



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

'Rimrock' Indian ricegrass

Achnatherum hymenoides (Roem. and Schult.) Barkworth

A Conservation Plant Release by the USDA-NRCS Bridger Plant Materials Center, Bridger, Montana



Rimrock Indian ricegrass seed field

Source

'Rimrock' Indian ricegrass (accession number 478833) was collected in 1960 from the bench atop the rims, just north of Billings, Montana. The USDA NRCS Plant Materials Center (PMC), Bridger, Montana; Agricultural Research Service (ARS), Logan, Utah; and the Montana and Wyoming Agricultural Experiment Stations released Rimrock in 1996, primarily because of its ability to retain seed better than 'Nezpar' or 'Paloma'.

Description

Rimrock is a perennial, cool-season, bunchgrass typically found on sandy soils with low water-holding capacity and few rock fragments. It has a wide-spreading, panicle inflorescence with a single flower. Seeds are black or brown, round to elongated, with a fringe of white pilose hairs. It does not tolerate poorly-drained soils, extended periods of inundation, winter flooding, or shading. It is tolerant of weakly saline (< 4 millimhos/centimeter), and sodic conditions, and prefers neutral soils. Rimrock tolerates fire later in the growing season when the plant is dormant.

Conservation Uses

The nutritious seed of Indian ricegrass was one of the staple foods of American Indians. Indian ricegrass flour was used to make a mush with a pleasing, nutlike flavor. Rimrock flour is gluten-free and is commercially available under the 'Montina' brand for people with gluten allergies. Indian ricegrass makes its initial growth in early spring with peak production from mid-June through mid-July. Rimrock is relished by both livestock and wildlife. Crude protein ranges from 11 percent in early June, 5 percent in early

August, to 4 percent in winter. It is not considered a hay species. Due to the abundance of plump, nutritious seed, it is considered an excellent food source for mourning doves, pheasants, and songbirds. Drought tolerance, combined with a deep, extensive, fibrous root system, make Indian ricegrass desirable for stabilizing sites susceptible to wind erosion, especially disturbed sandy soils. Although it does not compete well with aggressive introduced grasses during the establishment period, it is very compatible with slower developing natives, such as Snake River wheatgrass (*Elymus wawawaiensis*), bluebunch wheatgrass (*Pseudoroegneria spicata*), thickspike wheatgrass (*Elymus lanceolatus* ssp. *lanceolatus*), western wheatgrass (*Pascopyrum smithii*), and needlegrass species (*Achnatherum* and *Hesperostipa*).

Area of Adaptation

Rimrock Indian ricegrass is very winter hardy and has a broad climatic range of adaptation. It can be found at elevations ranging from 2,000 to 10,000 feet and grows best in areas averaging 8 to 14 inches of annual precipitation. It has, however, been seeded in areas with as low as 6 inches of rainfall and successfully reproduced. Rimrock has an area of adaptation extending east of the Rocky Mountains from Montana to southern Colorado, into the western-half of the Dakotas and Nebraska, and north through the prairies of southern Alberta and Saskatchewan.



Range of adaptation for Rimrock Indian ricegrass

Establishment and Management for Conservation Plantings

Plant seeds of Indian ricegrass 1/2- to 1-inch deep on medium- to fine-textured soils and 1- to 3-inches deep on coarse-textured soils. Seeds are slow to germinate due a thick hull and embryo dormancy. Full stand

establishment may take 2 to 5 years because the hard seed coat and dormancy mechanisms delays germination of a large percentage of the seeds. As a result, dormant, late-fall planting of Rimrock is recommended. Expect poor stand establishment the first year if spring planted, and plant as soon as possible if spring planting is the only option. Indian ricegrass has fair to good seedling vigor. Using 4- to 6-year-old seed may improve germination. The single species seeding rate for Indian ricegrass is 5 pounds Pure Live Seed (PLS) per acre. For rangeland mixtures, approximately 30 to 50 percent of the mix or 1.5 to 2.5 pounds PLS per acre is recommended. Choice of chemical weed control depends on the growth stage of the Indian ricegrass. Mow large weeds at early bloom to arrest seed development. Rimrock plantings should not be grazed until at least the late-summer or fall of the second growing season (after seed has reached maturity). Indian ricegrass benefits from moderate grazing in winter and early spring but declines under heavy spring grazing. Livestock should be removed while there is still enough moisture to allow for seed production. Use deferred grazing every 2 to 3 years to facilitate seed accumulation in the soil. By the eighth or ninth year following establishment, the soil should have an adequate seed bank to ensure long-term stand survival given proper grazing management.

Ecological Considerations

Indian ricegrass is not considered "weedy" or invasive, but can spread into adjoining vegetative communities under certain management, climatic, and environmental conditions. Grasshoppers may damage new stands and the use of pesticides may be required.



Indian ricegrass seedhead

Seed and Plant Production

There are 235,000 seeds per pound for Rimrock Indian ricegrass. For seed production, row spacing of 24 inches under irrigation (4 pounds PLS per acre) to 36 inches on dryland (3 pounds PLS per acre) is recommended. Cultivation is needed for weed control and to maintain individual rows. Bird predation and wind shatter can cause seed losses prior to harvest. The average seed harvest date at Bridger ranges from July 7 to July 14. Average production of 100 to 200 bulk pounds per acre can be expected in less than 14-inch,

annual precipitation zones, whereas 300 to 400 bulk pounds per acre can be produced under irrigation. Seed can be harvested by direct combining in the hard dough stage, but swathing and curing in the windrow is recommended because of indeterminate seed ripening. Re-thrashing combined windrows after a few days may also increase seed yield. Combined ricegrass seed should have a moisture content of 12 percent or less for storage in bins and 15 percent or less when stored in sacks.



Indian ricegrass seeds

Availability

Rimrock Indian ricegrass is available on the commercial seed market (see Montana NRCS Technical Note 57 for a list of vendors). Foundation seed of Rimrock is maintained at the PMC in Bridger, Montana, and is available to commercial growers by contacting the Montana Foundation Seed Program at MSU, Bozeman or the University of Wyoming Foundation Seed Service in Powell, Wyoming. Foundation, Registered, and Certified seed classes are recognized.

Citation

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