



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

'Barton'

Western Wheatgrass

Pascopyrum smithii (Rydb.) A. Löve

A Conservation Plant Release by USDA NRCS Manhattan Plant Materials Center, Manhattan, Kansas



Figure 1. Barton western wheatgrass inflorescences in a monoclulture stand. Photograph taken by John Row, Plant Materials Center Specialist, Manhattan PMC.

'Barton' western wheatgrass (*Pascopyrum smithii*) is a cultivar released in 1970 in cooperation with the Kansas Agricultural Experiment Station and the Agricultural Research Service.

Description

Western wheatgrass is perhaps one of the best known and most common of our cool-season native range grasses. It is a long lived, perennial species with an extensive, strong rhizomatous root system combined with a few deep roots. Stems arise singly or in clusters and grow from 1 to 3 feet tall. The leaf sheaths are hairy and the purplish auricles are claw like and clasp the stem. The ligule is inconspicuous and the leaves are flat, rough on the upper surface and margins, with a distinctive bluish green coloration and prominent veins. The inflorescence is a stiff spike that is erect and 3 to 8 inches long. The awn-tipped lemma, palea, and glumes are generally glabrous.

Source

Seed was originally collected in 1947 from a natural grassland area along Walnut Creek in Barton County, Kansas. Field seed was collected, increased and tested as PMK-402. Barton is high in forage and seed production. Barton is a strongly rhizomatous, leafy variety with growth that is considered intermediate between northern and southern ecotypes.

Conservation Uses

Western wheatgrass is well suited for stabilization of disturbed soils because of its strongly rhizomatous growth habit. It is relatively well adapted to dry climates and is adapted to a variety of soil conditions which make it ideal

for reclamation in areas receiving 12 to 20 inches of rainfall annually. Western wheatgrass is palatable to all classes of livestock and wildlife. The protein level can be fairly high in the spring, but then decreases as the plants mature and produce seed. Western wheatgrass cures well making it good winter forage. Its low growth habit, strongly rhizomatous sod forming ability, and low maintenance make it an ideal ground cover and conservation species. It is used as an effective erosion control cover in areas subjected to siltation and overflow, which it tolerates extremely well. It also has a fairly high tolerance of saline and sodic soil conditions.

Area of Adaptation and Use

Barton is well adapted for use in western Kansas, central and western Nebraska, north central and western Oklahoma and eastern Colorado, wherever there is a need for this species.

Establishment and Management for Conservation Plantings

Seed of western wheatgrass should be seeded with a drill at a depth of $\frac{1}{4}$ to $\frac{3}{4}$ of an inch depending on soil texture and type. The deeper planting depth is used on the coarse-to-medium textured soil types and the shallower planting on the heavier textured soils. The single or monoclulture planting rate of western wheatgrass is 24 to 30 Pure Live Seeds (PLS) per square foot. Mulching and irrigation can be beneficial for stand establishment. Early spring or late fall planting times are typically superior for western wheatgrass establishment. Stands can be slow to develop, but should be provided weed management and fertility to improve overall production. Western wheatgrass greens up early and provides early forage in pastures and then will provide late fall forage if sufficient moisture is available. Stands of western wheatgrass should not be grazed until fully established. Six inches of new growth should be available in the spring before grazing established stands of western wheatgrass.

Ecological Considerations

Western wheatgrass is a long lived, vegetatively aggressive species that can spread by rhizomes and seed production. While not considered 'weedy' as such it can spread into adjoining vegetative communities under good environmental and climatic conditions. The major disease of western wheatgrass is *Claviceps purpurea* or ergot which causes direct reduction of seed production on many grass and cereal grain species. The loss of seed production is bad, but the major influence occurs when livestock consume the ergot fungal fruiting bodies or sclerotia in contaminated feed. All domestic animals are susceptible, including birds. However, cattle are probably the most

susceptible. Two well known forms of ergotism occur in animals, an acute form characterized by convulsions and a chronic form characterized by gangrene. There are also rust pathogens that cause diseases on western wheatgrass, *Puccinia graminis* (stem rust), *P. montanensis* (brown strip rust) and *P. rubigo-vera* (leaf rust).

Seed and Plant Production

Seed production of western wheatgrass in a cultivated, monoculture situation has been successful. Row spacing of 24 to 36 inches is recommended, but cultivation is considered necessary due to the rhizomatous nature of this species. Seed yields and stand longevity are reduced without fertilization and cultivation. Seed production is generally most productive for 3 to 4 years of a new stands life. Harvesting is best accomplished by direct combining or swathing at the hard dough stage of seed development. Stands are prone to lodging, so prudent applications of fertility and irrigation water are recommended. Harvest timing is usually early to mid-July in Kansas. The eleven year average of Barton western wheatgrass seed production in Manhattan, Kansas was 245 pounds of bulk cleaned seed per acre. The average purity was 89.21 percent and the average inert material was 9.49 percent. Germination percentages for the seed lots averaged 41 percent with an average 23 percent dormant seed.

Availability

For conservation use: Commercial production is widely available from several seed vendors of native conservation and forage species.

For seed or plant increase: Breeder and Foundation Class seeds are produced and maintained by the USDA-NRCS Plant Materials Center in Manhattan, Kansas.

For more information, contact:
Manhattan Plant Materials Center,
3800 South 20th Street
Manhattan, Kansas 66502
(785) 539-8761 FAX (785) 539-2034
<http://www.plant-materials.usda.nrcs.gov>

Citation

Release Brochure for Barton Western Wheatgrass (*Pascopyrum smithii*). USDA-Natural Resources Conservation Service, Manhattan PMC, Manhattan, KS 66502.

Published: June 2012

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>>

Helping People Help The Land

USDA IS AN EQUAL OPPORTUNITY PROVIDER AND EMPLOYER