

Rosana Western Wheatgrass

Scientific Name

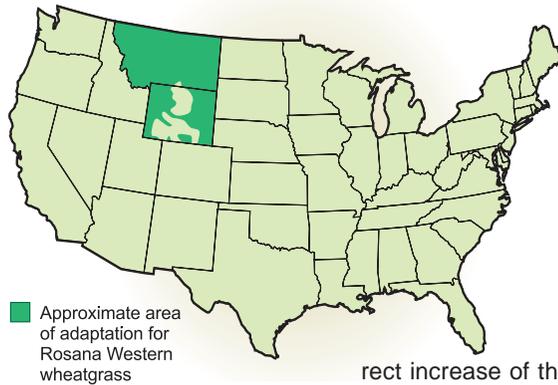
Pascopyrum smithii (Rydb.) A. Löve

Common Name

Western wheatgrass, bluejoint, and bluestem

Description

'Rosana' (PI 469236) is a cultivar release of western wheatgrass. Western wheatgrass is a native, sod-forming grass found on a wide range of soil types in plant communities associated with blue grama, bluebunch and thickspike wheatgrass, Idaho fescue, and several needlegrasses. It is strongly rhizomatous with slender creeping underground rootstocks in a dense, shallow, fibrous root system to a depth of 8 inches with deep-feeding roots that penetrate to 5 feet. It produces an abundance of moderately-fine, blue-green leaves that are typically 4- to 10-inches long. The leaf blades are usually stiff and taper to a sharp point. The upper leaf surface is rough and distinctly ridged with a smooth underside. It has large, clasping auricles that are commonly purple in color. Mature plants grow 1 to 1½ feet tall. The narrow inflorescence is a spike 8 to 12 inches long with 70% having two florets per node in the lower portion of the spike. The lemmas are awn-tipped and smooth. Glumes are 3 mm long or longer, with approximately 20% being awn-tipped. Approximately 18% of the spikelets are pubescent. Western wheatgrass is often found growing with thickspike wheatgrass, which has greener-colored leaves, a hairy lemma, and blunt-shaped glumes.



Plant Selection Process

Rosana western wheatgrass was directly increased without selection after comparison to approximately 60 other accessions from Montana, Wyoming, North Dakota, Colorado, Kansas, and Washington. The variety was cooperatively released by the NRCS and Montana Agricultural Experiment Station in 1972. Direct increase of the original collection constitutes the variety. The experimental designations were M-23 and P-15582.

Direct increase of the original collection constitutes the variety. The experimental designations were M-23 and P-15582.

Selection Attributes

Rosana is drought tolerant, and exhibits excellent seedling vigor and ease of establishment. It has good forage and seed production with high percentage seed germination. Rosana has a fast rate of spread and the strong rhizomes produce an open sod that is resistant to trampling and vehicular traffic.

Origin

Rosana was originally collected in 1959 along the Porcupine Creek drainage northwest of Forsyth, in Rosebud County, Montana. The seed was collected from native meadows on silty-clay to clay-loam soils.

Adaptation

Rosana wheatgrass is adapted to a wide variety of sites in the Northern Rocky Mountain region and adjacent

Great Plains. It thrives on medium- to fine-textured soils having moderate or higher levels of soil moisture and is tolerant of coarse-textured soils. Rosana prefers slightly acidic to moderately alkaline soils, and is tolerant of moderate to strongly saline and saline-sodic environments. It is best adapted to a mean annual precipitation of 12 to 20 inches but performs well in the 10- to 14-inch zone. It is commonly found in areas with seasonal overflow, in swales or under irrigation; and it can withstand considerable inundation and flooding. Rosana is adapted to moderately rolling topography in elevations ranging from 1,000 to 9,000 feet.

Application and Uses

Rosana was selected because of ease of establishment and excellent seedling vigor. It has proven its ability to stabilize, revegetate and reduce erosion on disturbed sites, such as depleted rangeland, mined land, roadsides, recreation areas, and construction sites. Since its release, Rosana has been one of the most popular and sought after reclamation species in the Northern Great Plains Region. Rosana is an excellent component in seed mixtures for reseeding range sites that are severely eroded or have low fertility. Rosana forms a durable sod under dryland conditions and is well suited as turf in low maintenance landscapes and naturalized areas. However, the leaf blades are tough and do not cut clean, resulting in a frayed, ragged cut edge. It initiates growth a little later than other cool-season grasses and achieves 50% of its annual yield by the end of June. It makes excellent late-season forage. The palatability rating for cattle and horses is 80% and for sheep and goats is 50%. It is fairly palatable as forage for elk. Western wheatgrass produces palatable and nutritious hay, although it is more commonly used as forage. It has an early May protein level of about 20%, decreasing to 4% in October. The digestible carbohydrates remain



at approximately 45% throughout the growing season. Rosana can withstand short-duration heavy grazing and considerable trampling.

Establishment for Seed Production

Rosana will produce high-yielding seed crops for 3 years before sodbinding occurs. Newly established seed production fields do not produce seed until the second growing season. A fourth-year crop will produce an average yield and then the field should be removed from production. Attempts at renovation gapping, walking rows, or spiking only open the stand to weed infestation. Seed production fields are easy to establish using a conventional double-disk drill with a planting depth of 1/4 to 1/2 inch. With 93,000 seeds per pound, the recommended seeding rate under irrigation is 6 pounds pure-live-seed per acre at 24-inch row spacing. Western wheatgrass can be planted in early spring, late summer (by August) with supplemental irrigation, or as a dormant fall seeding just prior to freeze-up. The rows are cultivated during the establishment year, but once rhizome development starts, the planting is allowed to grow solid. It is recommended that phosphorus fertilizer be applied during the year of establishment at an appropriate rate based on the results of soil tests. Nitrogen fertilizer applications should begin in the fall of the second growing season to nourish development of seedhead primordia at 60 to 80 pounds of actual N per irrigated acre. The seed matures in early August; it is harvested at the hard-dough stage by swathing, followed with combining of the cured windrows. Seed yields at the Bridger PMC are about 500 pounds per acre under irrigated conditions (36-inch row spacing). Commercial growers have reported seed yields of up to 1,000 pounds per acre.

Establishment for Conservation Use

Western wheatgrass is the most important and most successfully established species in the Northern Great Plains plant growth region. Stands of Rosana are easily attained with accepted cultural practices. Late-fall and early-spring seedings are equally satisfactory, and no fertilizers are necessary to establish the stand. Good seedbed preparation on critical areas includes harrowing, packing, drilling the seed with depth-control bands, and mulching. All these techniques are encouraged for best stand establishment. Recommended seeding rate is 8 pounds of pure-live-seeds per acre. Broadcast seeding is not recommended, except on freshly disturbed sites, such as following wildfires, reconstructed road slopes, etc. The seeding rate on critical areas should be at least double that for range or pasture seed-

ing and at a minimum of 15 pounds pure-live-seeds per acre. It is best seeded as a cover component in mixtures to a maximum of 50% on fine- to medium-textured soils. Once established for erosion control, usually no mowing is needed because of the natural low growth habit of the plant. Grazing should be prohibited for a minimum of 2 years following establishment on critical areas to assure maximum vegetative cover and soil stabilization. In established stands, annual applications of 50 to 70 lbs/acre of actual N are recommended under good moisture conditions.

Seed Availability

The increase of Rosana is limited to two generations (registered and certified) beyond the foundation class. Foundation seed is available from the USDA-Natural Resources Conservation Service (NRCS) Plant Materials Center (PMC) in Bridger, Montana; the Foundation Seed Program at Montana State University-Bozeman; or the University of Wyoming Foundation Seed Service in Powell, Wyoming.

Additional information is available by contacting the Bridger Plant Materials Center.

USDA-NRCS
Plant Materials Center
98 South River Road
Bridger, MT 59014
406-662-3579

For information on-line visit the Plant Materials Program or NRCS websites to learn more about using plants to address conservation problems.

<http://Plant-materials.nrcs.usda.gov>
<http://www.mt.nrcs.usda.gov>

Author:
Susan R. Winslow, susan.winslow@mt.usda.gov
USDA-NRCS Plant Materials Center, Bridger, Montana

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.



United States Department of Agriculture

Natural Resources Conservation Service
Bridger Plant Materials Center

Rosana Western Wheatgrass

A Conservation Plant
for Montana and Wyoming



February 2010