



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

# 'Garrison' creeping meadow foxtail

*Alopecurus arundinaceus* Poir.

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



*Creeping meadow foxtail*

'Garrison' creeping meadow foxtail (*Alopecurus arundinaceus* Poir.) is a cultivar released in 1963 by the USDA-Natural Resources Conservation Service (NRCS) Bismarck and Bridger Plant Materials Centers (PMC) and Wyoming Agricultural Experiment Station.

### Description

Native to temperate regions of Eurasia, Garrison is a cool season perennial grass. Stems grow 3 to 6 feet tall in groups of one to several from nodes of a fairly vigorous rhizome. Leaf blades are 0.18 to 0.22 inches wide. The inflorescence is a cylindrical, compact spike-like panicle 1.6 to 3.9 inches long, 0.4 inches in diameter. Spikelets are about 0.2 inches long with glumes silky, mostly along marginal and midrib veins and lemmas short-awned from the base. The seeds are black when mature. It flowers from May through August. Seed maturation begins at the top of the inflorescence and proceeds downward. The seeds are black when mature and lemmas are generally awnless. Creeping meadow foxtail should not be confused with weedy grass species sharing the common name "foxtail", such as foxtail barley (*Hordeum jubatum*) and green foxtail (*Setaria viridis*). They bear little or no resemblance to creeping meadow foxtail.

### Source

Seed of Garrison, (accession number 436704), was field collected near Max and the Garrison Dam, McLean

County, North Dakota in 1950. The original population is believed to be imported by homesteaders from eastern Germany or western Russia and escaped cultivation to invade many potholes and sloughs in the area.

### Conservation Uses

**Grazing/livestock/pasture:** Forage of Garrison has excellent digestibility, protein content, and is palatable to all classes of livestock. It is well suited for pastureland or hayland because it produces high yields of forage throughout the growing season. The species' aggressive underground rhizomes (up to 4 feet crown-diameter growth per year) contribute to its ability to recover quickly from grazing.

**Filter strips:** Because of creeping meadow foxtail's tolerance to high levels of Nitrogen (N) and water, it can be used for the treatment of liquid wastes. With suitable moisture, it works as an excellent silt trap, tolerating up to 6 inches of silt per single deposition event.

**Erosion control:** Garrison is well suited for erosion control and stream bank stabilization. It tolerates both flooding for up to three months and short periods of drought, which makes it useful in areas of fluctuating water levels like earthen dams. Its tolerance of a broad range of pH make it suitable for stabilization of mine spoils, saline seeps and other critically disturbed areas.

**Wildlife:** The tender spring growth provides forage for deer, elk, geese, and other waterfowl. Numerous species of birds use the dense growth for cover and nesting.

### Area of Adaptation

Creeping meadow foxtail performs best on wet lands and poorly-drained soils where the choice of adapted, productive grasses is limited. Under these conditions, Garrison competes well with the low-producing sedges (*Carex* spp.), rushes (*Juncus* spp.), and even quackgrass (*Elymus repens* (L.) Gould subsp. *repens*). It is adapted to cold temperatures and is extremely winter hardy. Garrison can establish and survive in areas where frost-free periods average less than 30 days annually. It also grows well at a broad range of elevations (500 to 9,000 feet), but grows best on middle- to high-elevation, wet to semi-wet sites (see Figure 1). Early initiation of spring growth, allows for two cuttings of hay, even in the high elevation locations. Creeping meadow foxtail does well in numerous soil types, provided there is sufficient available water. It even grows in sand, clay, peat, and muck soils. It is moderately salt tolerant (up to 12 millimhos per centimeter) and tolerates both moderately acidic (pH 5.6 to 6.0) and slightly alkaline (pH 7.9 to 8.4) soils. Due to its salt tolerance, Garrison has been successfully

established on the edges of saline seeps in both Montana and Wyoming.



Figure 1. Area of adaptation of Garrison creeping meadow foxtail.

### Establishment and Management

The easiest “planting” method is to feed Garrison hay and allow livestock to trample the seeds into the soil. If mechanically planting, the seedbed should be weed free, moist, and firmly packed. Optimum seeding depth is 1/8- to 1/4-inch. Irrigated fields can be seeded in early to mid-spring or late summer. Where precipitation is below 15 inches annual precipitation, plant when the soil is moist, but firm enough or frozen adequately to support seeding equipment. Dormant fall, winter, and very early spring seedings are most effective under dryland conditions. This species produces very light seeds (720,000 seeds per pound), which allow for relatively low seeding rates (see Figure 2). A full stand seeding rate of 2 pounds pure live seed per acre is recommended. To keep the seed from bridging in the drill, mix it with inert materials, i.e., rice hulls, cracked grains, or use coated seeds. When seeding with a legume, plant in alternate rows. Rhizomes appear after several months, after which growth from them is rapid. In areas receiving less than 16 inches of annual precipitation, it may require several years before the stand is considered well-established.

### Ecological Considerations

Garrison can become weedy if not managed properly. In addition to aggressive rhizomes, it proliferates by wind-borne and waterborne seed dispersal. Although rapid reproduction is useful in repairing damaged sites, its ability to spread quickly may create management problems in canals, irrigation ditches, and other waterways. There is little historic evidence suggesting creeping meadow foxtail suffers from insects or diseases.

### Seed Production

Stands should be planted in wide-spaced 36- to 48-inch rows, but they can quickly fill in and become sod-bound. To overcome a sod-bound condition, apply high levels of N and aggressive cultivation. Once seedlings are

established, apply 30 pounds N per acre for fall dryland applications and 60 to 80 pounds N per acre on irrigated fields in both the late fall and early spring. For proper timing of harvest, use the following three indicators: (1) 75 percent or more of the seeds should be black, (2) 50 percent of the seedheads should have begun to shatter at the tip, and (3) 75 percent of the stems should be yellow up to 3 to 4 inches directly below the inflorescence. These three developments often occur quickly over a 3-day period. Many combine adjustments may be needed to accommodate the light, fluffy seed. Garrison produces 200 to 400 bulk pounds of seed per acre under irrigation.



Figure 2. Creeping meadow foxtail seed.

### Availability

*For conservation use:* Garrison creeping foxtail is available on the commercial seed market (see USDA-NRCS Montana Technical Note 57 for a list of vendors). Breeder and Foundation seed of Garrison is maintained by the USDA-NRCS PMC in Bridger, Montana. It 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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