

Grazing Cattle on Corn

Grazing your herd on corn can lower your winter feed costs, reduce your operating expenses and save you time.

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. It also has the potential to produce more dry matter than tame hay or forage cereals. By replacing other forms of feed with standing corn, labour time, machinery use and associated costs are reduced as no summer feed harvesting is required and winter supplemental feeding is limited.

Manure handling and associated costs are reduced since the manure is spread naturally on the field rather than being concentrated in winter feeding areas. The manure provides fertility benefits to the crop in the new year.



Getting Started

How Much Land is Needed?

To calculate how many acres you require for corn grazing, determine how long you plan on grazing and the number of cows to be grazed.

Canamaize, Conventional Hybrid and Herbicide Resistant Hybrid corn have all been used for corn grazing. A number of trials in the Ste. Rose area over five years on 1400 lbs cows indicated an approximate average of 250 cow days per acre.

Assuming you have 200 cows, and you want to graze them for 30 days, the formula is:

$$30 \text{ days} \times 200 \text{ cows} = 6000 \text{ cow grazing days}$$

Based on 250 cow-days per acre you would require:

$$6000 \text{ cow grazing days} \div 250 \text{ cow days per acre} = 24 \text{ acres (10 ha) of corn.}$$

Seed Selection

Select an early-maturing silage corn variety. Silage varieties of corn are more palatable and better suited to grazing than grain corn.

To increase the chances of a high yielding and high quality corn crop for grazing, select a variety that will match the Corn Heat Units (CHU) rating for your area. The CHU rating is an indicator of how many heat units are required for the grain to reach maturity. On average, 200 fewer CHUs are required for grazing or silage corn to reach 65 per cent whole plant moisture (35 per cent dry matter) as compared to grain corn. This moisture level is normally when silage corn is ready to harvest.

Refer to the provincial CHU map on the Manitoba Agriculture, Food and Rural Initiatives (MAFRI) website at <http://www.gov.mb.ca/agriculture/climate/waa50s00fig20.html>, or contact your local MAFRI GO office.

Research shows that at least 60 per cent of the dry matter yield of corn comes from the cob, grain and husk while the leaf, stalk and tassel provide less than 40 per cent of the dry matter yield. There is nutritional value in the plant stalks and leaves as well as in fully developed cobs.

Seeding Recommendations

Corn for grazing can be seeded with an air seeder, air drill, row planter or conventional hoe drill. Depending on the machine being used, seed runs may be plugged to produce a wider row spacing, if desired. Corn should be planted about one and half to two inches (four to five centimetres) deep and preferably into soil moisture. Plant as early as possible, but be aware that corn requires a soil temperature of at least 10°C to germinate, so monitor soil temperature before seeding.

Refer to the variety seeding recommendations for seeding rate. Canamaize recommends a seeding rate to achieve 70,000 plants/acre (28,350/hectare) for conventional CM440 and 55,000 plants/acre (22,250/hectare) for CM533 Roundup Ready. A seeding rate selected to achieve 30,000 plants/acre (12,200/hectare) is recommended for conventional and herbicide-resistant corn hybrids.

Fertility

Corn has a high fertility requirement. In order to achieve potentially higher dry matter yields, a balanced recommended blend of nitrogen, phosphorus, potassium and sulfur is important. Fertilize according to soil test recommendations for a corn silage crop with a target yield of four to five tons of dry matter per acre.

Follow other suggested agronomic corn growing practices to achieve a high yielding corn crop. Cow grazing days per acre and cost per cow per day are closely related to the maturity and yield potential of your corn crop. A mature corn crop with good yield potential will result in a higher number of cow grazing days and a lower cost per cow per day.

Weed Control

Weed control is very important as corn will not compete with weeds or volunteer cereals in the early growth stages. Do not seed corn into fields with a heavy weed infestation.

The Guide to Crop Protection available at all MAFRI offices lists pre-plant and post emergent chemicals for corn.

Fencing and Facilities

Use electric fencing with a high quality energizer to divide paddocks. Clear alleyways through the corn for the fencing before turning the cattle onto the corn. A front end loader with the bucket tipped down slightly will do the job. Rebar (concrete reinforcement bar) makes good posts. Place the posts in the ground before freeze-up. Using a cordless drill to drill holes into the ground works well.

Always have an extra fence available as it allows you to fence the next paddock ahead of time and turn the cows into the new field as soon as they have finished grazing the previous paddock.

Provide a source of shelter for the cow herd either as bush or a portable wind break fence.

Cows will obtain their water requirements from snow, provided it is not too hard. Provide a water source if fresh snow is unavailable.

Corn Grazing Tips

1. Train animals to an electric fence before you turn them out. Once they have been shocked, they are unlikely to challenge the fence again. Otherwise, they could walk right through the fence.
2. Wait until the ground is frozen before turning the herd into the field. This will reduce the losses from trampling feed into the mud.
3. Take a whole-plant representative feed sample and have a wet feed test analysis completed. Compare the feed analysis to the requirements of cows grazing and provide supplements if necessary for a balanced feed ration.
4. Feed a 2:1 or 3:1 calcium to phosphorous mineral to make up for lower calcium levels in the corn and also supplement with alfalfa grass hay if required to meet the calcium requirements.
5. Mixing 1000 millilitres of dry molasses per bag of mineral will enhance palatability and increase mineral consumption. 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 corn stalk roughage as an energy source.
6. Limit access for the cows to maximum of five days of grazing per paddock with the ideal being 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 preferable to leave no more than 2000 kg/ha of residue behind. See Figure 1.
7. Watch the cows for symptoms of grain overload in years where cobs are fully developed and abundant. Cows eat the cobs first, and only once all the cobs are eaten will they then eat the stalks.
8. Have a backup feeding plan in case of bad weather or excess snow.

Examples of Remaining Residue from Agriculture Canada Brandon



Ensure that cows clean up stalks with a residue of preferably no more than 2000 kg/ha before moving to the next paddock.



Use electric fence to split up the corn field and limit cow access to a maximum five days grazing per paddock.



Cattle will dig through snow to access corn

CORN GRAZING BUDGET GUIDELINES BASED ON MAFRI 2006 GUIDELINES FOR ESTIMATING CROP PRODUCTION COSTS

	\$/Acre	Your Cost
*Seed and treatment	51.00	
Fertilizer	63.95	
Weed Control	29.50	
Machinery	10.50	
Taxes	7.00	
Miscellaneous	8.00	
Interest	4.67	
TOTAL OPERATING COSTS	174.62	
TOTAL FIXED COSTS	34.00	
TOTAL OPERATING & FIXED	208.62	
Grazing Days	30.00	
Number of Cows (1400 lbs)	200.00	
Number of Acres	24.00	
**Cow Days/Acre	250.00	
***Cost/1400 lbs cow/day	0.83	

* Based on 30,000 plants/acre for a conventional hybrid. Canamaize recommends a seeding rate of 70,000 plants/acre for a non-Round-up Ready variety at a cost of \$34.67/acre and a seeding rate of 55,000 plants/Acre for Canamaize Round Ready variety at a cost of \$57.62/acre.

** Five years of corn grazing trials in the Ste. Rose district had a calculated average of 250 cow days/acre. (Grazing Days x Number of Cows) ÷ Number of Acres.

*** Five years of corn grazing trails in the Ste. Rose district had calculated costs ranging from \$0.59 to \$1.09 for a 1400lb cow/day.

**CORN FEED ANALYSIS
WESTMAN AGRICULTURAL DIVERSIFICATION CENTRE**

		TDN (%)	CP (%)
2005	HLR 219 Corn Stalk & Leaves	61.60%	5.9%
2005	HLR 219 Corn Cob Only	77.60%	11.5%
2005	HLR 219 Corn Leaves Only	45.10%	11.0%
2005	39T66S Corn Bottom 36" of Stalk	30.50%	3.3%

Note: In 2005 most corn varieties reached maturity with the carbohydrates and sugars depleted in the stalk.

**CORN GRAZING DEAN GAMACHE/TONY GUILLAS
FEED TEST RESULTS AND LIVESTOCK REQUIREMENTS ON PASTURE SUMMARY**

		TDN (%)	CP (%)	Dry Matter (lbs) Requirements
2002	Canamaize Corn	60.40%	8.00%	
2002	Hybrid Corn	60.40%	8.20%	
2003	Canamaize Corn	71.50%	8.50%	
2003	Hybrid Corn	64.70%	7.40%	
2004	Canamaize Corn	65.20%	9.80%	
2004	Hybrid Corn	62.50%	9.60%	
	3 year average Canamaize Corn	65.70%	8.77%	
	3 year average Hybrid Corn	62.53%	8.40%	
	Requirement of 1300 lb dry cow on pasture mid third pregnancy -15°C maintenance	*58.60%	7.50%	29.696
	Requirement of 1300 lb cow 7th month of lactation on pasture mid third pregnancy -15°C maintenance	*65.00%	8.20%	29.594
	Requirement of 1300 lb dry cow on pasture last third pregnancy -15°C maintenance	*60.70%	7.70%	30.157
	Requirement of 600 lb calf on pasture to gain 1.5 lb/day -15°C	*66.70%	11.80%	15.667

* Based on 40 acre field broken into 3 to 5 acre grazing paddocks where cattle have to spend a portion of their energy (TDN) grazing to meet their nutritional requirements. This increases the cows total daily TDN requirements when grazing as compared to the lower TDN requirements when the feed is brought to the cow.

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**For more information on grazing cattle on corn,
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or visit us online at manitoba.ca/agriculture/production**

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For more information please visit <http://www.agr.gc.ca/env/greencover-verdir> or phone 1 866 844-5620.