

Winter Grazing Options

Lower Costs with Environmental Benefits

There are a number of options for cow-calf producers to extend the grazing season into the winter months and cut winter feeding costs.

Extended grazing is ideal for mature animals in good condition, coming off fall pastures. If extended grazing involves lower quality feed, it will not be suited to calves, poor-condition cows or yearling heifers with higher energy (lower-fibre) and sometimes higher protein requirements.

Extending the grazing season, instead of confining animals and using stored feeds, means producers can cut winter feed costs while adding nutrients to extended grazing pastures with better manure distribution.

1. Fall Stockpiled Perennial Forages

Perennial pasture grazed in late May or June and saved for either October/November grazing or transitional spring grazing the following year is called a stockpiled forage. These pastures must not be grazed after early July to allow sufficient regrowth before the first killing frosts. Depending on the species of forage, stockpiled grasses and legumes can be grazed as standing crops or they can be swathed and grazed from the swath.



Stockpiled Courtenay tall fescue at Rorketon, Manitoba

Economic Benefits

- Cows harvest their feed cutting feed costs.
- Manure removal costs are lower, compared to confinement feeding.
- Manure nutrients are distributed over the grazing land, not concentrated in one area and lost to runoff or leveling.
- Labour costs are lower.
- There's less chance for disease buildup.

Environmental Benefits

- Manure is distributed over the entire pasture and naturally fertilizes the land.
- Lower manure concentration in specific areas reduces environmental impact.

Extended grazing reduces the need for labor, machinery and time. It allows producers more time for other farm work. Extended grazing does mean producers must monitor the condition of the cow herd.

This pamphlet includes tips for winter grazing and results from producers who have used this option.

Extending the Grazing Season – Stockpiling Tall Fescue Alan Staheli Fall Dry Matter Yields

		Dry Matter Yield g/m ²	Dry Matter lb/acre
2001	Courtenay Tall Fescue	457	4,070.45
2002	Courtenay Tall Fescue	277	2,467.21
2003	Courtenay Tall Fescue	227	2,021.86
2004	Courtenay Tall Fescue	117	1,042.11
2005	Courtenay Tall Fescue	321	2,859.11
2006	Courtenay Tall Fescue	97	863.97
6 year average	Courtenay Tall Fescue	249.33	2,220.78

Stockpiling Demonstration Alan Staheli 2000 - 2006

Crop	Tall Fescue	6 Year Average	
Total Acres	78	Cost/year/acre	\$11.07
Seeding Date	20-May-00	Taxes	\$5.00
Seeding Rate	12 lb/acre	Fertilizer	\$14.78
Variety	Courtenay	Land (Fixed Investment) Cost/year/acre	\$12.50
Fertilizer at Establishment (lb/acre)	7 lb N 32.5 lb P 20 lb K	Total Cost of Production per acre	\$45.86

Establishment Cost	(\$/acre)
Tall Fescue Seed	\$33.04
Fertilizer	\$13.19
Machinery	\$13.46
Seeding/Fertilizing	\$5.00
Fuel	\$2.00
Taxes	\$5.00
Miscellaneous	\$2.00
Interest	\$2.76
Labour	\$3.27
Total Cost/acre	\$79.72
Total Cost/crop	\$6,218.42
Est. Stand Length (years)	6
Cost/year	\$1,036.40
Cost/year/acre	\$13.29

Interest 7.5%

Spring/Summer Grazing	
Herd Size 1000 lb cow	179.37
Length of Grazing (days)	27.00
Animal Days/acre	62.00
Cost/cow-calf pair/day	\$0.37

Late Fall Grazing	
Herd Size 1000 lb Cow	185.33
Length of Grazing (days)	27.50
Animal Days/acre	65.00
Cow/cow-calf pair/day	\$0.35

Note: in 2000, the year of establishment by direct seeding, Staheli's harvested 258 bales (1200 lb bales). Nitrogen Fertilizer was only applied in 3 out of 6 years due to dry conditions and the economics of BSE.

Grazing Tips and Production Information

- Soil test and apply the appropriate nutrients based on the type of forages being stockpiled and the soil test recommendations.
- Use a legume such as cicer milkvetch in the stockpiled forage seed mix to maximize the benefits of nitrogen fixation, reduce the need to buy expensive nitrogen fertilizer.
- For fall stockpiled grazing, use species, such as tall fescue grass and cicer milkvetch legumes, that maintain their nutrient levels, stand upright, and are less susceptible to a killing frost. Meadow brome (lower ability to stand upright) and Russian Wild Rye (harder to establish) are other stockpiled grass options. Alfalfa and clover are not good fall pasture legumes as they lose their leaves after the first frost and have a more rapid yield and nutritive value loss.
- For spring stockpiled transition pastures, use species such as crested wheatgrass which tolerates close grazing and trampling and invites growth earlier than any other grass species. Meadow brome grass are not as quick to initiate spring growth as crested wheatgrass.
- Depending on the stage of pregnancy or lactation, supplemental feeding maybe required for some animals. A wet analysis feed test is recommended to ensure stockpiled forages are meeting livestock nutrient requirements.
- Livestock should have access to free choice mineral supplement and blue salt.



Stockpiled courtenay tall fescue and cicer milkvetch pasture at Laurier, Manitoba

Stockpiling Demonstration – Darren Gamache 2003 -2006

		4 Year Average	
Crops	Maximize Tall Fescue Oxley I Cicer Milkvetch, Oxley II Cicer Milkvetch	Cost/year/acre	\$17.18
Total Acres	30	Taxes	\$5.00
Seeding Date	1-May-02	Fertilizer	\$22.91
Seeding Rate	12 lb/acre	Land (Fixed Investment) Cost/year/acre	\$15.00
Fertilizer at Establishment (lb/acre)	68 lb N 15 lb P	Total Cost of Production Per Acre	\$60.09
Establishment Cost	(\$/acre)	Equivalent Spring Grazing	
Tall Fescue Seed	\$21.67	Herd Size – 1000 lb cow eq.	95
Oxley I CM Seed	\$10.29	Length of Grazing	25
Oxley II CM Seed	\$13.57	Animal Days/Acre	79
Reseeding	\$5.10	Cost/cow/day	\$0.38
Fertilizer	\$23.12	Late Fall Grazing	
Machinery	\$13.46	Herd Size – 1000 lb cow eq.	199
Fuel	\$2.00	Length of Grazing	17
Taxes	\$5.00	Animal Days/Acre	113
Miscellaneous	\$2.00	Cost/cow/day	\$0.27
Interest	\$3.61		
Labour	\$3.27		
Total Cost/acre	\$103.09		
Total Cost/crop	\$3,092.64		
Est. Stand Length (years)	6		
Cost/year	\$515.44		
Cost/year/acre	\$17.18		

Extending the Grazing Season – Stockpiling Darren Gamache Fall Dry Matter Yields

		Dry Matter Yield g/m²	Dry Matter lb/acre
2003	Tall Fescue	256.41	2,283.91
	Tall Fescue/Oxley II Cicer Milkvetch	144.90	1,290.64
	Tall Fescue/Oxley I Cicer Milkvetch	148.83	1,325.58
2004	Tall Fescue	199.35	1,775.57
	Tall Fescue/Oxley II Cicer Milkvetch	150.72	1,342.45
	Tall Fescue/Oxley I Cicer Milkvetch	189.69	1,689.53
2005	Tall Fescue	104.29	928.93
	Tall Fescue/Oxley II Cicer Milkvetch	533.10	4,748.29
	Tall Fescue/Oxley I Cicer Milkvetch	515.61	4,592.48
2006	Tall Fescue	90.97	810.24
	Tall Fescue/Oxley II Cicer Milkvetch	215.99	1,923.77
	Tall Fescue/Oxley I Cicer Milkvetch	205.69	1,832.07
4 year average	Tall Fescue	162.75	1,449.64
	Tall Fescue/Oxley II Cicer Milkvetch	261.18	2,326.29
	Tall Fescue/Oxley I Cicer Milkvetch	278.83	2,483.47

2. Spring Stockpiled Native Pasture Grass

- Grazing before grass plants reach the three leaf stage causes a reduction in total forage production for the total pasture season. Generally you lose three days in the fall for every one day you graze too early in the spring.
- Native grasses, if stockpiled (ex: no grazing after mid July of the previous year) and combined with new growth in the spring, will provide a transition feed for livestock in May. The new growth (high in crude protein 18 to 23 per cent) low in crude fiber (20 to 30 per cent) and high in moisture (70 to 80 per cent) combined with the old growth will allow cows to eat enough dry matter for themselves and their calves' nutritional requirements. It will also support the animals as



Stockpiled spring transition native/tame pasture



Stockpiled spring transition (crested wheat grass/legume pasture)



Old growth, new growth crested wheatgrass

they move from dry hay to lush pasture. The rumen microbes can also adjust to these changes gradually.

- The old growth combined with the new will provide shelter and a clean area for calves to lie down.
- Native stockpiled pastures can't be grazed as early in the spring as tame stockpiled pastures that include species such as crested wheatgrass. Native stockpiled grass yields will be lower than tame stockpiled grass such as crested wheatgrass.
- Stockpiled pastures should be soil tested and nitrogen should be applied to stimulate early growth.
- Feed supplements to meet nutritional requirements may be necessary.
- Allow pasture sufficient recovery time before re-grazing to ensure the stand remains healthy.

Spring Stockpiled Native-Tame Pasture Grass at Toutes Aides

	Moisture %	Crude Protein %	TDN %	DM Yield lb/acre
May 3, 2007	48.2	14.00	55.61	860
May 11, 2007	55.6	15.55	56.56	1,656
May 18, 2007	56.0	13.75	54.31	884

Spring Stockpiled Crested Wheat Grass Pasture at Eddystone

	Moisture %	Crude Protein %	TDN %	DM Yield lb/acre
April 27, 2007	36.4	18.6	61.42	
May 4, 2007	56.0	22.0	68.11	2,786
May 11, 2007	63.4	23.9	71.37	1,718
May 18, 2007	64.7	16.2	64.10	2,618

Spring Stockpiled Native-Tame Pasture Grass at Eddystone

	Moisture %	Crude Protein %	TDN %	DM Yield lb/acre
May 7, 2007	41.0	17.3	61.59	
May 11, 2007	65.6	24.5	67.19	1,308
May 18, 2007	67.0	18.4	68.04	1,834

3. Swath Grazing Annuals

- See the *Seed Manitoba Guide* and the *Forage Barleys for Manitoba* fact sheet for species, varieties, yield comparisons and agronomic characteristics. Use smooth awn varieties of barley that won't lodge in a cow's mouth, causing lump jaw.
- Oats tend to have higher feed waste because of coarser stems.
- Barley has higher feed value than oats. Forage quality of barley is 11 to 12 per cent crude protein (CP) and the total digestible nutrients (TDN) are 62 to 64 per cent. Oats are 10 to 11 per cent CP and 60 to 61 per cent TDN.
- Seeding crops for swath grazing has traditionally been delayed to avoid spoilage. Research shows delayed seeding of barley and oats until mid-June reduces yields by about 40 per cent compared to mid-May seeding.
- Barley should be swathed in the soft dough stage; oats at the milk stage.
- Dry beef cows in reasonable body condition are the best match for swath grazing.
- Fields close to water sources and shelter are the best sites for swath grazing.
- Swaths should lay on top of the stubble and lie as narrow and deep as possible.
- Limit the amount of available grazing swath with electric fencing so cows don't eat all the grain heads first. For swath grazing to be economical, cows must clean up the straw after eating the grain heads.
- Base the amount of available swath on a dry matter consumption rate of 2.5 per cent to 3 per cent of body weight. Limit the number of cows grazing to three days in each paddock.
- Based on 1,400 pound cows, cereal swath grazing trials had an average of 124 cow days per acre.
- Some producers will feed some alfalfa – about 20 pounds per cow on the last day just before moving the cows to a new swath. If alfalfa is fed every third day, it will increase the amount of degradable intake protein (DIP) in the ration and allow the cow's rumen to make better use of the high fibre straw. It will also provide additional calcium. Make sure all cows have access to the alfalfa by rolling out the bale.
- Complete a representative wet chemistry feed analysis of the whole cereal plant.
- Feed free choice a two to one ratio mineral and cobalt iodized salt.



Cows swath grazing barley

Dean Gamache/Tony Guillas Extending the Grazing Season Results 1996 - 2002

Swathgrazing

YEAR	1996	1997	1998 ¹	1999	2000 ²	2001	2002	7 yr average
(a) Total Acres	40	40	40	40	40	25	25	
Crop Seeded	Oats	Oats	Oats	Barley (Millet -20 acres)	Barley + Millet	Oats	Barley	
Variety	Derby	Derby	Derby	Bedford/Golden German Millet	Bedford & Siberian	Derby	Common	
Seeding Date	June 25 and 26	June 29	June 30	June 27	June 27	July 5	June 25	
Seeding Rate	2 bu/acre	2 bu/acre	2 bu/acre	2 bu/acre 5 bu/acre	2 bu/acre 5 bu/acre	3 bu/acre	2.5 bu/acre	
Weed Control	MCPA Amine	Nil	Buctril M	Nil	Nil	Nil	Pre-Roundup, Etaprop	
Fertilizer	18 lb N 27 lb P 44 lb K	17 lb N 32 lb P 10 lb K 10 lb S	16.5 lb N 14.6 lb P 42 lb K	35 lb N 7 lb P 39 lb K	6 lb N 30 lb P 96 lb K	100 lb N 30 lb P 20 lb K	22 lb N 24 lb P 78 lb K (manure)	
Swathing Date	Sept 15	Sept 9	Sept 18	Sept 15	Sept 10	Sept 17	Sept 17	
Estimated Yield	200 Green feed Bales, 90 bushels	150 Green feed bales 75 bushels	75 Green feed bales, 45 bushels	160 Green feed bales, 70 bushels	30-40 Green feed bales	70 bushels	—	
Feed Analysis (DM Basis)	87.1% MC 6.8% CP 59.7% TDN .18% Ca .05% P .38% nitrates	84.6% MC 10.2% CP 64% TDN .21% Ca .24% P .44% nitrates	59% MC 11.6% CP 64% TDN .29% Ca .26% P .65% nitrates	19.1% MC 11.9% CP 62.3% TDN .28% Ca .32% P .16% nitrates	48.0% MC 12.0% CP 64.3% TDN .34% Ca .35% P	35% MC 9.5% CP 59.6% TDN .29% Ca .39% P .30% nitrates	26.2% MC 11.6% CP 57.3% TDN .14% Ca .27% P .04% nitrates	51.3% MC 10.5% CP 61.6% TDN .25% Ca .27% P .33% nitrates
(b) Herd size	151 cows	185 cows/ bred hfrs	180 cows/ bred hfrs	189 cows/ bred hfrs	150 cows/ bred hfrs	200 cows/ bred hfrs	200 cows/ bred hfrs	179 cows/ bred hfrs
(c) Grazing Days	39	36	16	26	10	17	23.5	24
Animal Days/acre*	147	167	72	122	37.5	136	188	124
Total Operating Cost	\$60.40	\$57.00	\$61.00	\$56.98	\$62.74	\$68.23	\$45.38	\$58.82
Total Fixed Cost**	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$47.65	\$46.23
Total cost/acre	\$106.40	\$103.00	\$107.00	\$102.98	\$108.74	\$114.23	\$93.03	\$105.05
Cost/head/day 1000 lb cow	\$0.51	\$0.44	\$1.06	\$0.60	\$2.07	\$0.60	\$0.35	\$0.80
Cost/head/day 1400 lb cow	\$0.72	\$0.62	\$1.49	\$0.84	\$2.90	\$0.84	\$0.49	\$1.13

¹ The 1998 crop received quite severe hail damage on July 18 and also suffered from BYD virus

² The 2000 crop yielded very poor due to excess rains that caused the field to drown dramatically increasing cost/head/day

* Calculated by: (b x c) ÷ a

** Includes fixed land investment (\$22.50/acre), fixed machinery cost (\$5.50/acre) and machinery depreciation (\$18.00)

Corn Grazing

- Corn is a high energy feed with protein levels that will normally match the nutritional needs of a dry cow in mid and late pregnancy.
- Corn has the potential to produce more dry matter per acre than tame hay or forage cereals.
- A number of trials in the Ste. Rose area over five years on 1,400 pound beef cows indicated an approximate average of 250 cow days per acre.
- Use an early-maturing silage corn variety. Silage corn is more palatable and better suited to grazing than grain corn. Use a variety that will match the corn heat units (CHU) rating for your area. The CHU rating indicates how many heat units are required for the grain to reach maturity.
- Seeding rates are 30,000 plants/acre for conventional and herbicide-resistant corn hybrids, 70,000 plants/acre for Canamaize CM440 and 55,000 plants/acre for Canamaize CM533 Roundup Ready.
- Corn has a high fertility requirement. Soil test and apply accordingly.
- Corn will not compete with weeds, so weed control is very important.
- Limit the corn grazing as cows will eat the grain cobs first. Based on an average of 250 cow days per acre, graze each paddock for three days. This forces the cows to clean up the corn stocks until there is no more than 2,000 lb per acre of residue left.
- Provide a source of shelter for the cows either using brush or a portable wind-break fence.
- Cows can obtain their water requirements from snow if it is not too hard. Provide a water source if fresh snow is not available.
- Train animals to respect an electric fence before you turn them out. Once they have been shocked, they are unlikely to challenge the fence again.
- Wait until the ground is frozen before turning the herd into the field. This will reduce loss from trampling feed into the mud.

Corn Grazing Economic Summary Dean Gamache/Tony Guillas

Canamaize CM440 Economic Results		2001	2002*	2003	2004	2005	2006	6 year average
O P E R A T I N G	Seed	\$31.50	\$85.80	\$24.78	\$38.40	\$23.35	\$34.66	\$39.75
	Fertilizer	\$36.58	\$24.50	\$17.66	\$17.22	\$28.90	\$28.55	\$25.57
	Weed Control	\$16.80	\$40.54	\$12.41	\$28.80	\$36.38	\$36.98	\$28.65
	Machinery	\$10.00	\$10.00	\$11.00	\$13.00	\$15.00	\$17.51	\$12.75
	Taxes	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00	\$6.00
	Miscellaneous	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
	Interest	\$3.34	\$5.49	\$2.40	\$2.90	\$3.07	\$3.46	\$3.44
	TOTAL	\$106.22	\$174.33	\$76.25	\$108.32	\$114.70	\$129.16	\$118.16
F I X E D	Fixed Land Investment	\$22.50	\$22.50	\$22.50	\$22.50	\$22.50	\$22.50	\$22.50
	Machinery Depreciation	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00	\$18.00
	Machinery Investment	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50
	TOTAL	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00	\$46.00
TOTAL OPERATING & FIXED		\$152.22	\$220.33	\$122.25	\$154.32	\$160.70	\$175.16	\$164.16
Grazing Days		14	30	41	27	35	21	28
Number of Animals 1000 lb cow eq.		280	280	231	308	280	243	270
Animal Days/acre		392	336	412	203	265	159	295
Cost of Supplemental Hay/acre		\$0	\$0	\$0	\$9.86	\$19.19	\$20.79	\$8.31
Cost/head/day – 1000 lb cow eq.		\$0.39	\$0.66	\$0.30	\$0.81	\$0.68	\$1.23	\$0.68
Cost/head/day – 1400 lb cow eq.		\$0.54	\$0.92	\$0.42	\$1.13	\$0.95	\$1.72	\$0.95

* Grazing Combined Hybrid and Canamaize

**Corn Grazing Economic Summary
Dean Gamache/Tony Guillas**

Canamaize 533RR Economic Results		2005	2006	2 year average
O P E R A T I N G	Seed	\$66.00	\$55.00	\$60.50
	Fertilizer	\$28.90	\$28.55	\$28.73
	Weed Control	\$20.63	\$14.42	\$17.53
	Machinery	\$15.00	\$17.51	\$16.26
	Taxes	\$6.00	\$6.00	\$6.00
	Miscellaneous	\$2.00	\$2.00	\$2.00
	Interest	\$3.81	\$3.40	\$3.60
	TOTAL	\$142.34	\$126.88	\$134.61
F I X E D	Fixed Land Investment	\$22.50	\$22.50	\$22.50
	Machinery Depreciation	\$18.00	\$18.00	\$18.00
	Machinery Investment	\$5.50	\$5.50	\$5.50
	TOTAL	\$46.00	\$46.00	\$46.00
TOTAL OPERATING & FIXED		\$188.34	\$172.88	\$180.61
Grazing Days	5	27	16	
Number of Animals 1000 lb cow eq.	280	243	262	
Animal Days/acre	127	305	216	
Cost of Supplemental Hay/acre	\$19.19	\$40.06	\$29.63	
Cost/head/day – 1000 lb cow eq.	\$1.63	\$0.70	\$1.17	
Cost/head/day – 1400 lb cow eq.	\$2.29	\$0.98	\$1.63	



**Ernest Beasse – 2005 & 2006 Fall-Winter
Corn Grazing**

	2005	2006
Variety	DKB 27-12	DKB 27-12
Seeding Date	15-May	
Seeding Rate	18 lb/acre	33,000 seeds/acre
Fertilizer (actual)	105 lb N, 31 lb P, 114 lb K	80 lb N 40 lb K
Weed Control	Roundup Weather Max	Roundup Weather Max
Herbicide Rate	Recommended Rate	Recommended Rate
Number of Acres	40	31

Project Costs	(\$/acre)	(\$/acre)
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Operating

Seed	\$71.83	\$86.09
Fertilizer	\$66.13	\$39.35
Weed Control	\$15.00	\$12.65
Machinery	\$15.00	\$20.48
Taxes	\$6.00	\$6.00
Miscellaneous	\$2.00	\$2.00
Interest	\$4.84	\$4.58
Total Operating Cost/acre	\$180.80	\$171.15

Fixed

Fixed Land Investment	\$22.50	\$22.50
Machinery Depreciation	\$18.00	\$18.00
Machinery Investment	\$5.50	\$5.50
Total Fixed Cost/acre	\$46.00	\$46.00
Total Operating & Fixed	\$226.80	\$217.15

Grazing Days	50	52.3
Number of Animals*	261	273
Animal Days/acre	326	461
Cost of Supplemental Hay/acre	\$27.19	\$95.89
Cost/hd/day 1000 lb cow	\$0.78	\$0.68
Cost/hd/day 1450 lb cow	\$1.13	\$0.99

* based on 1000 lb animal equivalents: 180 cows at 1450 pounds/cow would equal 180 x 1.45 or 261 cows at 1000 pounds/cow.

Eugene Gingras – 2005 & 2006 Fall-Winter Corn Grazing

Variety	PICKSEED 5575 G with 5 acres of CANAMAIZE CM440	32 acres PICKSEED 22330RR 8 acres CANAMAIZE CM533RR
Seeding Date	May 24/2005	2006
Seeding Rate		1 bag/3 acres (Pickseed) 1 bag/2 acres (Canamaize)
Fertilizer (actual)	82-0-0	90 lb
Weed Control	Dyvel, Accent	Touchdown IQ
Herbicide Rate	Recommended Rate	Recommended Rate
Number of Acres	40	40

Project Costs	(\$/acre)	(\$/acre)
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Operating

Seed**	\$41.34	\$56.52
Fertilizer	\$34.34	\$37.00
Weed Control	\$30.43	\$7.75
Machinery	\$15.00	\$27.50
Taxes	\$6.00	\$6.00
Miscellaneous	\$2.00	\$2.00
Interest	\$3.55	\$3.76
Total Operating Cost	\$132.66	\$140.53

Fixed

Fixed Land Investment	\$22.50	\$22.50
Machinery Depreciation	\$18.00	\$18.00
Machinery Investment	\$5.50	\$5.50
Total Fixed Costs/acre	\$46.00	\$46.00
Total Operating & Fixed	\$178.66	\$186.53

Grazing Days	38	346
Number of Animals*	374	396
Fall Animal Days/acre	355	343
Cost of Supplemental Hay/acre	\$41.33	\$48.93
Cost/hd/day 1000 lb cow	\$0.62	\$0.69
Cost/hd/day 1350 lb cow	\$0.84	\$0.93

** Pickseed cost = \$42.86/acre
(35/40 X 100% = 87.5% X \$42.86 = \$37.50/acre)
Canamaize seed cost = \$32.00/acre
(5/40 X 100% = 12.5% X \$32.00 = \$3.84/acre)
Total seed cost = \$37.50 + \$3.84 = \$41.34/acre

* Based on 1000 lb animal equivalents
(260 cows X 1.35, 23 repl hfs X 1.1)

* Based on 1000 lb animal equivalents
(293 cows X 1.35)

David Senkowski 2005 & 2006 Fall-Winter Corn Grazing

Variety	30 acres DKB 27 12 RR (SILAGE) with 12 acres DKB 2678 RR (GRAIN)	45 ac PIONEER 39T67 16 acres CM533
Seeding Date	2005	2006
Seeding Rate		Pioneer 30,000 plants/acre Canamaize 50,000 plants/acre
Fertilizer (actual)	82-0-0	37-6-3-3 @ 155 lb/acre
Weed Control	Glyphosate	Glyphosate
Herbicide Rate	Recommended Rate	1 pass
Number of Acres	42	55

Project Costs	(\$/acre)	(\$/acre)
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Operating

Seed	\$56.67	\$56.73
Fertilizer	\$93.71	\$36.73
Weed Control	\$12.14	\$10.04
Machinery	\$15.00	\$23.25
Taxes	\$6.00	\$6.00
Miscellaneous	\$2.00	\$2.00
Interest	\$5.10	\$3.71
Total Operating Cost/acre	\$190.62	\$138.45

Fixed

Fixed Land Investment	\$22.50	\$22.50
Machinery Depreciation	\$18.00	\$18.00
Machinery Investment	\$5.50	\$5.50
Total Fixed Costs	\$46.00	\$46.00
Total Operating & Fixed	\$236.62	\$184.45

Grazing Days	50	80
Number of Animals*	328	342
Animal Days/acre	390	497
Cost of Supplemental Hay/acre	\$73.19	\$168.73
Cost of creep feeding oats/acre	\$33.33	\$22.73
Cost/hd/day 1000 lb cow	\$0.88	\$0.76
Cost/hd/day 1300 lb cow	\$1.14	\$0.98

* Based on 1000 lb animal equivalents
(210 Cows X 1.3, 5 Bulls X 1.8, 90 Calves x 0.5)
(215 Cows X 1.3, 4 Bulls X 1.8, 110 Calves x 0.5)

Corn Grazing (continued)

- Take a whole-plant representative feed sample and have a wet feed analysis done. Compare the feed analysis to the cows grazing needs and provide supplements if necessary for a balanced feed ration.
- Use a feed ratio of two to one or three to one of calcium to phosphorous mineral to make up for lower calcium levels in the corn. Supplement with alfalfa grass hay if it's needed to meet the calcium requirements. Ground limestone may also be required to increase the calcium. Mixing 4 cups of dry molasses per bag of mineral will enhance palatability and increase mineral consumption. Feed cobalt iodized salt free choice.
- Feeding some alfalfa grass hay on the last day before moving the cows into a new section of corn will increase calcium levels and degradable intake protein. An increase in degradable intake protein will allow the rumen to make better use of the high fibre corn stalk roughage as an energy source. Utilize a nutritionist to balance your mineral requirements.
- Limit access for the cows to a maximum of five days of grazing per paddock. The ideal is three days per paddock. Wait until the cows clean up the corn stalks as much as possible before moving them to the next paddock. It is best not to leave more than 2,000 pounds per acre of residue behind.
- Watch the cows for symptoms of grain overload in years where cobs are fully developed and abundant. Cows eat the cobs before they eat the stalks.
- Have a backup feeding plan in case of bad weather or excess snow.

4. Bale Grazing

- Bale grazing is the practice of placing large quantities of bales out for livestock in the fall and regulating access and intake in the winter using electric wire fencing.
- Producers can move cows onto the next set of bales using two, three, four or five days rotations but should note that as the number of days are increased, the amount of waste increases.



Cows bale grazing at Inglis, Manitoba



Bales set up for grazing at Plumas, Manitoba

- Bales should be weighed and a feed test analysis done to set the number of bales needed per move. Allow for a dry matter intake of 2.5 to 2.7 per cent of body weight.
- Within the row leave 15 to 20 feet between bales to allow good manure distribution. Between each row leave 20 to 25 feet.
- Use an additional lead hot wire to make sure cows don't get access to all the feed if they do break through.
- Allow 18 cows per bale of even-quality feed. Don't mix different quality feed or weak cows will consume only poor quality feed. If feeding two thirds hay and one third greenfeed, it is better to move cows every four days.
- Poor condition cows should be pulled out of bale grazing.
- Cut feeding rotation by one day during extreme cold weather.
- Provide adequate good quality water or fresh snow along with adequate salt mineral and vitamin supplementation based on a feed test analysis of bales being grazed.
- Provide adequate shelter with either trees or a portable wind-break fence.
- Fiberglass rods or rebar speared into bales work better than trying to drill or drive rods into ground.
- Twine is easiest removed in the fall. If sisal twine is used, leave the bales on their sides and let the twine rot. Sisal twine doesn't have to be removed before grazing.
- Cows should be checked regularly.

Bale Grazing Nutrient Management

Producers should anticipate the need for more intensive management of bale grazing sites in order to control longterm soil nutrient build-up. Nutrients are imported to a bale grazing field at relatively high rates in the form of feed and are exported from the field at very low rates in the form of animal weight-gain. The nutrients left behind from bale grazing will tend to be concentrated in the immediate vicinity of the bales as waste feed, feces and urine. This can cause problems with excess nutrient accumulation. Producers need to intensify their management to address localized “hot spots” of nutrient accumulation in order to minimize environmental risk. Addressing this risk will also lead to greater agronomic benefits as pasture fertility is improved throughout a producer’s land base. Management practices that should be adopted include:

- Careful site selection
- Employing a reasonable density of bales
- Timely movement of cattle
- Rotation of fields to allow recovery of any damaged standing crop and draw down of soil nutrient levels with subsequent crops
- Soil testing to determine nitrogen, phosphate, potassium and sulfur levels before and after bale grazing

Selecting suitable sites based on soil and landscape characteristics will reduce the risk of nutrient loss to the environment from leaching and runoff. Producers should avoid or more carefully manage bale grazing on very coarse textured soils in which water drains downward quickly as excess nutrients can be carried with the water and enter groundwater. Similarly, sloping lands as well as very fine textured or dense soils on which water runs off the surface need to be managed to ensure that manure contaminated water does not enter a surface watercourse. Compaction of soil caused by cattle traffic also promotes surface runoff.

Annual soil testing will provide producers with the soil nutrient status of their bale grazing sites and ensure that nutrient build-up does not become excessive.

The Livestock Manure and Mortalities Management Regulation prohibits pollution of ground and surface water by manure and escape of manure from a property. Cattle access to surface water should be controlled or avoided if possible.

Although no strict regulatory requirements apply to grazing lands, producers should still manage nutrients properly in a bale grazing system. Producers choosing to use bale grazing as a management practice must be aware that under the *Wildlife Damage Compensation Regulation* they will not be eligible for compensation. Producers must weigh the economic benefit of this management practice against potential forage losses due to wildlife damage. For more detailed information on the benefits and risks of this practice please read the MAFRI publication titled *The Basics and Benefits of Bale Grazing*.

Summary

With extended grazing, management is more important than in traditional feeding systems. Contingency plans are a must for sudden bad weather. Use wet chemistry analysis to determine forage feed values and limitations. Use mineral and vitamin supplements and monitor intakes to make sure livestock nutritional requirements are being met.

Cold weather, winds and excess snow can quickly limit feed accessibility, livestock nutrition intake and feed access. Use a bale of straw as a warning sign to indicate that something is wrong. When cattle start eating the straw, it is time for them to be moved or given supplements. Supplementing with a protein source, such as alfalfa, will increase the degradable intake protein (DIP) and calcium levels and allow them to make better use of higher fibre roughage. This additional protein can be provided once every three days. Energy supplements such as grain must be given more often, usually every day and do not increase the degradable intake protein.

Cows’ body condition scores need to be monitored. Inexperienced animals, younger animals or any animal losing body condition may need to be removed and fed in a more traditional manner.

Separating your cow herd into two or more herds will allow you to manage the nutritional requirements of each group according to their needs.

Extending the grazing season into winter, with stockpiled forages, cereal swath grazing, corn grazing or bale grazing, will lower feed labour and manure removal costs. It will also lower the need to use machinery and provide wider distribution of nutrients (manure) over the land.

More details on each of these winter grazing options are available through other fact sheets at your local Manitoba Agriculture, Food and Rural Initiatives GO Centre, or at www.manitoba.ca/agriculture/production.



Spring photo at Ste. Rose, Manitoba illustrating even distribution of nutrients through manure with extended grazing practices

For More Information

- Your local Manitoba Agriculture, Food and Rural Initiatives Growing Opportunities Centre.
- Manitoba Agriculture, Food and Rural Initiatives website: www.manitoba.ca/agriculture.
- Forage Beef website: www.foragebeef.ca.
A forage and beef production website that contains information gathered from Manitoba, Alberta and Saskatchewan.
- Your local Agriculture and Agri-Food Canada (PFRA) office.
- Manitoba Forage Council website: www.mbforagecouncil.mb.ca.

You Can Help Reduce Greenhouse Gas

Healthy pastures and riparian areas are better able to sequester carbon, and more-widely distributed manure reduces greenhouse gas emissions compared to manure packs. For more information on greenhouse gas, and how livestock producers can do their part to help reduce it, visit the following two websites.

- Canadian Cattleman's Association: www.cattle.ca
- Greenhouse Gas Mitigation Program: www.agr.gc.ca/progser/ghgm_e.html

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