

# Grazing Cattle on Corn



## Grazing cattle on corn can lower winter feed costs, it reduces yardage and it returns nutrients to the landscape

Extending the grazing season can help producers lower their winter feeding costs. Extending grazing options include corn, swath, bale, stockpiled forage, crop residue and more.

Corn is a high energy feed with protein levels that will meet or be close to meeting the nutritional needs of a dry cow in mid and late pregnancy. It will produce more dry matter/acre than tame hay or forage cereals, especially in dry years as annuals are more moisture efficient than perennials. C4 plants including corn do better in hotter and drier conditions than cool season plants.

By switching from traditional winter feeding to extended grazing with standing corn, labour, machinery use, fuel and other costs are reduced and winter supplemental feeding is less.

Manure removal and handling is 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 next year.

## How much land is needed?

To calculate how many acres are required 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 lb cows indicated an approximate average of 250 cow grazing days per acre. In more recent years hybrid corn has averaged 275-300 cow grazing days/acre (1400 lb cow).

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 suitable to your area. 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 percent whole plant moisture (35 percent dry matter) as compared to grain corn. This is the recommended moisture level to harvest corn silage.

Refer to the provincial CHU map at <https://www.gov.mb.ca/agriculture/weather/weather-conditions-and-reports.html>

Research shows that at least 60 percent of the dry matter yield of corn comes from the cob, grain and husk while the leaf, stalk and tassel provide less than 40 percent 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, or air drill but a row planter works the best. 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 the seeding rate. A seeding rate selected to achieve 30,000-35,000 plants/acre (12,200 – 14,200/hectare) is recommended for 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 five to six tonnes of dry matter per acre. A five ton dry matter corn crop requires a minimum of 140 lb nitrogen, 57 lb phosphate, 181 potash and 12 lb of sulphur 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 volunteers in the early growth stages. Optimal weed control is critical for high yields.

## 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 into the corn. A front end loader with a bucket tipped down slightly will do the job. Rebar (concrete reinforcement bar) or step in posts make good temporary posts. Using a cordless drill to drill holes into the frozen ground works well for setting up the temporary posts.

For optimal livestock control use two wires and always fence the next paddock. This helps prevent the cows from accessing the entire field if they break out. Using one hot wire and one ground wire will improve livestock control and fence effectiveness.

Provide a source of shelter for the cow herd either as bush or a portable wind break fence. Another option is to graze from south to north using the standing corn as natural shelter from the prevailing winds.

Cows can obtain their water requirements from snow, provided it is not too hard and volume is adequate. 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. Use a powerful electric fencer as snow is a good insulator.
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 or soft ground.
3. Take a whole-plant representative feed sample and have a wet feed test analysis completed. Compare the feed analysis to the requirements of the cows and provide supplements if necessary for a balanced ration.

### **Test for nitrates if the corn was stressed by frost or drought.**

4. Feed a 2:1 or 3:1 calcium to phosphorus mineral to make up for lower calcium levels in the corn.
5. Mixing 1000 millilitres of dry molasses per bag of mineral will enhance palatability and increase mineral consumption.
6. 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.
7. Limit access for the cows to a maximum of three to four grazing days per paddock. Wait until the cows clean up the corn stalks as much as possible before moving them to the next paddock. Cross fencing and restricting access will improve corn utilization. It is preferable to leave no more than 2000 kg/ha of residue behind.

8. Watch the cows for symptoms of grain overload in years where cobs are fully developed and abundant. Cows eat the cobs first and then they will eat the stalks after.
9. Feeding the cows hay/silage prior to moving them to a new paddock helps them to fill up and will help prevent grain overload as the cows can't gorge as much on cobs. In high grain years providing other feed more often will help prevent grain overload further.
10. Have a backup feeding plan in case of bad weather or excess snow.

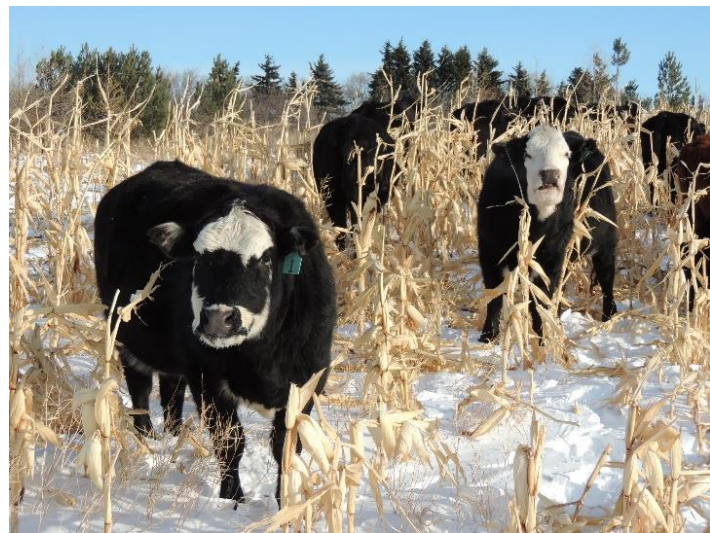
## Examples of Remaining Residue from Agriculture Canada Brandon



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 four days grazing per paddock.



Cattle can access corn through the snow very well.

## 2016-2020 Manitoba Beef & Forage Initiatives Corn Grazing Results

Year	CHU	Plant Population	Crude Protein	TDN% Energy	Dry Matter %	DM Yield Tonne/acre	Cow Grzg Days/acre
							1300 lb cow
2016 Average	2150	38 K	7.0	73.7	44.7	6	338
2018 Average	2292	32.3 K	6.7	75.2	59	3.7	208
2019 Average	2318	28.4 K	7.0	77.9	56.1	6.7	379
2020 Average	2340	28.8 K	8.4	66.8	59.6	5.2	294
Overall Average	2275	31.9 K	7.3	73.4	54.9	5.4	305

Due to dry conditions in 2019, at the Manitoba Beef & Forage Initiative site at Brookdale, the grazing corn out yielded the tame alfalfa/grass hay over seven times. The corn produced 6.7 tonne dry matter vs 0.91 tonne for the first and second cut hay crop.

## 2021 Manitoba Agriculture Silage Production Cost Summary

	<u>Barley Silage</u>				<u>Corn Silage</u>	
	Annual				Annual	
	<u>Production Costs</u>				<u>Production Costs</u>	
	(as fed)			(as fed)	(DM)	
	(Dry Matter-DM)			(as fed)	(DM)	
	<u>\$/acre</u>	<u>\$/ton</u>	<u>\$/ton</u>	<u>\$/acre</u>	<u>\$/ton</u>	
<b>A. Operating Costs</b>						
Seed & Treatment	\$16.88			\$92.80		
Nurse Crop Seed						
Establishment (amortized)						
Fertilizer	\$50.99			\$95.76		
Herbicide/Insecticide	\$12.00			\$12.00		
Field Fuel Costs	\$13.73			\$13.97		
Moving Fuel Costs	\$2.30			\$4.30		
Packing Fuel Costs	\$2.25			\$4.20		
Machinery Operating	\$15.00			\$15.00		
Machinery Lease	\$4.80			\$4.80		
Crop Insurance	\$12.21			\$15.56		
Miscellaneous	\$7.50			\$8.50		
Land Taxes	\$10.00			\$10.00		
Rental & Custom Costs				\$0.00		
Interest on Operating	\$3.32			\$6.23		
<b>Total Operating</b>	<b>\$150.9</b>			<b>\$283.12</b>		
<b>B. Fixed Costs</b>						
Land Costs	50.29			50.29		
Machinery Costs	50.48			50.48		
Storage Costs	3.91			3.91		
<b>Total Fixed</b>	<b>104.68</b>			<b>104.68</b>		
<b>C. Owner – Labour &amp; Living</b>	<b>36.77</b>			<b>54.98</b>		
<b>Total Costs</b>	<b>292.43</b>	<b>38.99</b>	<b>105.95</b>	<b>442.78</b>	<b>31.63</b>	
<b>Total Costs (\$/lb)</b>		<b>0.0195</b>	<b>0.053</b>		<b>0.0158</b>	
<b>Yield per acre (ton)</b>		<b>7.50</b>	<b>2.76</b>		<b>4.03</b>	

The overall cost of production for grazing corn will be less than silage as there is no harvesting cost which will be \$100-\$125/acre for corn. In 2019 and 2020 the cost of corn grazing at MBFI was \$1.63/cow/day and \$1.68 respectively including the corn, supplemented feed, labor & tractor use.

## 2002-2004 FEED TEST RESULTS AND LIVESTOCK REQUIREMENTS ON PASTURE SUMMARY

		TDN (%)	CP (%)	Dry Matter (lbs) Requirements
	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%	29.7
	Requirement of 1300 lb cow 7 <sup>th</sup> month of lactation on pasture mid third pregnancy -15°C maintenance	*65.00%	8.20%	29.6
	Requirement of 1300 lb dry cow on pasture last third pregnancy -15°C maintenance	*60.70%	7.70%	30.2
	Requirement of 600 lb calf on pasture to gain 1.5/day -15°C	*66.70%	11.80%	15.7

\*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.

For further forage production and management resources refer to:

[Province of Manitoba | agriculture - Forage Production and Management \(gov.mb.ca\)](http://www.gov.mb.ca/agriculture/forage/)

## Contact Us

This factsheet was developed by a Manitoba Agriculture Livestock Specialist

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