



United States Department of Agriculture
Natural Resources Conservation Service
Plant Materials Program

Jackson-Frazier Germplasm meadow barley

Hordeum brachyantherum Nevski

A Conservation Plant Release by USDA NRCS Corvallis Plant Materials Center, Corvallis, Oregon



Jackson-Frazier Germplasm meadow barley. Photo by Dale Darris.

Jackson-Frazier Germplasm is a source identified class, natural track, pre-variety of meadow barley (*Hordeum brachyantherum*) released in 2008 by the USDA Natural Resources Conservation Service, Corvallis, Oregon. It is intended for conservation use primarily at lower elevations in the Willamette Valley region of western Oregon and southwestern Washington.

Description

Jackson-Frazier Germplasm meadow barley is a native, short- to medium-lived (3–8 years), cool-season perennial bunchgrass. Growth habit is an open tuft with erect to spreading stems (culms) that are 2.5 to 4 ft tall and slightly bent near the base. The leaves are both basal from short vegetative tillers and occur partway up the reproductive stems. The seedhead (panicle) is a narrow, 1.5- to 3-inch long, erect, flattened spike with short bristles (awns attached to floral structures). It produces primarily self-pollinated seed by early July and has a brittle central axis that breaks off in pieces from the top down as it matures. Jackson-Frazier Germplasm includes plants with bluish stems and purple to green leaves and panicles, as well as plants with only green foliage and seedheads that mature several days earlier.

Source

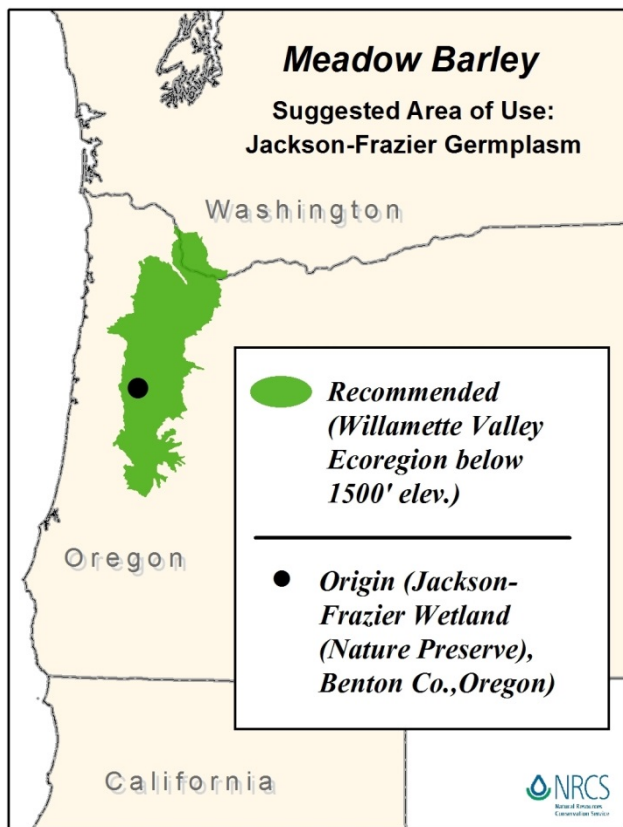
Jackson-Frazier Germplasm (PI-645564, 9056373, PVGOR86) was first collected in 1997 as seed from hundreds of wild parents growing naturally within the Jackson-Frazier Wetland nature preserve in Benton County, Oregon, near Corvallis. The germplasm has not been bred, hybridized, or undergone purposeful selection. It has been evaluated for seed production techniques, germination, flood tolerance, and ability to establish in uplands, waterways, and seasonally wet sites. Although Jackson-Frazier Germplasm was not directly compared to other populations of meadow barley, observations indicate it has good seedling vigor, exhibits low levels of head smut and ergot diseases, establishes quickly, and produces consistent, acceptable seed crops. It was also chosen for the large size, stability, and central location (within the Willamette Valley of Oregon) of the parent population.

Conservation Uses

Jackson-Frazier Germplasm is recommended for freshwater wetland restoration and enhancement. It also provides quick cover alone or in mixes with other native grasses for erosion control and wildlife habitat along streambanks, waterways, shorelines, ditch bottoms, and other summer dry, moist or seasonally wet sites. While the palatability of the species for livestock and deer is moderately good early on, the specific forage value and utilization of Jackson-Frazier Germplasm has not been determined. Other potential uses include temporary nurse crop for longer lived species on dry, infertile sites and vineyard cover crop.

Area of Adaptation and Use

Based on what is known about the species and limited field testing, Jackson-Frazier Germplasm is anticipated to be best adapted and thus recommended for use in the Willamette Valley Ecoregion of western Oregon and southwestern Washington (Cowlitz and Clark Counties) below an elevation of 1,500 ft (see map below). The germplasm grows well in full sun on course to fine-textured soils with low salinity and a pH ranging from 5.4 to 7.0. It tolerates semi-drought in summer and prolonged periods of soil saturation and shallow flooding in winter and spring. Adaptation to more acidic and basic soils as well as higher soil salinity may be population specific for meadow barley; therefore this germplasm is not yet recommended for use on soils with more extreme pH levels or moderately brackish sites such as high coastal marshes where the species is commonly found.



Suggested area of use for Jackson-Frazier Germplasm meadow barley.
Map by Ian Reid.

Establishment and Management for Conservation Plantings

Jackson-Frazier Germplasm usually has no seed dormancy so it establishes readily by sowing in the fall or early spring. The awns and two nonviable florets (flowering units) attached to each viable floret should be removed in order to reduce volume and improve seed flow through planting equipment. Left intact or only partially conditioned, seed lots can range from 30,000 to 100,000 seeds/lb. In contrast, highly processed seed has about 150,000 seeds/lb. The latter will result in 3 to 4 seeds per square foot for each pound of seed applied per acre. Suggested seeding rates vary from 8 to 20 lb/acre when sown alone, depending on site conditions and purpose of planting. Double the rates if broadcasted. Meadow barley can be short-lived so stand maintenance and regeneration may rely on a period of deferred grazing during flowering and seed set every few years. The species is easily eliminated by close mowing early in the growing season. Tolerance to prescribed burning in late summer is high.

Ecological Considerations

Meadow barley has the potential to be weedy in certain crops or situations. However, Jackson-Frazier Germplasm was rated as having only a moderate ability to

propagate and maintain itself under natural conditions within the intended area of use. Bristles (awns) on the seed readily attach to hair and skin, but little external or internal injury is expected to livestock that graze the foliage. While this germplasm can have moderate leaf rust in some years, levels of head smut disease and ergot infection have been low compared to other populations.

Seed and Plant Production

Sow meadow barley in the fall at a rate of 8 to 10 lb/acre in 12- to 24-inch wide rows. There are pre-emergent herbicides that can be used for weed control in well-established stands, but not new ones. Broadleaf weed control herbicides can be applied to both new and existing stands. Irrigation is typically not required but fields should be fertilized in February or early March with 50 to 75 lb of N/acre. The seed matures unevenly, so harvest multiple times with a flail-vac seed stripper or harvest conventionally by windrowing and combining. Remove post-harvest residue by baling, flail chopping into a trailing wagon, or burning (where permitted). Sterile florets and awns should be detached from fertile florets during seed conditioning. Seed yields average 150 lb/acre.

Availability

For conservation use: Jackson-Frazier Germplasm seed is only available from a few specialized growers.

For seed or plant increase: G1 source-identified seed is produced and maintained by the NRCS Corvallis Plant Materials Center. Certified seed is available to growers for G2 and G3 seed production.

For more information, contact:
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<http://plant-materials.nrcs.usda.gov/orpmc/>

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For additional information about this and other plants, please contact your local USDA Service Center, NRCS field office, or Conservation District <<http://www.nrcs.usda.gov/>>, and visit the PLANTS Web site <<http://plants.usda.gov/>> or the Plant Materials Program Web site <<http://www.plant-materials.nrcs.usda.gov/>>

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