



**Western Beef**  
**Development Centre**  
Division of PAMI

# **SWATH GRAZING GOLDEN GERMAN MILLET WITH BEEF COWS**

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Swath grazing is a common practice that numerous Saskatchewan cattle producers utilize in their operation. Traditionally, annual crops such as barley and oats are used as they are high yielding, adapted to prairie growing conditions, and provide a high quality crop for livestock. Many producers have also tried non-traditional annual crops for grazing, such as corn, sorghum or turnips. However, another alternative crop that producers may consider is Golden German millet (GGM).

Golden German millet is a warm season annual crop, which means the plant produces most of its biomass after July, during the hottest months of the summer. Millet is also well adapted to drought conditions. Golden German millet will not produce well in cool, wet years and has poor tolerance to soil salinity. However, as a swath grazed crop it has many beneficial qualities such as late maturity, and a waxy coating on the leaves and stems, which allows the crop to retain its quality while in the swath. Due to its shallow rooting system GGM is unsuitable to graze as a standing crop. This crop also does not dry down quickly in the swath and therefore, can be difficult to bale as greenfeed.

In 2005, Golden German millet was grown at the Termuende Research Farm (TRF), located near Lanigan, SK., to evaluate its potential as a fall forage source for beef cattle.

## **Field Management**

Five acres of Golden German millet was seeded on May 30<sup>th</sup>, 2005 at the rate of 15 pounds per acre. Fertility management included application of 50 lbs/acre of actual N at the time of seeding. Roundup Transorb® was sprayed at 1.0 L/acre pre-seeding to burn off any regrowth from the previous year. No additional herbicides were applied to this field throughout the growing season. Weed infestation was estimated late summer at less than 2% of the crop. The crop was swathed on August 10<sup>th</sup>, at very early dough stage, and the millet lay in the swath until October 12<sup>th</sup> when 107 mature cows were allocated to the field.

### Crop Yield and Quality

Throughout the 2005 growing season (May to October), there were 2300 Corn Heat Units accumulated at TRF, which created favourable growing conditions for this warm season crop. On October 19<sup>th</sup>, yield estimates were taken from the swathed crop (Table 1). The crop yielded very well at 3.7 tons/acre. In addition, quality samples were obtained on this date and sent to the lab for further analysis (Table 1). The Golden German millet was a high-quality crop, with energy levels of 63% TDN and crude protein nearly 13%, even though the samples were taken well into the fall.



Figure 1. Cows accessing millet swaths in mid-October

Table 1. Yield and quality of Golden German millet swaths (Fall 2005)

Sample Date	Lbs/acre	Tons/acre	CP <sup>z</sup> (%)	TDN <sup>y</sup> (%)	DE <sup>x</sup> (Mcal/kg)
October 19	7399	3.7	12.5	62.9	2.8

<sup>z</sup>CP=crude protein (%); <sup>y</sup>TDN=total digestible nutrients (%); <sup>x</sup>DE=digestible energy

### Cattle Management and Performance

The cows were allocated to the field mid-October and grazed the GGM swaths for a total of 14 days. Table 2 shows cow performance while grazing millet swaths. On average cows grazing the swathed crop maintained a 3.0 body condition score. Average cow weight was 1350 lbs prior to grazing the millet and 1377 lbs coming off the study; an average gain of 27 lbs per animal (Table 2). The cows remained there until October 25<sup>th</sup>, a total of 14 days. Cows were restricted to the amount of swath they had access to by using electric fences. Approximately 1.5 acres were allocated for each grazing period.



**Table 2. Cattle performance while on Golden German millet, 2005**

# Of Head	Total average gain (lbs)	ADG <sup>a</sup> (lbs)	GDA <sup>b</sup>
107 mature cows	27	1.9	300

a = average daily gain; b = grazing days per acre



**Figure 2. Allocation of 1.5 acres per grazing period**

**Table 3 Golden German millet grazing analysis**

Expenses	Total \$	\$/Acre
Field preparation	80.57	16.11
Seeding	121.82	24.36
Seed (\$1.30/lb ~15 lb/acre)	97.50	19.50
Fertilizer	108.7	21.74
Swathing	56.44	11.29
Labour (12 hours @ \$15/hour)	180.00	36.00
Supplemental Feed	30.00	6.00 *
<b>TOTAL</b>	<b>675.03</b>	<b>135.00 *</b>

*\*Error in printing on original report*

<sup>2</sup>Field preparation, seeding and swathing costs are from the Farm Machinery Custom and Rental Rate Guide 2004, SAF. Fertilizer is based on Spring 2005 market price. Labour includes total hours for project setup, moving cows and fences.



### **Project Costs**

Table 3 shows all production and grazing costs associated with the study. Total expenses calculated for the GGM were \$675.03 and project costs per acre were \$159.00. Finally, the cost per animal was calculated at \$0.45/cow/day.

### **Conclusion**

The 2005 growing season proved to be one well suited to Golden German millet production. The heat allowed for excellent yield and the high quality resulted in good gains on the cows. The millet retained its quality even though the crop lay in the swath for over two months before it was grazed. The animals found the crop very palatable and in addition to this, the cross fencing allowed for maximum utilization of the swaths.

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