



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

# 'Bozoisky-Select' Russian wildrye

*Psathyrostachys juncea* (Fisch.) Nevski

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



*Bozoisky-Select Russian wildrye 2 Years after Establishment, Fort Keogh, Miles City, Montana*

'Bozoisky-Select' Russian wildrye was selected by the USDA Agricultural Research Service (ARS), Logan, Utah, for improved seedling vigor and increased forage yield (accession number 9027398). It was released collaboratively in 1984 with the USDA-Natural Resources Conservation Service (NRCS) and has demonstrated improved leafiness, seed yield, and seedling vigor over 'Vinall' and 'Swift'.

### Description

Bozoisky-Select is an introduced, large stature, cool-season perennial bunchgrass that is long-lived. The abundant basal leaves are 6 to 18 inches long, up to 1/4-inch wide and vary from light green to dark blue-green in color. Erect, naked stems, about 36 inches tall, terminate in compact spikes 2 to 5 inches long. Its fibrous roots may penetrate to a depth of 8 to 10 feet deep. About 75 percent of its roots are in the surface 6 inches, but they have a wide, horizontal spread and may draw heavily on moisture for a distance of 4 to 5 feet. Bozoisky-Select has been known to exclude downy brome (*Bromus tectorum*) when planted in rows 18- to 24-inches apart. Russian wildrye has approximately 136,000 seeds per pound.

### Source

Seed collected from Russia constituted the breeding population of Bozoisky-Select (PI 440627). Two cycles of selection improved coleoptile length (which allows seedling emergence from deep plantings), seedling vigor, leafiness, and seed yield. Breeder seed was bulked from open-pollinated seed selected from 23 clones in a nursery of 2,100 second-cycle plants.

### Conservation Uses

Bozoisky-Select is highly palatable to deer, elk, antelope, and all classes of livestock. It provides good grazing in

the spring (May through June) and from late summer through late fall (September through December). Crude protein levels of 5 to 7 percent can be expected in late fall through winter. Because of its high palatability, it should be planted in pure stands and fenced for better utilization and to prevent over-grazing. It responds well to additional precipitation and re-grows quickly, lending itself for use in both dryland and irrigated pastures. Russian wildrye is used in green strips or vegetative fuel breaks because under dry conditions, it stays green longer into the growing season and tends to out-compete other plants in established stands. It is not the best choice for erosion control because stands gradually develop into widely-spaced plants and are susceptible to soil movement from high winds, seasonal flooding, or downpours from summer thunderstorms.

### Area of Adaptation and Use



*Range of adaptation of Bozoisky-Select Russian wildrye*

Russian wildrye has been widely used for pasture and rangeland seeding throughout the Rocky Mountains, Intermountain West, and northern Great Plains because of its tolerance to drought, cold, and saline soils. 'Bozoisky II' showed improved seedling vigor over Bozoisky-Select in southern Wyoming and Utah, however, there were no differences for that trait at field trials in northern Wyoming or Montana. Russian wildrye is well adapted to the loam and clay soils of the prairies, but performs poorly on low fertility soils. It is more difficult to establish on sandy soils in dry areas, but once established it does well. It grows at elevations ranging from 2,900 to 7,500 feet in northern latitudes and from 4,200 to 9,000 feet in southern latitudes. During periods of extended drought, Russian wildrye may require two years to establish. It begins spring growth about two weeks later than crested wheatgrass (*Agropyron cristatum*) and should not be grazed

as early. In comparison trials with domestic sheep, Russian wildrye had a digestibility coefficient of 60.2 percent while crested wheatgrass had a coefficient of 45.1 percent.



*Russian wildrye seeds*

### **Establishment and Management for Conservation Plantings**

When compared to other introduced grasses, Russian wildrye is slow to establish. It is not recommended as a component in grass mixes unless it is planted in alternate-row or cross-seeded row plantings. Plant Russian wildrye in a firm weed-free seedbed no more than ¼-inch deep as it is intolerant of deeper seed placement. The recommended seeding rate is 6 pounds pure live seed (PLS) per acre. Due to its aggressive and spreading root system, wider row spacing is required; 18 inches or wider are recommended. Trials in the northern Great Plains indicate 24- to 36-inch wide row spacing is optimal for forage production. Forage yields can be increased by seeding with legumes in alternate-rows or cross-seeded rows (cross-hatching). This establishment practice decreases competition for both the legume and Russian wildrye, optimizes forage quality, and makes it easier to pick up the windrow for baling into hay. In an irrigated, 4-year trial at Powell, Wyoming, alternate-row yields of Bozoisky-Select and sainfoin were 2.8 tons per acre and 3.5 tons per acre when paired with alfalfa (yields are reported at 12 percent moisture).



*Russian wildrye in alternate rows with alfalfa*

### **Ecological Considerations**

Grasshoppers and cutworms attack Russian wildrye and it is susceptible to *Septoria* leaf spot diseases and head smut. It is relatively resistant to the bluegrass billbug and barley-yellow-dwarf virus. Russian wildrye does not pose an environmental threat. It is not considered weedy, but

could spread by seeds into adjoining degraded plant communities under ideal conditions.

### **Seed and Plant Production**

Row spacing for Bozoisky-Select Russian wildrye seed production ranges from a minimum of 24 inches under irrigation to a maximum of 36 inches on dryland plantings (15 inches or more of annual precipitation required). The seed is considered mature when shattering begins at the top of the spike. Cultivation of the seed crop is needed to control weeds and to maintain individual rows. Bulk seed yields range from 50 to 200 pounds per acre on dryland and from 100 to 500 pounds per acre under irrigation.

### **Availability**

Production of Foundation seed of Bozoisky-Select at the Bridger PMC is projected to be phased out in the near future.

Bozoisky-Select is available on the commercial seed market (see USDA-NRCS Montana Technical Note 57 for a list of vendors). Breeder and Foundation seed of Bozoisky II is maintained by the USDA-ARS in Logan, Utah. Bozoisky-Select is available to commercial growers by contacting the Montana Foundation Seed Program at Montana State University-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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*For more information, contact:*  
Bridger Plant Materials Center  
98 South River Road  
Bridger, Montana 59014  
Phone: 406-662-3579  
Fax: 406-662-3428  
<http://www.plant-materials.nrcs.usda.gov/mtpmc/>

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