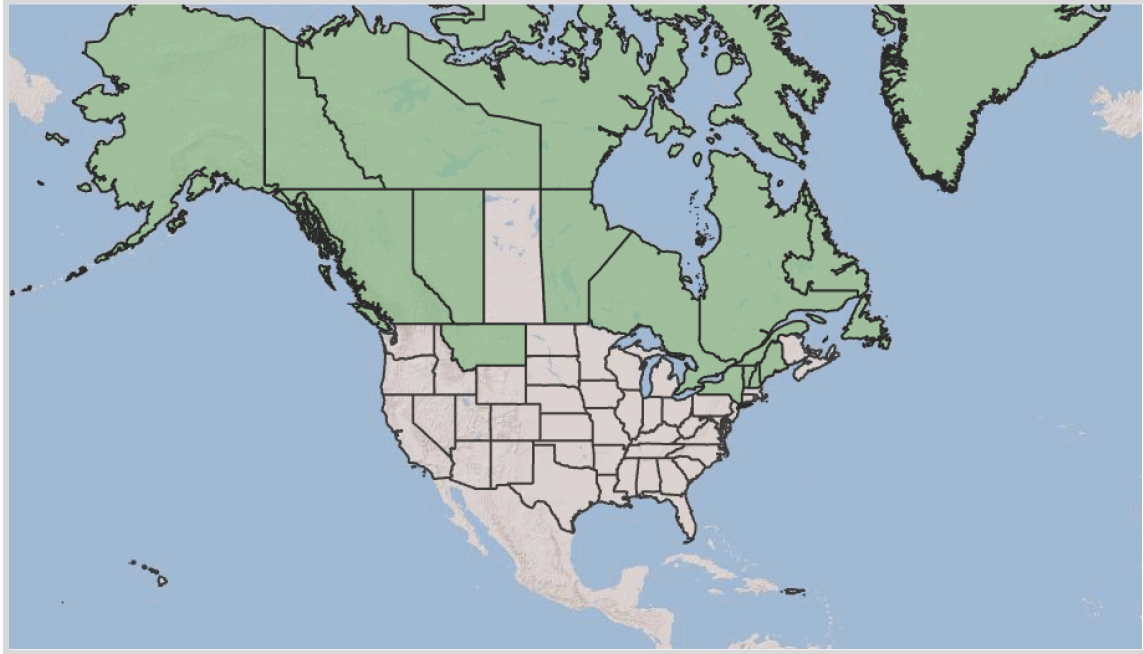


## Plant Propagation Protocol for *Anthoxanthum monticola*

ESRM 412 – Native Plant Production

URL: [https://courses.washington.edu/esrm412/protocols/\[year\]/\[USDA Species Code.pdf\]](https://courses.washington.edu/esrm412/protocols/[year]/[USDA Species Code.pdf])

### North America Distribution



Source: USDA PLANTS Database

TAXONOMY	
Plant Family	
Scientific Name	<i>Poaceae</i>
Common Name	Grass family
Species Scientific Name	
Scientific Name	<i>Anthoxanthum monticola</i>
Varieties	<i>Anthoxanthum monticola</i> (Bigelow) Veldkamp
Sub-species	<i>Anthoxanthum monticola</i> (Bigelow) Veldkamp ssp. <i>alpinum</i> (Sw. ex Willd.) Soreng <i>Anthoxanthum monticola</i> (Bigelow) Veldkamp ssp. <i>monticola</i>

Cultivar	
Common Synonym(s)	<i>Anthoxanthum monticola</i> ssp. <i>Monticola</i> <i>Anthoxanthum monticulum</i> ssp. <i>orthanthum</i> (Sorensen) G. Tucker <i>Hierochloe alpina</i> ssp. <i>orthantha</i> (Sorensen) G. Weim. <i>Hierochloe alpina</i> var. <i>orthantha</i> (Sorensen) Hulten <i>Torresia alpina</i> (Sw.) Hitchc. (6)
Common Name(s)	Alpine sweetgrass, Hierochloe alpine
Species Code (as per USDA Plants database)	ANMO7
<b>GENERAL INFORMATION</b>	
Geographical range	Alpine and circumpolar distribution in North America, Europe, and Asia.  PNW: In the United States, <i>A. monticola</i> is found in Alaska, Maine, New Hampshire, New York and Vermont. In Canada, <i>A. monticola</i> is found in Alberta, British Columbia, Manitoba, Newfoundland and Labrador, Northwest territories, Nunavut, Ontario, Quebec, and Yukon (3) <i>A. monticola</i> is also found in Greenland
Ecological distribution	This species is found in marshy areas, open grasslands, temperate and alpine meadows, mountains, and on siliceous rocks and dry peat (4)
Climate and elevation range	Alpine climate; high elevation; <i>Anthoxanthum monticola</i> ssp. <i>Alpinum</i> typically occurs above the treeline in areas with strong wind exposure and little

	<p>snow in the wintertime (3) <i>Anthoxanthum monticola</i> ssp. <i>Monticola</i> prefers wetter habitats</p>
<p>Local habitat and abundance</p>	<p>In most of Arctic North America (Alaska, Northern Canada &amp; Greenland), <i>A. monticola</i> occurs sporadically in well drained areas; weakly acidic to neutral sand, gravel, rocky barrens (7)</p> <p><i>A. monticola</i> ssp. <i>Monticola</i> prefers wetter and more exposed habitat. <i>A. monticola</i> ssp. <i>Alpinum</i> prefers habitats in higher elevations, above tree line, with strong wind exposure and little snow in winter.</p> <p>In Maine, <i>A. monticola</i> is found in variety of alpine habitats, from high elevation mossy ravines to dry summits (5)</p> <p>In New York, <i>Anthoxanthum monticola</i> is limited to a few of the highest peaks in the region of Adirondacks. (6)</p> <p>In Northern New England, it occurs in the high mountains</p> <p><b>Associated species:</b> <i>Carex bigelowii</i>, <i>Diapensia lapponica</i> var. <i>lapponica</i>, <i>Empetrum eamesii</i> spp. <i>atropurpureum</i>, <i>Empetrum nigrum</i> ssp. <i>hermaphroditum</i>, <i>Huperzia appressa</i> (mountain firmoss), <i>Loiseleuria procumbens</i>, <i>Prenanthes boottii</i>, <i>Salix uva-ursi</i> (bearberry willow) (6)</p>
<p>Plant strategy type / successional stage</p>	<p>Stress-tolerator of high elevation, cold temperatures, drought and high winds. Has cold-hardiness mechanisms to prevent cellular and tissue damage; Enters dormancy quickly in response to frost</p>
<p>Plant characteristics</p>	<p><i>A. monticola</i> is a loosely tufted perennial grass. Stem grows around 5-30 in tall with a deep purple or brown base coloring. Leaf blades are 4-6 in and folded. It grows out near the base of the stem. At the top of the stem are clusters of small golden-brown</p>

	<p>inconspicuous flowers in groups of three, called spikelets that are 3-5 cm long. The bottom two flowers of the spikelet are male, with two awns sticking out at the top. The upper flower is bisexual and has no awn (6)</p> <p>Plant produces a sweet fragrance when cut</p>
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**PROPAGATION DETAILS: FROM SEED**

Propagation Goal	Plants
Propagation Method	Seed
Product Type	Field grown
Time to Grow	1-2 years
Target Specifications	20-50cm tall
Propagule Collection Instructions	<p>Seeds collected late summer to early fall from mature plants. Seeds are golden-brown, crisp and dry to the touch. Cut the seed head carefully with scissors. Place seed heads in a paper bag to finish drying.</p>
Propagule Processing/Propagule Characteristics	Seed can be stored 6 months to 1 year. Cold storage can extend lifespan and viability of seeds
Pre-Planting Propagule Treatments	<p>Allow seed heads to complete drying after harvest in a well ventilated area to prevent mold or rot. Once dry, gently rub the heads between your hands or use a sieve to release the seeds. Store in cool, dry place (40-50°F) in airtight container or sealed packaging. Refrigeration recommended. Avoid light exposure.</p> <p>Cold stratify seeds for 4-6 weeks to break dormancy and improve germination, since <i>A. monticola</i> is a cold adapted plant species</p>

<p>Growing Area Preparation / Annual Practices for Perennial Crops</p>	<p>Prepare sowing bed with well drained, weak to neutral acidic soil. Should have some components of organic matter for soil fertility, but the plant typically thrives in nutrient poor environments. Having sand or gravel in the soil mix improves drainage. Cool soil temperatures (50-65°F) preferred. Remove any weeds</p>
<p>Establishment Phase Details</p>	<p>Choose an area with full to partial sun. Surface sow seeds in well drained soil during spring or fall. Surface sowing allows light to reach the seeds, which is needed for light sensitive species like <i>A. monticola</i>. Spread a thin layer of soil on top of seeds and watering regularly to maintain moisture.</p> <p>Mimic plant's native alpine environment as much as possible - good drainage, cool temperatures, lower levels of nutrients</p>
<p>Length of Establishment Phase</p>	<p>Under optimal conditions (with cold stratification), seed germination occurs within 14-30 days of sowing.</p> <p>Could take longer depending on growing conditions. <i>A. monticola</i> are alpine adapted species and may be slower to germinate</p>
<p>Active Growth Phase</p>	<p>Regularly water plants to maintain moisture without waterlogged conditions.</p> <p>Add fertilizer in early spring and mid summer to aid in growth. NPK fertilizer recommended</p> <p>Prune dead or damaged foliage to encourage new growth.</p> <p>Keep an eye out for pest and diseases, which <i>A. monticola</i> can be susceptible to</p>
<p>Length of Active Growth Phase</p>	<p>1-2 years until <i>A. monticola</i> reaches maturity and produces flowers and seed heads</p>

Hardening Phase	Stop fertilization and gradually reduce watering. Avoid cutting or division of plants. Leave undisturbed
Length of Hardening Phase	4-6 weeks
Harvesting, Storage and Shipping	Harvest seed late summer to early fall once the seed heads have turned golden brown with dry or papery texture. Collect in a paper bag and allow to dry for a couple weeks. Store seeds in sealed or airtight containers. Keep in a cool room or refrigerator (32- 41°F) to maintain seed viability. Environment should be cool, dark and dry
Length of Storage	1-2 years
Guidelines for Outplanting / Performance on Typical Sites	<i>A. monticola</i> needs an area with full to partial sun and soil with good drainage.
Other Comments	No other comment

**PROPAGATION DETAILS: VEGETATIVE**

Propagation Goal	Plants
Propagation Method	Vegetative (through division)
Product Type	Container or field grown
Time to Grow	None. Propagules already mature


Target Specifications	20-50 cm
Propagule Collection Instructions	<p>Propagule is a portion of the parent plant. Division of plants is best done in early spring or fall on mature plants of at least 2 years that have formed well-established clumps. An indicator of the plant being ready for division is slow growth in the center of clump</p> <p>Water the plant a day before digging to soften soil.</p> <p>Dig 4-6in around and beneath the clump, making sure roots are still intact. Gently remove the clump, ensuring that all sections of plant are still in place. Shake off excess soil</p>
Propagule Processing/Propagule Characteristics	Each propagule should include portion of the crown, above ground foliage and healthy roots
Pre-Planting Propagule Treatments	None
Growing Area Preparation / Annual Practices for Perennial Crops	<p>Prepare the sowing bed with well drained, weak to neutral acidic soil. Should have some components of organic matter for soil fertility, but the plant typically thrives in nutrient poor environments. Having sand or gravel in the soil mix improves drainage. Cool soil temperatures (50-65°F) preferred. Remove any weeds</p> <p>Dig the transplant area around 4-6 in deep, forming a large enough hole for the new propagule to lay.</p>
Hardening Phase	Stop fertilization and gradually reduce watering. Avoid cutting or division of plants. Leave plant undisturbed
Length of Hardening Phase	4-6 weeks

Harvesting, Storage and Shipping	Harvest seed late summer to early fall once the seed heads have turned golden brown with dry or papery texture. Collect in a paper bag and allow to dry for a couple weeks. Store seeds in sealed or airtight containers. Keep in a cool room or refrigerator (32- 41°F) to maintain seed viability. Environment should be cool, dark and dry
Length of Storage	1-2 years
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Other Comments	No other comment
<b>INFORMATION SOURCES</b>	
References	See below
Other Sources Consulted	See below
Protocol Author	Vivian H. Nguyen
Date Protocol Created or Updated	05/02/25

**Note:** It was difficult to find primary sources with adequate propagation information for *A. monticola*. I had to use any sources I can find

**References:**

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**Other Sources Consulted:**

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