

Foxtail (hay) Millet

DOCUMENT



James L. Helm
Extension Agronomist

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Foxtail millet (*Setaria italica*), one of our oldest cultivated crops, is grown today primarily as a short-season emergency hay crop. Interest in short season annual grasses for hay production increases in years of early season drouth or when perennial legumes suffer from severe winterkill. Little research has been done to increase productivity through breeding programs and varietal development in recent years. Likewise, research to determine good production practices is lacking. Several landraces have been developed or accumulated over time and are grown in North Dakota. They include what is called **Common, Siberian, Hungarian, and German Foxtail** millet. Some are named by color only such as **Golden and White Wonder**.



Common Millet (USDA)



Siberian Millet (USDA)

COMMON MILLET is fine-stemmed and leafy. Seedhead is cylindrical, compact and tapers towards the tip. The lower portion is less compact than the mid- and tip portions. Seedhead varies from 5/8 to 3/4 inch in diameter and 4 to 6 inches in length with pale yellow bristles. It is one of the earliest foxtail millets, maturing in about 70 days and producing a hay crop in about 50 days.



Hungarian Millet (USDA)

SIBERIAN MILLET has medium sized stems and possesses some drouth tolerance. The seedhead is cylindrical, 5/8 to 3/4 inch in diameter, 4 to 6 inches long, and has purple colored bristles. It matures in about 75 to 80 days, and produces a hay crop in 55 to 60 days. Manta, a South Dakota release is an early Siberian millet.



German Millet (USDA)

4.3
9
8
635
88
HUNGARIAN MILLET is characterized by a small, compact, slightly lobed seedhead which measures 1/2 to 5/8 inch in diameter and 4 to 6 inches long. Bristles vary in color from clear to pale yellow through purple and black. Stems are medium in size. It is reported to do better under more favorable moisture conditions. Maturity is about 70 days and a hay crop can be ready in about 55 days.

GERMAN MILLET has thicker stems and broader leaves. The seedhead is distinctly lobed, measuring 1 to 1½ inches in diameter and 6 to 9 inches long. Bristles are greenish to purple in



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color. It is a longer season foxtail taking about 90 or more days to mature and 65 to 70 days to produce a hay crop. Because of its increased stem size it takes better management than the other foxtail millets to produce good quality hay.

Time of Planting

Foxtail millet is a warm season forage crop and is usually planted after corn and soybeans. Planting can be delayed until late June and early July. When used for emergency hay production, late planting is usually encountered.

Seeding Rate

Foxtail millets have low seedling vigor and in general are poor competitors with weeds. A seedling rate of 15 to 30 pounds per acre is recommended. The higher rates are recommended in eastern North Dakota with the higher rainfall potential. In western North Dakota, 15 pounds is adequate on good weed free fields.

Depth of Planting

Plant into moist soil about 1 inch deep. Shallower seeding may be desirable on heavy textured soils with good moisture. Germination is fairly rapid but early seedling vigor is lacking.

Seed Treatment

Seed treatment may increase numbers of seedlings established as plants, and thus is generally recommended.

Fertilization

Research information is limited, but nitrogen rates of 20 to 60 pounds, depending on moisture availability, and 15 to 20 pounds of P_2O_5 per acre is probably a workable guideline. Only 10-15 pounds of nitrogen should be placed directly with the seed. Higher rates may result in seedling injury and poor stands.

Time to Cut

Harvest for hay in the late boot to early bloom growth stage. Any delay after full head emergence will reduce quality. Bristles become hard as maturity approaches and may cause sore mouth, lump jaw and eye infections when fed to livestock. Hay protein content is highest when the ratio of leaves to stems is high. Curing foxtail millet

requires attention as light stands tend to sun dry rapidly after cutting, while heavy stands, especially of the German type, cure at a slower rate. If expected yield levels are greater than 1½ tons per acre, crimping will help the curing process. Potential yield of foxtail millet hay is influenced by moisture relationships. Research trial yields from North Dakota Experiment Station are given in Table 1.

Table 1. Forage dry matter yield of foxtail millet at North Dakota Experiment Station.

Location	Years tested	Dry matter (Tons/acre)
Dickinson	29	1.5
Edgeley	5	2.5
Fargo	10	3.4
Hettinger	5	1.8
Langdon	5	1.6
Minot	10	2.5
Williston	2	1.8

Grazing Foxtail Millet

Millet is not recommended for pasture except in emergency situations. Plants do not root well and are easily uprooted by grazing animals. Regrowth after grazing is slow, especially if moisture relationships are not optimum.

Feeding Millet Hay

Foxtail millet hay has produced good rates of gain when fed to beef animals. A recommended practice would be to feed a ration containing foxtail millet hay and some other roughage source. This will reduce the level of the glucoside setarian in the ration. Reports in the old literature (pre 1900) indicate setarian to cause lameness in horses. Foxtail millet harvested at any growth stage acts as a laxative and a diuretic. Hay cut from young plants appears to be more laxative and mature or overripe hay is more diuretic.

Bristles from the seedheads may cause sore mouth, lump jaw and sore infected eyes. The bristles become more dangerous as maturity increases, so close management of animals being fed foxtail millet hay is recommended.

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