

Backgrounding Calves With Manitoba Forage

A Homegrown Resource

As cattle producers look at ways to increase profit and minimize risk, on-farm backgrounding — the process of adding value to weaned calves by raising them to higher weights for higher market value — is becoming an increasingly attractive option.

At the same time, new research is showing that high-quality, all-forage diets — and even medium-quality forage — perform extremely well in many backgrounding situations. Manitoba's soils and climate produce some of the highest quality forage in North America, so it's a natural that this forage should be used in backgrounding — especially for the producer with a 40 to 60 head operation who does not have the resources for mixing rations.

An all-forage diet of high or medium quality can eliminate the need for traditional, more-costly grain supplements, as well as the need for feeding infrastructure. It's a homegrown, cost-efficient resource that anyone can tap into.

If forage is lower in quality, feed supplements of cereals and grain/oilseed byproducts are necessary, and this will add costs in terms of purchase price and additional infrastructure.

You Can Help Reduce Greenhouse Gas

Feeding animals more high-quality forage can help reduce their production of methane gas, one of the components of greenhouse gas. In addition, healthy pastures and crops can help sequester (absorb) carbon, another component of greenhouse gas. 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

An Important Management Tool

Backgrounding is an important management tool because it promotes muscle and bone (carcass) growth without excess fat deposits that downgrade quality at selling time. It also allows you to hold on to cattle when selling prices are at their seasonal low, in favour of higher prices when the market rebounds. Backgrounding also provides an option for adding weight to calves born late in the calving season or in a late-spring calving system. During times of market disruption, backgrounding may be one of the few options open to producers who cannot sell.

Animals Suitable for Forage Backgrounding

Ideal: Small-Framed and Light Calves

Lightweight and small-to-medium-framed animals (British and British cross) are excellent candidates for backgrounding because they benefit from the slow gains produced by forage to fully develop bone and muscle prior to laying down fat. If they are fed high-energy rations too soon, carcasses remain too light even though there is enough fat, and they will be discounted at slaughter.

Small frames are suitable for forage backgrounding over the winter, followed by summer pasturing, and then final high-energy finishing. Medium frames are suitable for forage backgrounding over the winter, and then a high-energy diet for finishing. Some breeds that finish at very light weights can be forage backgrounded and then grass finished.

Animals can be maintained for low gains (1.0 to 1.5 lb/day) over the winter, and then fed more for compensatory gains in the spring. Forage is a low-cost feed to do this.

Not Suitable: Large-Framed and Heavy Calves

Exotic and exotic-cross calves tend to be larger and heavier, and have the genetic potential for faster growth rates. If they are grown too slowly they tend to develop too much bone and muscle, and finish off at carcass weights that are higher than standard. Therefore, these types of animals are more suited to high-energy diets instead of forage backgrounding.

Greenhouse Gas Mitigation Program for Canadian Agriculture

Reducing greenhouse gas through healthy pastures, efficient feed practices and better manure management

Considerations for Forage Backgrounding

Marketing

Backgrounding allows you to adjust rations to achieve maximum animal performance for targeted selling date. For example, because calf prices (500 to 600 lbs) tend to peak in the late summer and early fall, as well as in the spring when there is a demand for grazing animals, you can target gains so you're selling at periods of greatest market strength. The same goes for feeder cattle (800 lbs), when prices tend to peak in August and September, late November, and then again in April and May.

Some producers are switching to late spring or early-summer calving, and this means that animals can be backgrounded over the winter, summer pastured and then grass finished.

Feeding Facilities

Forage feeding requires little infrastructure – only shelter, water and self-feeders — and very little labour for hauling, mixing, etc. However, if mixed rations are required, more extensive facilities, equipment and labour are necessary. Therefore, it is often more profitable to purchase high-quality forage than to mix several feeds.

Balancing Rations

Feed testing and balancing rations are essential to obtain targeted animal performance and maximum profitability. Computer ration formulations — which are available through most Manitoba Agriculture, Food and Rural Initiatives GO Centre, your feed company, and independent consultants — will ensure this kind of performance.

To ensure high quality forage over the winter, many producers use baled silage over dry hay because hay can deteriorate during harvest and storage into poor-quality feed.

Weaning Calves onto an All-Forage Diet

Early weaning onto a good-quality pasture will reduce calf stress, since animals are kept in a familiar environment instead of being put into a feedlot. However it's recommended to use a 21-day weaning period, introducing good quality grass and legume hay, and avoid pure alfalfa prior to releasing them on the pasture. If you are using a concentrate in the ration, feed calves twice daily and ensure they eat it all. Straw should be made available free choice.

Nutritional Requirements of Growing Cattle

Animal Weight	Average Daily Gain	%Crude Protein (CP)	%Total Digestible Nutrients (TDN)
400-600 lb	low	11-12	60-65
400-600 lb	high	12-14	68-75
600-800 lb	low	10-11	60-65
600-800 lb	high	12-13	68-75
Over 800 lb		9-12	68-75

All-Silage Diets Using Baled Silage Chopped Prior to Feeding

Trial	Forage Quality (Relative Feed Value*)	Dry Matter (%)	Gain (lbs/day)	Feed per Unit of Gain
#1	RFV 100 (low)	58.3	2.0	8.5
	RFV 125 (medium)	65.9	2.8	6.8
	RFV 130+ (high)	70.4	3.6	5.4
#2	RFV 100 (low)	63.1	1.7	8.3
	RFV 125 (medium)	56.0	2.2	7.9
	RFV 130 (medium-high)	68.0	2.3	7.7
	RFV 150+ (high)	72.3	2.2	8.5

*RFV (relative feed value) indicates forage digestibility and intake, and is used extensively in the dairy industry to compare forage quality. University of Manitoba research.

All-Silage Diets Using Round Bale Silage in Round Bale Feeders

Forage Quality (Relative Feed Value)	Steer Initial Weight (lbs)	Final Weight (lbs)	Gain (lbs/day)	Feed per Unit of Gain
RFV 101	669	757	0.88	18.2
RFV 125	667	870	2.13	11.6
RFV 127	666	941	2.74	10.5
RFV 142	668	885	2.17	11.1

Results of baled silage feeding trial, Beasuejour, MB (2000). Forage only rations (alfalfa and alfalfa/grass) except for supplementation with mineral/salt plus Vitamin A-D and E. Ref: Dr. Kim Ominski, Animal Science, University of Manitoba.

Feed Value of All Forage Diets

Traditionally, farmers have used forage/grain rations to achieve high gains, but recent silage trials conducted at the University of Manitoba in Winnipeg have illustrated that grain is not necessary for this kind of performance. Gains from 1.25 to two pounds per day and higher were achieved on all-forage diets, depending on the forage quality. Additional trials conducted in the Beausejour area of Manitoba to assess feeder cattle performance on round-bale silage produced similar results. These trials also illustrated that round-bale silage can provide producers with the opportunity to harvest high-quality forage.

Using Cereals and Byproducts to Supplement Forage

Cereals and oilseeds can be used to supplement low-quality forage in backgrounding. There are many combinations you can use, depending on what you have available, the cost, the type and weight of animals, and the projected weight/date for market. Some common supplemental feed includes oats and barley, as well as byproducts such as dried distillers grain corn, dried distillers grain wheat, canola meal, soybean meal, grain screening pellets and protein blocks. Feed testing is essential for all feed types.

Sample Rations Using Cereals to Supplement Lower Quality Forage

Animal Type	Feed type*	Lbs Dry Matter/Day	Daily Gain
400-lb calf (fed at -15°C, no wind)	Alfalfa/grass hay	10.5 lb	1.5 lb
	Barley or oat grain	4.0 – 4.3 lb	
	Alfalfa/grass hay	9.0 lb	
	Screening pellets	4.0 lb	1.5 lb
	Cereal green feed	9.0 lb	1.5 lb
	Barley or oat grain	4.3 lb	
500-lb calf (fed at -15°C, no wind)	Alfalfa/grass hay	12.8 lb	1.5 lb
	Barley or oat grain	2.5 – 2.8 lb	
	Alfalfa/grass hay	12.8 lb	
Screening pellets	2.8 lb		
	Cereal green feed	12.0 lb	1.5 lb
	Barley or oat grain	3.8 lb	

*Rations are not balanced for vitamins and minerals.
Saskatchewan Agriculture and Food factsheet.

How to Determine Good Value for Cereals and Byproducts

Adding grain and grain or oilseed byproducts to increase the quality of a low-quality forage diet can be costly. The formula (right) can help you compare the value of different feedstuffs that might be available to you, either using crude protein or total digestible nutrients as a measure:

1. Determine the per cent total digestible nutrients (TDN) or crude protein (CP) per kilogram through feed analysis.
2. Multiply this number by 10 to get the amount in kilograms of TDN or CP per tonne.
3. Divide the cost per tonne of the feedstuff by the amount of TDN or CP per tonne to get the cost per kilogram of TDN or CP.

The tables on the back page will illustrate this formula.

Determining Cost of Total Digestible Nutrients (TDN)

Feed Type	% TDN	Kg TDN per Tonne (%TDN x 10)	\$ per Tonne	Cost (\$) per Kg TDN (\$/tonne ÷ kg TDN/tonne)
Barley	73%	730 kg	\$90	\$0.12
Grain screening pellets	65%	650 kg	\$80	\$0.12
Hay	56%	560 kg	\$90	\$0.16
Corn	79%	790 kg	\$128	\$0.16
Oats	67%	670 kg	\$116	\$0.17
Grain screening pellets (vitamins/minerals)	70%	700 kg	\$119	\$0.17
Protein block	67%	670 kg	\$1,213	\$1.81

Determining Cost of Crude Protein

Feed Type	% CP	Kg CP per Tonne (%CP x 10)	\$ per Tonne	Cost (\$) per Kg CP (\$/tonne ÷ kg CP/tonne)
Dried distillers corn	25%	250 kg	\$135	\$0.54
Hay	16%	160 kg	\$90	\$0.56
Dried distillers wheat	35%	350 kg	\$203	\$0.58
Canola meal	35%	350 kg	\$205	\$0.59
Soybean meal	46%	460 kg	\$338	\$0.72
Grain screening pellets	32%	320 kg	\$351	\$1.10
Protein block	41%	410 kg	\$1,213	\$2.96

You Can Help Reduce Greenhouse Gas

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

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.

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