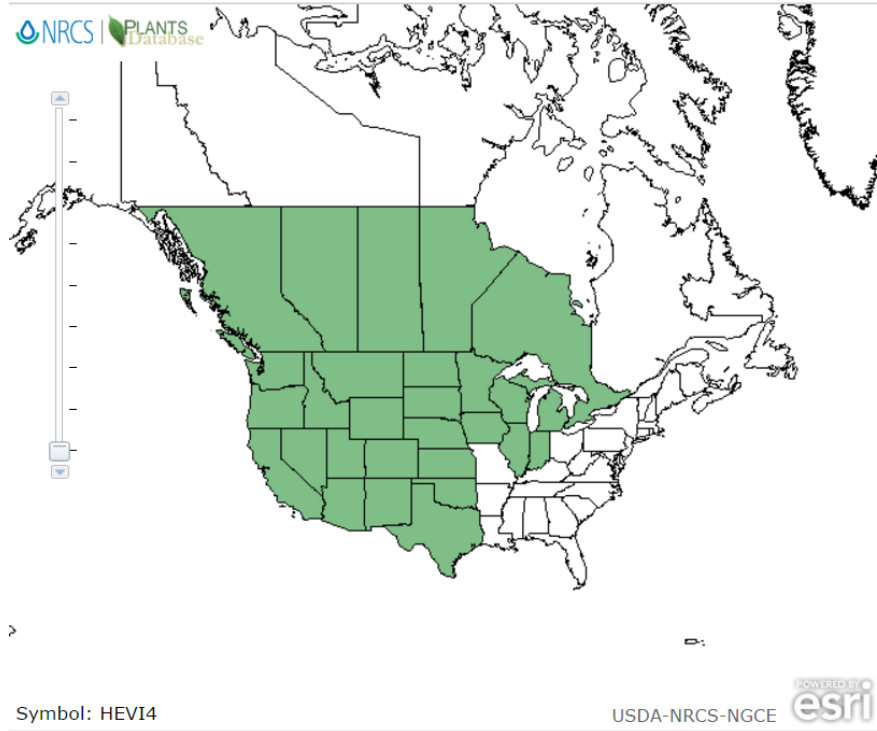
TAXONOMY	
Plant Family	
Scientific Name	Asteraceae <sup>1</sup>
Common Name	Hairy false goldenaster <sup>1</sup>
Species Scientific Name	
Scientific Name	<i>Heterotheca villosa</i> (Pursh) Shinnery <sup>1</sup>
Varieties	
Sub-species	<i>Heterotheca villosa</i> var. <i>ballardii</i> <i>Heterotheca villosa</i> var. <i>depressa</i> <i>Heterotheca villosa</i> var. <i>foliosa</i> <i>Heterotheca villosa</i> var. <i>minor</i> <i>Heterotheca villosa</i> var. <i>nana</i> <i>Heterotheca villosa</i> var. <i>pedunculata</i> <i>Heterotheca villosa</i> var. <i>scabra</i> <i>Heterotheca villosa</i> var. <i>sierrablancensis</i> <i>Heterotheca villosa</i> var. <i>villosa</i> <sup>1</sup>
Cultivar	
Common Synonym(s)	<i>Chrysopsis mollis</i> Nutt. <i>Chrysopsis villosa</i> (Pursh) Nutt. ex DC. <i>Chrysopsis ballardii</i> Rydb. <i>Chrysopsis depressa</i> Rydb. <i>Heterotheca depressa</i> (Rydb.) Dorn <i>Chrysopsis butleri</i> Rydb. <i>Chrysopsis foliosa</i> Nutt. <i>Chrysopsis hirsutissima</i> Greene <i>Chrysopsis canescens</i> (DC.) Tor. & A. Gray <i>Chrysopsis imbricate</i> A. Nelson <i>Heterotheca foliosa</i> (Nutt.) Shinnery <i>Chrysopsis horrida</i> Rydb. <i>Heterotheca horrida</i> (Rydb.) V.L. Harms <i>Chrysopsis pedunculata</i> Greene <i>Chrysopsis viscida</i> (A. Gray) Greene <sup>1</sup>
Common Name(s)	Hairy false goldenaster <sup>1</sup> Hairy golden-aster <sup>2</sup>
Species Code (as per USDA Plants)	HEVI4 <sup>1</sup>

database)

## GENERAL INFORMATION

Geographical  
range

This plant is native throughout most the central and western United States. It can be found from Canada down to California and Baja California. It spans as far east as Texas, Wisconsin and Nebraska, and south into northeastern Mexico.<sup>2</sup>



<input checked="" type="checkbox"/> Native	<input type="checkbox"/> Introduced	<input type="checkbox"/> Both	<input type="checkbox"/> Absent/Unreported
<input type="checkbox"/> Native, No County Data	<input type="checkbox"/> Introduced, No County Data	<input type="checkbox"/> Both, No County Data	

Native Status:

<input checked="" type="radio"/> L48	<input type="radio"/> AK	<input type="radio"/> HI	<input type="radio"/> PR	<input type="radio"/> VI	<input type="radio"/> NAV	<input checked="" type="radio"/> CAN	<input type="radio"/> GL	<input type="radio"/> SPM	<input type="radio"/> NA
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	<p>Symbol: HEV14</p> <p>Native Status: L48 AK HI PR VI NAV CAN GL SPM NA</p> <p>USDA-NRCS-NGCE esri</p>
Ecological distribution	<i>Heterotheca villosa</i> is found mostly in dry regions <sup>2</sup> and prefer sandy soils with a lot of gravel, crevices or lava flows. <sup>3</sup>
Climate and elevation range	It can be found in a wide range of elevations (low to high), from mountainsides and rocky slopes to lowland coniferous forests. <sup>3</sup>
Local habitat and abundance	Very abundant and common in areas where it is native. <sup>2</sup> It is able to grow from a taproot in well-drained soils and dry conditions, thriving in the sun. <sup>4</sup>
Plant strategy type / successional stage	Weedy/colonizer <sup>3</sup>
Plant characteristics	Forb / herb / subshrub <sup>1</sup>



*Heterotheca villosa* is a perennial plant that blooms from June to October.<sup>5</sup> It has stalks ranging generally between 8 and 20 inches tall. It has flowers that are about one inch across with around 10 to 35 yellow petals.<sup>4</sup> The bases of the flowers are surrounded by triangle-shaped, green bracts that overlap in four to six layers. The leaves are in an alternate pattern and about one inch long and a quarter inch wide at the tip and narrowing at the base. It contains a center disk of dry seeds that are white and brown. The stems are covered in white hairs that give it the hairy look that gave the plant its common name.<sup>5</sup>

### PROPAGATION DETAILS

Ecotype	The research conducted for this propagation happened from 1986 to 1988 in a grassland area of Yellowstone National Park at an elevation of 7,300 feet. <sup>6</sup>
Propagation Goal	Seeds <sup>6</sup>
Propagation Method	Seeds <sup>6</sup>
Product Type	Propagules (seeds, cuttings, poles, etc.) <sup>6</sup>
Stock Type	
Time to Grow	
Target Specifications	In this experiment conducted at Yellowstone, they were able to produce around 105 kg/ha each year on average, mostly depending on the type of weather and the age of the stand. <sup>6</sup>
Propagule Collection Instructions	Most of the collection happens by people physically going into the field in early August and collecting seed from flowers that have turned brown, although this is very difficult to time. Each person should be able to collect around 0.7 ounces every hour depending on the weather, abundance and collector experience. <sup>6</sup>
Propagule Processing/Propagation	The seed is spread onto a tarp indoors for around three to five days. It is kept dry and turned regularly so that all of the moisture can evaporate and leave the seed dry. There is a lot of chaff on the small seeds so it is difficult to clean and

Characteristics	requires manual removal by hand to clean. The seeds per kilogram are 1,671,000. <sup>6</sup>
Pre-Planting Propagule Treatments	No pre-planting treatments are necessary. <sup>6</sup>
Growing Area Preparation / Annual Practices for Perennial Crops	The soil should be a depth of at least four inches, firm and moist. All weeds should be removed before planting. <sup>6</sup>
Establishment Phase Details	Sowing can begin in early spring and should be about thirty seeds per foot and a depth of one quarter inch. <sup>6</sup> During the establishment phase, it is pertinent that the soil remains moist for fourteen days as the germination takes place until emergence. <sup>6</sup>
Length of Establishment Phase	The establishment phase should last for two growing seasons. <sup>6</sup>
Active Growth Phase	The active growth phase will happen from spring until fall as long as adequate soil moisture is maintained. <sup>6</sup>
Length of Active Growth Phase	This will take place for slightly longer, usually two to three growing seasons. <sup>6</sup>
Hardening Phase	
Length of Hardening Phase	
Harvesting, Storage and Shipping	It must be completed through hand-harvesting because the seeds are small and low to the ground. <sup>6</sup> In order to store, it should be put in plastic or cloth seed sacks and kept cold and dry. <sup>6</sup>
Length of Storage	It can be stored in the right conditions for five to seven years. <sup>6</sup>
Guidelines for Outplanting / Performance on Typical Sites	
Other Comments	
<b>INFORMATION SOURCES</b>	
References	1. "Plants Profile for <i>Heterotheca Villosa</i> (hairy False Goldenaster)." <i>Natural Resource Conservation Service</i> . USDA, n.d. Web. 15 May 2016.

	<p>&lt;<a href="http://plants.usda.gov/core/profile?symbol=HEVI4">http://plants.usda.gov/core/profile?symbol=HEVI4</a>&gt;.</p> <p>2. "Heterotheca Villosa." <i>NPIN: Native Plant Database</i>. Lady Bird Johnson Wildflower Center, n.d. Web. 15 May 2016. &lt;<a href="http://www.wildflower.org/plants/result.php?id_plant=HEVI4">http://www.wildflower.org/plants/result.php?id_plant=HEVI4</a>&gt;.</p> <p>3. Turner, Mark. "Heterotheca villosa." <i>Wildflowers of the Pacific Northwest</i>. Turner Photographics. n.d. Web. 15 May 2016. &lt;<a href="http://www.pnwflowers.com/flower/heterotheca-villosa">http://www.pnwflowers.com/flower/heterotheca-villosa</a>&gt;.</p> <p>4. "Hairy Golden-aster (Hairy False Golden-aster)." <i>Friends of the Wild Flower Garden</i>. The Friends of the Wild Flower Garden, Inc., n.d. Web. 20 May 2016. &lt;<a href="http%3A%2F%2Fwww.friendsofthewildflowergarden.org%2Fpages%2Fplants%2Fhairygoldenaster.html">http%3A%2F%2Fwww.friendsofthewildflowergarden.org%2Fpages%2Fplants%2Fhairygoldenaster.html</a>&gt;.</p> <p>5. Chayka, K. "Heterotheca Villosa (Hairy False Goldenaster)." <i>Minnesota Wildflowers</i>. Minnesota Environment and Natural Resources Trust Fund, n.d. Web. 20 May 2016. &lt;<a href="https://www.minnesotawildflowers.info/flower/hairy-false-goldenaster">https://www.minnesotawildflowers.info/flower/hairy-false-goldenaster</a>&gt;.</p> <p>6. Majerus, Mark E. "Heterotheca (villosa)." <i>Native Plant Network</i>. USDA, n.d. Web. &lt;<a href="http://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=asteraceae-heterotheca-1392">http://npn.rngr.net/renderNPNProtocolDetails?selectedProtocolIds=asteraceae-heterotheca-1392</a>&gt;.</p>
Other Sources Consulted	<ul style="list-style-type: none"> <li>• "Golden Aster – Heterotheca villosa." <i>Colorado Plant Database</i>. Colorado State University, n.d. Web. 15 May 2016. &lt;<a href="http://jeffco.us/coopext/plantdetails.do?sna=Heterotheca+villosa&amp;image=1">http://jeffco.us/coopext/plantdetails.do?sna=Heterotheca+villosa&amp;image=1</a>&gt;.</li> <li>• "Hairy Golden Aster (Heterotheca villosa)." <i>National Gardening Association</i>. The National Gardening Association, n.d. Web. 20 May 2016. &lt;<a href="http://garden.org/plants/view/82464/Hairy-Golden-Aster-Heterotheca-villosa/">http://garden.org/plants/view/82464/Hairy-Golden-Aster-Heterotheca-villosa/</a>&gt;.</li> <li>• "Hairy Golden-aster." <i>ENature: FieldGuides</i>. N.p., n.d. Web. 20 May 2016. &lt;<a href="http://www.enature.com/fieldguides/detail.asp?recNum=WF0404">http://www.enature.com/fieldguides/detail.asp?recNum=WF0404</a>&gt;.</li> <li>• Miller, Krista. "Hairy Golden Aster (Heterotheca Villosa)." <i>Blackfoot Native Plants</i>. Montanta Webmaster, n.d. Web. &lt;<a href="http://www.blackfootnativeplants.com/hairy-golden-aster-heterotheca-villosa/blackfoot-native-plants/">http://www.blackfootnativeplants.com/hairy-golden-aster-heterotheca-villosa/blackfoot-native-plants/</a>&gt;.</li> </ul>
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