

Winter Grazing Corn Demonstration 2010 - 2011

Producer Co-operators: Ian & Carman Murray

Background

Winter feeding is the largest cost in maintaining a cattle herd. There are many ways to extend the grazing season in Alberta through the use of stockpiled forages, crops and crop residues to reduce production costs. There has been growing interest in the value of grazing standing corn as part of a winter feeding program.

Objective

To determine if grazing corn in central Alberta can be a nutritionally, economically and logistically effective part of a winter feeding program.

Methods

In 2010 and 2011 14 acres near Acme were seeded to grazing corn in May. Three varieties of corn were planted; 2219RR, 2230RR and 2501RR at a seed depth of 1 1/4 inches with 6 inches between seeds. The corn seed was round up ready and was sprayed once in 2010 and twice throughout the growing season of 2011. The seed was donated by Pickseed and planted by CPS for a planting fee. The corn was left standing and froze in September both years. In the first trial Ian turned 154 cows into the corn for 14 days in February 2011, in the second trial 150 cow-calf pairs grazed it in December 2011 for 20 days.

Results:

Table 1. Feed Tests - Hybrid Results for 2010 and 2011 (Dry Matter)

Hybrid	2230		2219		2501	
Analysis	2010	2011	2010	2011	2010	2011
Crude Protein (%)	10.55	7.55	9.38	8.34	9.9	9.34
Calcium (%)	0.13	0.13	0.19	0.23	0.16	0.21
Phosphorus (%)	0.22	0.18	0.16	0.19	0.21	0.19
Magnesium (%)	0.21	0.20	0.28	0.21	0.26	0.24
Potassium (%)	1.43	0.71	1.29	1.24	1.15	1.06
Sodium (%)	0.01	0.01	0.07	0.01	0.03	0.01
Sodium Chloride (%)	0.03	0.02	0.17	0.02	0.08	0.02
Nitrates (%)	0.15	<0.01	0.12	0.12	0.05	0.26
Acid Detergent Fibre (%)	32.17	24.69	36.06	28.09	41.81	33.17
Neutral Detergent Fibre (%)	57.45	47.17	61.2	56.91	71.18	58.86
Non Fibre Carbohydrates (%)	21.2	34.48	18.62	23.95	8.11	21.00
Total Digestible Nutrients (%)	62.1	65.84	60.15	64.14	57.28	61.60
Metabolizable Energy (Mcal/kg)	2.24	2.38	2.17	2.31	2.07	2.22
Digestible Energy (Mcal/kg)	2.73	2.90	2.65	2.82	2.52	2.71
Net Energy for Lactation (Mcal/kg)	1.4	1.49	1.35	1.45	1.28	1.39
Net Energy for Maintenance (Mcal/kg)	1.37	1.50	1.31	1.44	1.21	1.36
Net Energy for Gain (Mcal/kg)	0.8	0.90	0.74	0.86	0.65	0.78
Relative Feed Value	103	137	92	110	74	100

To maintain a cow in mid pregnancy feed should contain 7% crude protein and 55% TDN. For late pregnancy feed should contain 9% crude protein and 60% TDN and after calving feed should contain 11% crude protein and 65% TDN (Yurchak 2004).

Based on crude protein and TDN of all three corn varieties in this study would provide suitable forage for cows during pregnancy but would need a supplement to be adequate for cows with a calf at her side. Variety 2230 has the highest feed quality as it matures more quickly than the other two.

Table 2: Cost comparison between corn grazing, cereal swath grazing and traditional winter feeding

Input	2010		2011	
	Oat/Barley	Corn	Oat/ Barley	Corn
Seed corn		\$ 78.00		\$ 72.00
Seed Oats @ 1 Bu/Ac	\$ 4.50		\$ 4.50	
Seed Barley @ 1.5 Bu/Ac	\$ 13.13		\$ 13.50	
Fertilizer	\$ 45.88	\$ 56.29	\$ 50.00	\$ 80.00
Round-up (spray & custom spraying)	\$ -	\$ 8.60		\$ 9.50
Round -up (spray & custom spraying)				\$ 9.50
Curtail M & custom spraying			\$ 18.20	
Pre-seed Burn off	\$ 12.31	\$ -		
Cultivating			\$ 10.00	
Seeding	\$ 20.00	\$ 30.00	\$ 20.00	\$ 66.00 *
Swathing	\$ 3.20		\$ 4.00	
Crop Insurance	\$ 8.40	\$ 9.64		
Land	\$ 50.00	\$ 50.00	\$ 50.00	\$ 50.00
Total Input Cost	\$ 157.42	\$ 232.53	\$ 170.20	\$ 287.00
Approx Crop Yield	200CD/Ac	150CD/Ac	220CD/Ac	220CD/Ac
Cost per cow day	\$ 0.78	\$ 1.55	\$ 0.77	\$ 1.30

*\$30.00/ac corn planting charge- min charge \$1000.00. \$1000/15 ac = \$66.00

Cost of traditional feeding

Hay @ \$75.00/ton – 35lbs = \$1.31

Yardage: - Tractor @ \$70.00/hr at 2hours to feed 154 head

-1 mile from home

-pulling stings off bales

\$0.91

\$2.22/cow/day

Conclusions

This project shows that grazing corn can be utilized in central Alberta and that the nutritional quality is adequate to support cows in mid to late gestation. Despite its high input costs in this case grazing corn at about \$1.42/cow/day over the 2 years was more cost effective than the traditional winter feeding of hay at \$2.22/cow/day, however it was less cost effective than swath grazing at \$0.78/cow/day. This demonstration found that growing corn in the Acme area can be utilized as part of a winter feeding program however due to the high inputs it is a higher risk crop that did not seem to be an advantage over the swaths so Ian and FFGA will not be continuing this demonstration trial in the future. Using a variety of winter feeding strategies allows producers some flexibility in the case of a poor growing season and enables them to better manage their operation in varying winter conditions.

Thank you for your support on this demonstration:



CPS planted the corn in May



FFGA Summer Tour, September 2010



Collecting Feed Samples, November 2010



FFGA Winter Grazing Tour, February 2011



FFGA Winter Grazing Tour, December 2011



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