



Saskatchewan
Agriculture, Food
and Rural
Revitalization

Search
Who Does What?
Telephone Book
Did You Find It?

Navigation Path >> [Home](#) | [Crops](#) | [Forage/Pasture](#) | [Forage Management/Production](#) |

Tuesday, November 23, 2004

Golden German Millet Production in Saskatchewan



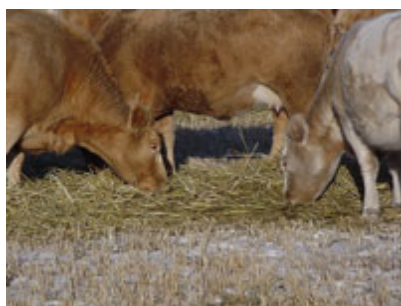
[Description](#) | [Seeding Rates](#) | [Seeding Practices](#) | [Fertilization](#) | [Weed Control](#) | [Crop Development](#) | [Harvesting](#) | [Swath Grazing](#) | [Limitations](#) | [Summary](#)

Updated: July, 2003

Background

Golden German Millet is a variety of German or Golden foxtail millet released by the Colorado State University in 1969. Siberian and Hungarian are two other types of foxtail millet. Foxtail millet is an ancient crop dating back to 5000 B.C. and is grown as a grain and forage crop in China, Russia, Europe and the central United States. Foxtail millet, *Setaria italica*, is a close relative of the common weed Green Foxtail, *Setaria viridis* or Wild Millet. A description and production practises for German or Golden millet production was found in a 1940 Government of Canada publication on Millet published by the Experimental Farms Service, Dominion Department of Agriculture. In 1994, researchers in Colorado began promoting the crop as a drought-tolerant crop that would produce well on wheat stubble, as an alternative to summerfallow. In 1998 Colorado producers began using the crop for swath grazing and the practice was adopted at the Brandon Research Centre.

Description



Golden German millet is a late maturing, warm season, annual crop. It has medium stem thickness and numerous broad leaves up the stem. The heads are dense and bristly resembling the heads of the weed Green Foxtail but much larger. The crop has good resistance to lodging and diseases. The seed is golden yellow in color. It is shallow rooted, but tolerates short periods of drought during the growing season. Golden German Millet produces most of its' growth during July and August. The crop remains vegetative and grows rapidly whenever moisture is available. Heading does not occur until late August. Grazing of Golden German Millet is not recommended as it does not root firmly during early growth and is easily pulled from the soil by grazing livestock. Re-growth is slow, following grazing.

In advanced maturity, the heads of Golden German millet develop sharp bristles that may cause lump jaw and sore eyes in cattle feeding from bunks or bales. The bristles may also affect palatability. Overly mature Golden German millet is diuretic in nature, while immature Golden German Millet has a laxative effect, and as such is not recommended as the sole roughage for feeding horses. Under stress, Golden German Millet may accumulate nitrate in the forage to toxic levels for livestock.

Seeding Rates

The suggested seeding rate is 15 to 20 pounds per acre. The 20 pounds per acre seeding rate provides for better weed competition and a finer stem. At 15 to 20 pounds per acre the crop height is reduced, heading is delayed, and the crop is more leafy with smaller heads. With lower seeding rates, the crop will grow taller with thicker stems, head out earlier and have larger heads. Seeding rates of 10 to 12 pounds per acre are recommended for the Brown Soil Zone, and drier portions of the Dark Brown Soil Zone where moisture is more limiting.

Seeding Practices

The crop should be sown $\frac{1}{2}$ to $\frac{3}{4}$ of an inch deep. With moisture, the crop germinates quickly and emerges after five days. Initial development of the crop is slow so it is important to have a weed-free seedbed. Seeding of the crop should be delayed until the soil warms to 10 degrees C. Golden German Millet requires a warm soil for germination, just like Green Foxtail or Wild Millet. Seeding should, therefore, be delayed into June. The suggested seeding dates for Saskatchewan are June 5 to June 20. Golden German Millet can be sown into early July, however, yields will be reduced.

Fertilization

Moderate rates of nitrogen and phosphate fertilizer are required to produce satisfactory yields. On stubble 50 to 70 pounds of actual nitrogen and 15 pounds of actual phosphate are adequate to produce yields of 2.5 to 3.5 tons dry matter per acre. Many producers do not use phosphate fertilizer as the crop is sown into warm soil and emerges quickly.

With rates of nitrogen higher than 70 pounds of actual N per acre, the risk of nitrates in the Golden German millet increases. Feed testing is recommended to check the feed value and nitrate levels of the final feed product. Golden German millet can accumulate nitrates, but is less subject to nitrate accumulation than oats.

Weed Control

The first flush of grassy weeds such as wild oats, volunteer cereals, and wild millet must be allowed to grow and be controlled with tillage or glyphosate herbicide before the millet is planted. If need be, seeding can be delayed until June 20 without significantly reducing yield. Eliminating grassy weeds before planting Golden German Millet is very important, as herbicides for controlling grassy weeds are not available. When the crop is four to five inches tall, a broad leaf herbicide can be applied.

Crop Development

As Golden German Millet is a warm season crop, it produces most or all of its' growth in July and August. It has excellent drought tolerance as the crop goes dormant during dry periods. The crop has a waxy leaf surface that prevents evaporation from the leaf surface and, as it is a C4 or warm season crop, it also has the ability to close its' stomata to stop moisture transpiration from the crop. The crop remains vegetative and grows rapidly when soil moisture is present. It continues to grow until frost in September, however, it should be cut prior to frost at early heading in late August.

Harvesting

Golden German Millet has been successfully utilized for round bale and chopped silage but a dry down period of two days is required to bring the moisture down to 60%. The crop is about 75% moisture in the vegetative pre-heading stage.



Golden German Millet is not favored as a green feed crop as it is very slow to dry in the windrow due to the waxy coating on the leaf, the leafy nature of the crop, and the high yield. A reduced cutting width and conditioning must be used. A nine- to 12-foot wide cut is suggested. If the crop is to be cut for green feed, it should be cut in mid-August when the weather is more conducive to drying.

An alternative method for harvesting Golden German Millet as dry feed is to produce "yellow feed" by applying a pre-harvest application of glyphosate. In mid- to late-August, the crop is sprayed with ½ to one litre per acre of glyphosate. The glyphosate does not terminate the growth of the crop until three to five days after the application. The crop then dries standing. This process depends on the weather and rainfall and can take from 12 to 21 days. Once the crop is dry, it can be swathed and baled in a timely manner.

As the Golden German Millet has a waxy leaf surface it is very resistant to weathering and does not suffer dramatic quality reductions from weathering as standing yellow feed or in the windrow for swath grazing.

Swath Grazing

Golden German Millet is ideally suited to swath grazing because when it is planted in June it produces optimum yield and quality in late August. In comparison to cereals planted in June, Golden German Millet can produce up to 50% more yield with similar feed values. Golden German Millet cut at the boot or early heading stage will have a feed value of approximately 14% CP and 60% TDN with a 60% NDF. At two to three weeks after heading, the feed value drops to 10% CP, and 55% TDN with a 68% NDF. Cutting at the first sign of heading maintains feed value and reduces the NDF. The NDF determines the intake level by cattle.

For swath grazing, Golden German Millet is very palatable and the cattle consume it very readily. Utilization rates of 90% or greater can be easily achieved. Consumption per day has been found to be 30 to 40 pounds dry matter (DM) per cow per day depending on cow size, weather, and the stage of cutting. At 30 pounds per cow per day, consumption a crop yielding three tons DM per acre will provide 200 days of grazing for a cow. Therefore, producers must plan accordingly

when deciding how much to plant for swath grazing and how long they wish to swath graze.

Golden German Millet swaths can also be used for spring grazing after calving. As the swaths resist weathering well, swaths can be left for spring grazing by cow calf pairs. The swaths can be grazed until June when pastures are ready. Remaining swaths can be baled.

Limitations

Limitations of Golden German Millet include poor tolerance of soil salinity and cold, water-logged soils. Golden German Millet has not produced well in cold wet years, as experienced in 1993. Golden German Millet also has limitations for harvesting as green feed because it dries very slowly in the windrow. Producers have reported that Golden German Millet is difficult to cut under wet conditions and that it is difficult to tub grind.

Summary

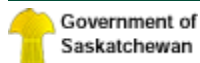
Golden German Millet is best suited for swath grazing, but can also be used for green feed, yellow feed, and silage production. The Brandon Research Centre has found that Golden German Millet produces consistent yields from year to year. It is economical to produce and relatively easy to grow.

By Wally Vanin, Rangeland and Forage Agrolgist
Livestock Development Branch
Saskatchewan Agriculture, Food and Rural Revitalization

Page Accessed: 8346 times

Navigation Path >> [Home](#) | [Crops](#) | [Forage/Pasture](#) | [Forage Management/Production](#) |

[Top of Page](#)



3085 Albert Street, Regina, Saskatchewan, Canada S4S 0B1
Phone: (306) 787-5140
© 2000 Saskatchewan Agriculture, Food and Rural Revitalization.

