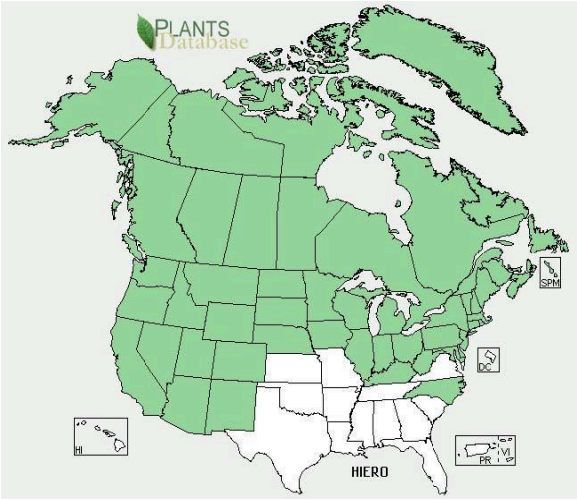
Plant Propagation Protocol for *Hierochloe hirta*

ESRM 412 – Native Plant Production

URL: https://courses.washington.edu/esrm412/protocols/*[2025]*/*[HIHI.pdf]*

TAXONOMY	
Plant Family	
Scientific Name	*Hierochloe hirta*[11]
Common Name	Northern sweetgrass[11]
Species Scientific Name	
Scientific Name	*Hierochloe hirta* (Schrank) Borbás[11]
Varieties	*Hierochloe odorata* (L.) P. Beauv. HIOD[11] *Hierochloe hirta* (Schrank) Borbás HIHI[11]
Sub-species	ssp. *arctica* (J. Presl) G. Weim.[11] ssp. *hirta* (Schrank) Borbás[11]
Cultivar	
Common Synonym(s)	*Anthoxanthum hirtum* (Schrank) Y. Schouten & Veldkamp[11] *Anthoxanthum hirtum* (Schrank) Y. Schouten & Veldkamp ssp. *arcticum* (J. Presl) G. Tucker[11] *Hierochloe odorata* (L.) P. Beauv. ssp. *arctica* (J. Presl) Tzvelev[11] *Hierochloe odorata* (L.) P. Beauv. ssp. *hirta* (Schrank) Tzvelev[11]
Common Name(s)	northern sweetgrass[3] vanilla grass[3] holy grass[3] Seneca grass[3] alpine sweetgrass[3]
Species Code (as per USDA Plants database)	HIHI[11]
GENERAL INFORMATION	

Geographical range	 Map Source[3] USA: AK , AZ , CA , CO , DE , IA , ID , IL , IN , KY , MA , MD , MI , MN , MT , NC , ND , NE , NH , NJ , NM , NV , NY , OH , OR , PA , SD , UT , VT , WA , WI , WV , WY[5]
Ecological distribution	Moist ground on shores, meadows, low prairies; edges of woods, bogs, and marshes.[3]
Climate and elevation range	1500-1800m[9]
Local habitat and abundance	Often found in mid-successional communities, among other grasses and shrubs.[3]
Plant strategy type / successional stage	Perennial rhizomatous sod-forming grass[8]
Plant characteristics	Perennial grass graminoid, with stems up to 30 inches tall growing up from rhizomes.[3, 11] Stems have few leaves attached, and the leaves have rough edges with shiny, hairless undersides. A reddish-purple color is often seen near the base of the grass. Inflorescence is an open, golden brown panicle.[3]
PROPAGATION DETAILS: FROM SEED	
Ecotype	Wet meadows, sloughs, and marshes.[8]
Propagation Goal	Plants
Propagation Method	Seed
Product Type	Container
Stock Type	Bare rootstock
Time to Grow	3-4 months[2, 7]
Target Specifications	16-36 inches tall[1]
Propagule Collection Instructions	When: June or July[8] How: Check carefully for seeds, since most spikelets won't produce viable propagules.[8]

Propagule Processing/Propagule Characteristics	Inflorescence is a 4-9cm long panicle with 3-floret spikelets. The two lower spikelets just have stamens, while the upper one is perfect. Seeds have a poor germination rate.[8]
Pre-Planting Propagule Treatments	No pretreatments are needed[8]
Growing Area Preparation / Annual Practices for Perennial Crops	Fall sowing is the most effective time. Ideal growing media is rich sandy loam. Light level should be full sun to partial shade. Water level should be moist to medium wet.[8] Growing Area Preparation: Remove all weeds, rototill or hand-dig so the soil is loose, rake/smooth to a level grade, packing to firm the surface, and moisten the soil to a depth of 2-3 inches.[10]
Establishment Phase Details	Germination rates are fairly low (25-30%).[10]
Length of Establishment Phase	4-6 weeks[7]
Active Growth Phase	Plants should remain in pots for an additional 2-3 weeks, watering every day, to care for transplant shock and the soil drying out.[10]
Length of Active Growth Phase	~50 days[2]
Hardening Phase	Sweetgrass is very cold hardy, going dormant in cold weather and resprouting when ground temperatures reach 40°F. [3]
Length of Hardening Phase	Late fall-early spring[3]
Harvesting, Storage and Shipping	Plant division is done by separating propagules that have developed from the rhizomes of the spreading sweetgrass. These propagules can then be placed in a container for storage/shipping/future planting or separation.[3]
Length of Storage	Newly transplanted separated plants should be placed in the shade for 2-3 weeks while their roots establish.[3]
Guidelines for Outplanting / Performance on Typical Sites	Plants should be kept moist, with frequent watering. Protection from herbivores could also be required.[4] Flowering begins in the spring.[3]
Other Comments	
PROPAGATION DETAILS: VEGETATIVE	
Ecotype	Wet meadows, sloughs, and marshes.[8]
Propagation Goal	Plants
Propagation Method	Vegetative
Product Type	Field-grown
Stock Type	Rhizome cuttings[8]

Time to Grow	3 weeks[10]
Target Specifications	16-36 inches tall[1]
Propagule Collection Instructions	How: Rhizomes and roots will be 10 inches deep or less, and can be removed in a clump with a shovel. Be sure to dig the plants in a pattern that makes it easy for the remaining plants to spread to the disturbed area within 1-2 years.[4] When: Late fall or early spring, before the plants begin to grow. Or, in early spring when green shoots appear.[6]
Propagule Processing/Propagule Characteristics	If the stock needs to be separated, make sure each plantlet has a rhizome or rhizome bud. [4]
Pre-Planting Propagule Treatments	The soil around the rhizomes and roots should be removed through soaking the root mass until the soil disperses. [4]
Growing Area Preparation / Annual Practices for Perennial Crops	Test the soil before transplanting. Phosphorus, potassium, and other nutrients (except nitrogen) can be applied based on the needs indicated by the soil test. Application methods depend on cool season grasses. Nitrogen can be applied after the establishment phase. [4]
Establishment Phase Details	Field-planted plantlets should be installed on 2-3 foot centers, and the plants will fill in to create stands within 1-3 years.[4] The leaves of the plantlets should be cut to 3-4 inches in height after transplanting to encourage root development and reduce moisture stress on the plant.[4]
Length of Establishment Phase	2-3 weeks[10]
Active Growth Phase	After the plants have gone through the establishment phase and have grown to at least 4-6 inches in height, routine weeding should be done. This is done to reduce competition for light, nutrients, and water, which will encourage plant growth. The site should also be frequently watered, since sweetgrass prefers a moist environment.[10]
Length of Active Growth Phase	Spring-Winter In winter, when the temperatures are colder, the plant goes into dormancy.[3]
Hardening Phase	Sweetgrass is not drought tolerant, so the soil should be kept moist (but not saturated). Fertilizer can be applied as appropriate for cool season grasses and according to soil test results.[3]
Length of Hardening Phase	Late fall-early spring[3, 10]

Harvesting, Storage and Shipping	Plant division is done by separating propagules that have developed from the rhizomes of the spreading sweetgrass. These propagules can then be placed in a container for storage/shipping/future planting or separation.[3]
Length of Storage	Newly transplanted separated plants should be placed in the shade for 2-3 weeks while their roots establish.[3]
Guidelines for Outplanting / Performance on Typical Sites	Plants should be kept moist, with frequent watering. Protection from herbivores could also be required.[4] Flowering begins in the spring.[3]
Other Comments	Since wetland habitat has been lost, wild harvest should only occur in salvage sites with appropriate approvals/permits.[10]
INFORMATION SOURCES	
References	1. Anthoxanthum hirtum (Sweetgrass): Minnesota wildflowers. (n.d.). Retrieved May 26, 2025, from https://www.minnesotawildflowers.info/grass-sedge-rush/sweetgrass 2. Lambrechtsen, N. C. (1968). Some Aspects of the Biology of Anthoxanthum Odoratum L. [University of Canterbury]. https://ir.canterbury.ac.nz/bitstream/10092/5664/1/lambrechtsen_thesis.pdf 3. Leif, J. 2010. Plant fact sheet for sweetgrass [*Hierochloe hirta* (Schrank) Borbás ssp*. arctica* (J. Presl) G. Weim. USDA-Natural Resources Conservation Service, Rose Lake Plant Materials Center, East Lansing, MI 48823. 4. Leif, J. (2020). Sweetgrass Collection, Propagation, and Harvest. USDA-Natural Resources Conservation Service. https://www.nrcs.usda.gov/plantmaterials/mipmctn12298.pdf (Original work published 2014) 5. Marcus, J. (2012). Hierochloe hirta. Lady Bird Johnson Wildflower Center. https://www.wildflower.org/plants/result.php?id_plant=HIHI 6. NRCS Plant Materials Center. (2021). Sweetgrass Propagation. USDA. https://www.nrcs.usda.gov/plantmaterials/ndpmcar13803.pdf

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Other Sources Consulted	1. Smith, J. (2017). Plant Species Evaluation Form: Anthoxanthum nitens (Weber) Y. Schouten & Veldkamp subsp. Nitens. California Native Plant Society. https://rareplantfiles.cnps.org/scc/AnthoxanthumNitensNitensSpProfileSCC20171019.pdf 2. White, Dawn M., "Growth and clonal integration of sweetgrass (Hierochloe odorata) in western Montana" (2002). Graduate Student Theses, Dissertations, & Professional Papers. 6821. https://scholarworks.umt.edu/etd/6821
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