

Plant Propagation Protocol for *Alopecurus carolinianus*

ESRM 412 – Native Plant Production

URL: <https://courses.washington.edu/esrm412/protocols/2021/ALCA4.pdf>



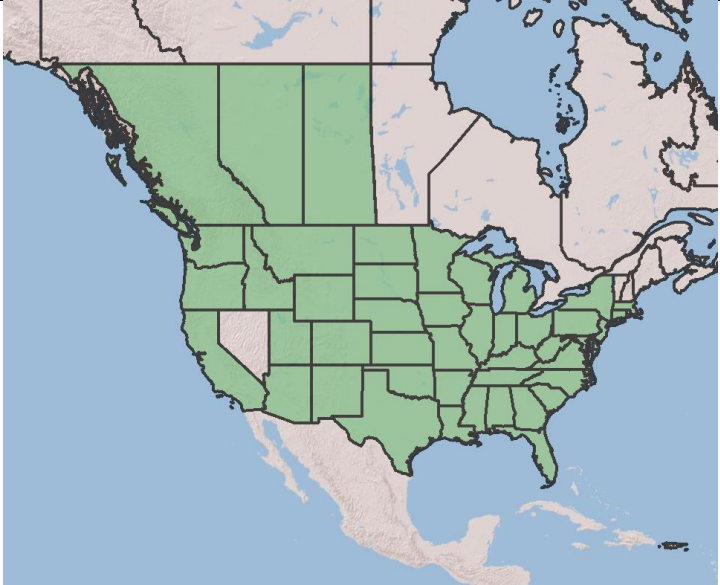
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TAXONOMY	
Plant Family	
Scientific Name	Poaceae
Common Name	Grass Family
Species Scientific Name	
Scientific Name	<i>Alopecurus carolinianus</i> Walter [2]
Varieties	<i>Alopecurus geniculatus</i> var. <i>caespitosus</i> Scribn. <i>Alopecurus geniculatus</i> var. <i>ramosus</i> (Poir.) H. St. John [6]
Sub-species	N/A [2, 6]
Cultivar	N/A
Common Synonym(s)	<i>Alopecurus macounii</i> Vasey <i>Alopecurus ramosus</i> Poir. <i>Alopecurus gracilis</i> Willd. ex Trin. <i>Alopecurus pedalis</i> Bosc ex P. Beauv.

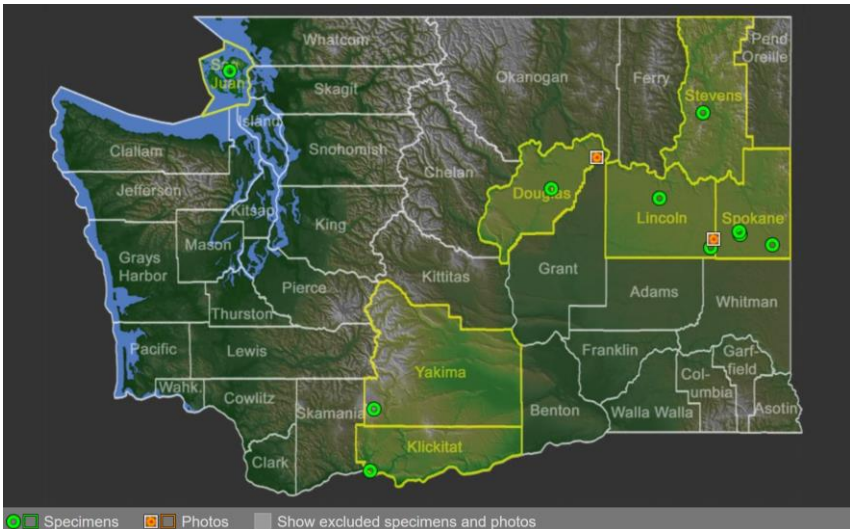
Common Name(s)	Carolina Foxtail, Common Foxtail [4], Annual Foxtail, Tufted Meadow-foxtail [6]
Species Code (as per USDA Plants database)	ALCA4 [2]

GENERAL INFORMATION

Geographical range



Alopecurus carolinianus present in highlighted areas. Map courtesy of USDA [2].



Alopecurus carolinianus present in highlighted counties. Map courtesy of Burke Museum [7].

Ecological distribution	Wetlands (specifically vernal pools and marshes), rivers, previously disturbed ground [12]. Often found in roadside, pastures, waste areas, and cultivated fields [5].
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Climate and elevation range	Prefers sunny, moist conditions with exposed topsoil that is prone to flooding [3]. Wide elevation range spanning 50-1400 meters [12].
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Local habitat and abundance	Often found in moist to wet soils that are exposed to full sun. Occurs sporadically throughout the region [9] but found mostly in eastern Washington. [7]
Plant strategy type / successional stage	Weedy, adaptable, stress-tolerator [4].
Plant characteristics	A winter and spring annual bunchgrass that grows up to 20 inches tall [11]. Pointed leaves can grow up to six inches in length. Each culm has 2-4 leaves and spiked inflorescences overlapping the raceme. They have a sturdy and fibrous root system. [5]
PROPAGATION DETAILS	
Ecotype	N/A
Propagation Goal	Plants used for restoration purposes.
Propagation Method	Seed
Product Type	Container stock [10]
Stock Type	Container [plug]
Time to Grow	3 months [8]
Target Specifications	Tall, erect plant with healthy rhizomes and well-established root system.
Propagule Collection Instructions	Collect seeds during fruiting season (June-July). Collect mature grains (seeds) from stalks, leaving them bare. [1]
Propagule Processing/Propagule Characteristics	Very light seed, 556,000 seed per lb. Minimum seeding rate of 3lb./acre [8].
Pre-Planting Propagule Treatments	Clean and sanitize seeds. Store seeds in warm conditions for up to 3 months in dry, summer-like conditions to deter germination [10].
Growing Area Preparation / Annual Practices for Perennial Crops	Media should be moist and firmly packed. Seeds should be buried no more than ½ inch in the soil. Seedbed should also be weed-free to limit resource competition [8].
Establishment Phase Details	During the first couple weeks, the seedlings will be very weak. It is important to keep the soil moist as it is vital for plant growth. Establishment phase is finally over when rhizomes emerge (usually at 8-week mark) [8].
Length of Establishment Phase	8 weeks [8]
Active Growth Phase	Typically outplanted after active growth phase. Soil should be consistently watered to maintain moist environment [8].
Length of Active Growth Phase	10-12 weeks, usually lasting until June [1].
Hardening Phase	Once fully established, <i>Alopecurus carolinianus</i> will continue to harden until peak temperatures are reached (July/August). Due to their intolerance to high temperatures, much of the species will die off [8].
Length of Hardening Phase	8-10 weeks [5]

Harvesting, Storage and Shipping	Prime seedling harvesting is in June after active growth phase. Seedlings should be kept in moist, sunny conditions with a maximum temperature of 30°C as <i>Alopecurus carolinianus</i> prefers cool conditions [10].
Length of Storage	<i>Alopecurus carolinianus</i> seedlings can be stored for a maximum of 6 months in cool, moist conditions. Once stored past 6 months, seedling's viability is greatly reduced [10].
Guidelines for Outplanting / Performance on Typical Sites	In proper conditions, <i>Alopecurus carolinianus</i> will grow to 16-20 inches and have a well-established root system. While nursery propagation is possible, it is best to sow <i>Alopecurus carolinianus</i> seeds directly in the outplanting site as there is a higher survival rate when done so [10]. There should be 3 months of elapsed time from sowing to flowering.
Other Comments	<i>Alopecurus carolinianus</i> is often seen as a “benign weed” so it is almost never cultivated in a nursery setting [2]. However, it has a strong root structure that could prove useful in restoration sites prone to erosion [8].

INFORMATION SOURCES

References	<p>[1] “<i>Alopecurus Carolinianus</i> (Carolina Foxtail).” <i>Minnesota Wildflowers</i>, www.minnesotawildflowers.info/grass-sedge-rush/carolina-foxtail. Web. Accessed 24 May 2021.</p> <p>[2] “<i>Alopecurus Carolinianus</i> Walter.” <i>USDA</i>, plants.sc.egov.usda.gov/home/plantProfile?symbol=ALCA4. Web. Accessed 24 May 2021.</p> <p>[3] <i>Annual Foxtail (Alopecurus Carolinianus)</i>, www.illinoiswildflowers.info/grasses/plants/an_foxtail.html. Web. Accessed 24 May 2021.</p> <p>[4] “Carolina Foxtail, <i>Alopecurus Carolinianus</i>.” <i>California Native Plant Society</i>, calscape.org/Alopecurus-carolinianus-(). Web. Accessed 24 May 2021.</p> <p>[5] “Carolina Foxtail.” <i>Mizzou WeedID</i>, weedid.missouri.edu/weedinfo.cfm?weed_id=350. Web. Accessed 24 May 2021.</p> <p>[6] Dolan, R. W., and M. E. Moore. “<i>Alopecurus Carolinianus</i>.” <i>Alopecurus Carolinianus - Species Page - IPA: Indiana Plant Atlas</i>, www.indiana.plantatlas.usf.edu/plant.aspx?id=105#infraspecies. Web. Accessed 24 May 2021.</p> <p>[7] Herbarium, Burke Museum. “<i>Alopecurus Carolinianus</i>.” <i>Burke Herbarium Image Collection</i>, biology.burke.washington.edu/herbarium/imagecollection/taxonmap.</p>
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	<p>-php?Taxon=Alopecurus+carolinianus&SourcePage=taxon. Web. Accessed 24 May 2021.</p> <p>[8] J. Chris Hoag <i>et al.</i> “Native Species.” <i>DESCRIPTION, PROPAGATION, AND ESTABLISHMENT OF WETLAND - RIPARIAN GRASS AND GRASS-LIKE SPECIES IN THE INTERMOUNTAIN WEST</i>, USDA Natural Resources Conservation Service, 2011, pp. 51–52.</p> <p>[9] <i>Plants of the Pacific Northwest Coast</i>, by A. MacKinnon <i>et al.</i>, Partners Publishing, 2016, p. 368.</p> <p>[10] <i>Proceedings of the Conference Native Plant Propagation and Restoration Strategies: December 12-13, 2001</i>, by Diane L. Haase, Oregon State University, 2001, p. 32.</p> <p>[11] “Tufted Foxtail.” <i>Montana Natural Heritage Program</i>, fieldguide.mt.gov/speciesDetail.aspx?elcode=PMPOA07040. Web. Accessed 24 May 2021.</p> <p>[12] William J. Crins 2012, <i>Alopecurus carolinianus</i>, in Jepson Flora Project (eds.) <i>Jepson eFlora</i>, https://ucjeps.berkeley.edu/eflora/eflora_display.php?tid=12745. Web. Accessed on May 24, 2021.</p>
Other Sources Consulted	N/A
Protocol Author	Megan Beik
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